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Sources of and responses to acute stress in sport as a function of selected personal dispositions, situational appraisals, and cultural differences

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**SOURCES OF AND RESPONSES TO ACUTE STRESS IN
SPORT AS A FUNCTION OF SELECTED PERSONAL
DISPOSITIONS, SITUATIONAL APPRAISALS,
AND CULTURAL DIFFERENCES**

A thesis submitted in partial fulfilment of the requirements
for the award of the degree

DOCTOR OF PHILOSOPHY

from



THE UNIVERSITY OF WOLLONGONG

by

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DEPARTMENT OF PSYCHOLOGY

1994

To my beloved mother, father, and brother

Όσο υπαρχω ελπίζω

Nothing can stop the person with the right mental attitude from achieving his or her goal;
nothing on earth can help the person with the wrong attitude.

(Thomas Jefferson)

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I certify that this manuscript is entirely my work.

It has not previously been submitted for a degree at another university or institution.

Abstract

The purposes of this study were to examine sources of stress in sport and investigate the ways in which psychological dispositions and situational appraisals influence the cognitive and behavioural responses of basketball referees and players to acute stress. The study consisted of three parts. In study I, 64 Australian and 75 Greek basketball referees completed a survey to ascertain the sources of acute stress experienced during a game. Results showed cross-cultural and age differences in the referees' perceived intensity of stress. Higher degrees of stress were experienced by adolescent compared to adult Australian referees, and by Australian compared to Greek referees. Among the most stressful incidents during officiating for all groups were "Making a Mistake, Threats of Physical Abuse, Experiencing an Injury, Presence of My Supervisor," and "Verbal Abuse by Coaches."

Study II examined the approach and avoidance coping responses of basketball referees during three acute stress situations (i.e., Making a Mistake, Aggressive Reactions by Coaches or Players, and Presence of Important Others) as identified in study I. The consistency of the subjects' coping responses across the three stressful situations as a function of their appraisals and selected psychological dispositions was also examined. Psychological inventories administered to 133 Australian and 163 Greek officials measured self-esteem, optimism, and general coping style. In addition, a situation-specific Coping Style Inventory (CSI) for acute stressors was developed for this study. Findings indicated that referees exhibited consistent coping styles across the selected situations. Significant cross-cultural differences were found in the referees' personal dispositions and coping responses, but not in their situational appraisals. Specifically, Greek referees scored higher than their Australian counterparts in monitoring and lower in blunting. Also, Australian basketball officials employed significantly more approach strategies than Greeks in all three stressful situations. Older referees reported higher self-esteem than their younger counterparts. Gender differences were evident in the referees' perceptions of stress and in the use of avoidance coping. Female referees were

significantly more stressed than males in the stressful situation "Aggressive Reactions by Coaches or Players." Male referees, as compared to females, used more avoidance coping when "Making a Mistake" and when "Experiencing Aggressive Reactions by Coaches or Players." The prediction of referees' coping behaviour based on their personal dispositions was moderate for approach and low for avoidance coping style, and increased significantly when situational appraisals were added to the regression equation. Specifically, personal dispositions explained 14% of the variance in approach coping responses of Australian referees and 23% for Greek, while situational appraisals added 8% and 12% for Australians and Greeks, respectively. Personal factors accounted for 11% of the variance in the avoidance coping responses of Australian referees and 5% for Greeks, while situational appraisals added 11% unique variance in the prediction of avoidance coping for Australian basketball referees, and 4% for Greeks.

In study III, a similar psychological profile, which included comparisons between male and female, elite and non-elite subjects, was derived for 190 Australian basketball players. Results showed that basketball athletes varied their coping responses across situations. Significant gender differences were evident in subjects' personal dispositions, situational appraisals, and coping responses. Specifically, male basketball players reported higher self-esteem levels than females. At the non-elite level, male basketball players were more stressed than their female counterparts. Male players utilised significantly more approach coping strategies than female when "Missing a Lay-Up or an Easy Shot." The prediction of athletes' coping behaviour based on their personal dispositions was moderate for approach and low for avoidance coping style, but increased significantly when situational appraisals were added to the regression equation. Specifically, personal dispositions explained 7% of the variance in approach coping, while situational appraisals contributed 16%. On the other hand, personal dispositions accounted for 5% of the variance in players' avoidance coping responses, whereas situational appraisals accounted for 7%. Finally, perceived stress was positively correlated with approach and negatively with avoidance coping strategies. These findings suggest that cultural and individual differences exist in personal dispositions, situational

appraisals, and coping styles of basketball players and referees. They also indicate that avoidance may be a more adaptive coping style than approach in reducing stress of sport participants. The study has implications for teaching sport participants cognitive and behavioural strategies to cope with acute stress more effectively. Future stress management programs should consider personal and situational characteristics in fostering the coping process in sport.

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Introduction

Stress is an inevitable part of life. Individuals are consistently faced with daily hassles and, sometimes, with dramatic stressful events that require major adaptations in their life. Sport participants (i.e., athletes, coaches, officials) constitute a large sample of individuals or groups who, in addition to daily life stressors, are under relatively high levels of stress and pressure. A widely acknowledged and prominent characteristic of competition in sports is the pressure to succeed and excel. Chronic stressors for individuals that engage in sports include travel, time commitment, and family or job role conflicts. A variety of other sources of stress of a more *acute* nature affect sport participants during competition. One group of participants, sports officials, are exposed to various types of acute stressors. Examples include physical fatigue, injury, and making an error (Weinberg & Richardson, 1990). Thus, because of the physical, emotional, and mental involvement required in sports officiating, referees experience high levels of acute stress and pressure. Yet, referees are among the most frequently overlooked figures in sports (Ceridono & Formica, 1987).

The failure to withstand the negative effects of stress has been shown to have a deleterious impact on an individual's well-being. Research findings have repeatedly demonstrated that the inability to deal effectively with acute stress is detrimental to the performance and satisfaction of sport participants, while long term effects of stress may include burnout and drop-out from the activity.

The primary factor that allows individuals to adapt to stress is their coping ability. Not surprisingly, then, the concept of stress and coping has been extensively examined by researchers. Past research has suggested that coping with stress is a rather complicated process. Most researchers in this area support the hypothesis that coping with a stressful encounter is partly dependent on three factors: (a) personal characteristics, (b) the situation itself, and (c) environmental factors (e.g., Billings & Moos, 1981; Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984; Parkes, 1986; Scheier, Weintraub, & Carver, 1986). One area of the coping literature that has received attention by researchers is whether individuals are consistent in their coping responses across various situations or whether coping is "situation-specific." Although evidence of relationships between personal, situational, environmental factors, and coping responses is ample, the extent to which each factor affects the coping process remains unclear. For example, research has demonstrated that dealing with different types of stressors requires different coping strategies (e.g., Matheny, Aycock, Pugh, Curlette, & Cannella, 1986; Roth & Cohen, 1986), indicating that in the study of the coping process it is necessary to first examine sources of stress for the specific population. Researchers have also suggested that, apart from the situational demands, the process of coping should be examined as a function of personal dispositions and coping preferences (Anshel, 1990b).

Consistency in using certain coping techniques is referred to as a person's coping style. Examining individual coping style will offer insight into why people tend to respond to stress in a certain manner and assist in the prediction of individual responses given particular stressful events. The identification of coping styles will also assist researchers design stress management programs that compliment or match the subjects' coping preferences. Individuals experience less discomfort when they rely on preferred and well-learned responses than when they are instructed to use unfamiliar strategies that conflict their coping style (e.g., Cook, 1985; Fry & Wong, 1991; Miller & Mangan, 1983). Furthermore, examining the successful use of coping styles or strategies might be beneficial by providing useful information for those who have difficulties in dealing with stress (Schultheis, Peterson, & Selby, 1987). Coping style is an underdeveloped area in

need of further study. This is particularly true in the sport psychology literature. The majority of research examining coping has been conducted in the areas of medicine and clinical psychology, with samples drawn from populations such as alcoholics, the elderly, rape victims, diabetics, and high-risk cancer or coronary heart disease patients. The implications of identifying a person's coping style is the generation of effective individualised stress management programs.

Designing an effective acute stress management program should consist of identifying the source of the problem, search for cognitive structures, and teaching coping skills (Meichenbaum, 1985). If researchers assessed the factors that facilitate coping processes, then interventions could enhance those resources that are beneficial in producing adaptive responses, and in reducing or minimising those conditions that contribute to stress, especially of an acute nature.

Significance of the Study

Researchers have long ago acknowledged the importance of coping as a mediator of physiological and psychological adaptation to stress. This is particularly evident in the amount of coping research that has been conducted in recent years. A computerised search of Psychological Abstracts showed that 6,171 articles with at least a reference to the term "coping" have been published between 1982 and 1991. Of the studies that include the term coping only 52 (8.2 %) have been conducted in the area of sports. Of the latter studies, those that have actually investigated some aspect of coping can be counted in single numbers. Thus, although coping has attracted the attention of researchers in other disciplines, it appears to be an underdeveloped area in sports.

In general, the majority of research in the area of stress has been conducted in two distinct areas, anticipation of future stressful events and recovery from stress. Because coping is the link between stress and psychological and physiological well-being and adaptation, it provides a target for potential interventions (Holahan & Moos, 1987). Previous studies on coping can be categorised to studies that have examined the process

of coping, and those that have examined the effectiveness of coping responses. In regard to the latter studies, strong evidence supports the existence of relationships between coping strategies, categorised as approach and avoidance, and psychophysiological symptoms. However, researchers in the first group of studies asserted that before examining the effectiveness of coping responses and designing interventions that will teach efficient coping techniques, a better understanding of coping in the context that it occurs is needed.

The results of investigations have emphasised the importance of both the characteristics of stressful situations and the individual's personal dispositions. According to the interactional theory of stress (Lazarus & Folkman, 1984), coping is a function of situational and personal variables. Yet to date, the role and the degree of influence of contextual and personal variables on the coping process are still unclear. If particular events during competition contribute markedly to increased levels of stress, then making performers consciously aware of the common sources of stress is the first step towards improving their coping ability. Moreover, situational variations such as the controllability and intensity of a situation have been shown to affect the selection of an individual's coping responses. A better understanding of the nature and the sources of stress could provide the basis for the design of specific programs to counteract the negative effects of acute stress. This may be especially relevant for younger or less experienced sports competitors who have more difficulty coping than older or higher-skilled counterparts.

As coping responses are a function of contextual and personal characteristics, it is important to differentiate between findings from research conducted in diverse disciplines (e.g., medical patients versus sport participants). To illustrate, consider studying the efficiency of avoidance strategies with cancer patients and applying the findings to sports officials. Although the findings of research conducted with cancer patients may praise the advantages of avoidance in terms of reducing anxiety and depression, the sports referee who ignores threats of physical abuse imposed by furious fans may be in danger if spectators carry out their threats.

This need for situation- and profession-specific approaches in the study of stress has been emphasised by previous researchers (e.g., Krohne, 1988; Larsson, Kempe, & Starrin, 1988; Roth & Cohen, 1986). For example, Roth and Cohen, discussing the examination of the process of coping and the appropriateness of coping strategies in the context of each threatening situation, suggest that:

It is important to study one stress or trauma at a time and follow the coping process over time. With each stressor or trauma one could evaluate relevant instrumental coping behaviours, if any, as well as limitations on the possibility of assimilation, accommodation, and resolution of the threat. One could also assess the likely ease of putting an event to rest through avoidance by, for example, determining likely meanings associated with the event. The purpose of this research strategy is for the investigation of effective coping strategies to proceed in the context of knowledge of critical characteristics of stressful events. (p. 818)

Krohne (1988) alleges that the specificity of stress-relevant factors in different sports and roles constitutes the major problem in the examination of coping in the sporting environment. According to Krohne, "it seems highly unlikely that one and the same training program will serve the needs of athletes in different fields. Instead, research and application have to proceed along the line of a sport-specific approach" (p. 22). For this reason, Krohne urges researchers to develop sport-specific interventional programs that teach athletes efficient coping strategies and reduce anxiety-inducing thoughts that interfere with their performance. However, as indicated earlier, despite evidence regarding the importance of coping in dealing with stress and the need for profession-specific approaches to stress management, the area of sports is characterised by an absence of research that examines the coping efforts of sport participants.

At a micro-analytical level (e.g., for sports officials in basketball), the issue of specificity raises questions regarding the consistency of coping across different situations. It has been postulated that if individuals exhibit consistent patterns of responses when dealing with similar stressors then prediction of stress reactions will be superior and interventions to reduce stress will be easier to apply. However, once again studies that

have examined the degree of consistency in coping responses across various events or time have revealed equivocal findings (e.g., Carver et al., 1989; Larsson et al., 1988; Menaghan, 1982; Sidle, Moos, Adams, & Cady, 1969; Stone & Neale, 1984).

Themes relevant to the question of situational consistency are the issues of cross-sectional and cross-national consistency of the coping process. Not only have researchers emphasised the need for research specific to the profession under examination, they have also argued that coping may differ for various sub-populations (e.g., athletes, coaches, and officials) and for subjects within these sub-populations (e.g., track and field athletes versus baseball players). In order to understand the process of coping better, it would be beneficial to examine whether the effects of personal and situational variables on coping are independent of the sample under examination. A method that can be used to examine this is to compare the effects of personal and situational variables on coping responses of various samples drawn from different sections (e.g., basketball players and officials) of the same domain (e.g., sporting area), or to compare samples from the same domain and section but from different countries. Controlling the stable component of coping by using the same measuring instruments in cross-sectional and cross-cultural designs should provide further understanding of the process of coping (Holahan & Moos, 1987). In addition, researchers have often argued for the innumerable theoretical and practical benefits of comparative studies across cultures. According to Duda and Allison (1990), cross-cultural research provides a basis for comparisons with the mainstream culture, helps understand the structure and values of a society, and is especially useful for multicultural societies. Such studies, sustain Duda and Allison, are consistent with the nature and goals of scientific inquiry, and often reveal theoretical knowledge that goes beyond the limited and sometimes biased views of research that examines a single group of individuals or behaviours.

Finally, it appears that although researchers have developed stress management programs to assist sport participants in coping with chronic stress, proper responses to acute stressors have rarely been studied (for a review, see Anshel, 1990b). Anshel's model for coping with acute stress is an exception. Persistent experiences of acute stress

may lead to chronic stress and subsequently reduce the satisfaction and enjoyment that the activity could offer.

Based on an examination of related studies in the stress and coping literature, the present study was warranted due to: (a) the relative absence of scientific research in the area of coping with sport participants, particularly with sports officials during acute stress situations; (b) the equivocal nature of findings regarding the influence of personal and situational characteristics on coping responses, particularly in respect to the influence of coping style on actual coping responses in different situations; and (c) the need for cross-cultural research in stress and coping.

Statement of the Problem and Research Hypotheses

The concept underlying the present study pertains to stress for basketball athletes and referees, and to factors that affect coping with stressful events during competition. The study draws heavily from the conceptual coping model of Lazarus and Folkman (1984), the work of Roth and Cohen (1986) on approach and avoidance coping styles, and Miller's (1987) monitoring and blunting dimensions (constructs similar to approach and avoidance coping styles). Roth and Cohen (1986) postulate that "the study of disorder and its treatment will proceed more productively if it occurs in the context of the extensive evaluation of the process of coping with individual stressors" (p. 819). Fleming, Baum, and Singer (1984) add that examining coping during specific situations yields different information compared to that provided by a more global study of the focus and style of coping.

The aim of the present study was to examine the process of coping with two types of sport participants, basketball referees and athletes, during specific acute game-related stressful situations. Both intra-individual and inter-individual approaches were used in the study. An intra-individual approach was used to study the consistency of subjects' coping responses in different situations. An inter-individual approach was used to examine differences in coping responses between different groups of subjects (e.g.,

Australian versus Greek sports officials, adults versus adolescents). It was anticipated that findings from the study of basketball referees' and athletes' sources of and responses to acute stress would form the groundwork for the conceptualisation of an acute stress management program. More specifically, this study consisted of three parts that served several subsidiary purposes.

Study I

Sources of and Responses to Acute Stress for Adolescent and Adult Basketball Referees: Cross-Cultural Comparisons

The purposes of this study were:

1. To examine the intensity of several stressful situations that affect basketball referees during the game.
2. To study the most commonly used responses to acute stress among basketball referees in order to gain insight into their personal thoughts, feelings, and reactions to acute stressors.
3. To compare the degrees of perceived stress between adolescent and adult Australian basketball referees.
4. To compare the degrees of perceived stress between Australian and Greek basketball referees.

Research Hypotheses

1. It was predicted that the sources and the intensity of game-related acute stress would differ between adolescent Australian basketball referees and their adult counterparts, with older and more experienced referees coping better than younger referees. It was expected that some acute stressors would differ in perceived intensity between members of the two age groups.

Research findings have revealed that younger employees experience more work-related stress than older employees (e.g., Osipow, Doty, & Spokane, 1985). Some studies found significant differences in the types of stressors reported by different age groups (e.g., Folkman, Lazarus, Pimley, & Novacek, 1987; Kennedy, 1985). One factor that partially explains superior coping skills with older age is higher experience. Frydenberg and Lewis (1991) suggest that the situations encountered by individuals during their adolescent years are more likely to be characterised by novelty. Thus, individuals lacking previous experience in dealing with certain stressful situations may perceive these situations to be highly stressful. Other researchers consider that the ability of older people to deal with stress more effectively than younger individuals is due to their richer repertoire of coping responses, and to the greater availability of social resources for older individuals (Billings & Moos, 1981). Lazarus and Folkman (1984) add to the list of resources that facilitate coping for adults problem-solving skills, social skills, and material resources. However, in the area of sports, questions regarding these issues remain tenable due to the relative absence of research comparing sources of stress for sport participants of different age groups, and particularly adults versus adolescent sports officials. In one study, Philips (1985) found that experienced and inexperienced basketball referees perceived the behaviour of coaches, players, and spectators differently. Specifically, inexperienced referees perceived the behaviour of all three groups as more negative than did experienced referees. Thus, to enhance awareness and provide targets for potential interventions suited to the needs of each age group, the examination of sources of stress for referees should consider potential age differences.

2. It was also predicted that the sources and intensity of game-related acute stress would differ between Australian and Greek basketball referees. There is some evidence that people from different cultural backgrounds perceive life events differently (Duda & Allison, 1990). Based on empirical observations, interviews with international basketball officials (e.g., S. Douvis, personal communication, 10 June, 1990), and anecdotal evidence (e.g. Bell, 1992, 1993) regarding the difficulties that the vocation entails in each

country, it was anticipated that Greek referees would report higher degrees of stress than Australians.

Study II

Examination of Situational Appraisals and Selected Dispositions as Predictors of Coping Responses to Acute Stress Among Adult Basketball Referees: Cross-Cultural Comparisons

The purposes of the second study were:

1. To evaluate the extent to which basketball officials exhibit consistent (preferred) coping responses across a range of acute stress situations. Three acute sport-specific stressful situations identified in study I were used. These included "Making a Mistake," "Experiencing Aggressive Reactions by Coaches or Players," and "Becoming Aware of the Presence of Important Others Such as Supervisors, Media, Parents, or Friends."
2. To examine the effects of personal dispositions (i.e., optimism, self-esteem, monitoring, blunting) and situational appraisals (i.e., perceived stress, perceived control) on approach and avoidance coping responses of basketball referees.
3. To examine differences between Australian and Greek basketball referees in personal dispositions, situational appraisals, and coping responses.

Research Hypotheses

In the second study, selective variables were examined as predictors of approach and avoidance coping among basketball referees, as measured by a self-report measure of coping style. Several hypotheses were examined in which relationships between personal dispositions, situational appraisals, and individual coping responses were predicted. Based on previous research in the coping literature, it was hypothesised that situational appraisals (i.e., degree of stress and controllability) and personal dispositions (i.e., self-esteem, optimism, and monitoring-blunting) would affect the subjects' use of approach

and avoidance coping responses. Differences in personal, situational, and coping variables between Australian and Greek referees were also examined. Specifically, it was predicted that:

1. Subjects' coping responses across stressful situations would be more variable than stable.

1a. Subjects would exhibit low stability in their coping responses across situations, that is, subjects' coping responses in one situation would differ to their responses in another situation.

1b. Subjects' approach and avoidance coping responses would depend more on situational appraisals than on personal dispositions. Specifically, it was predicted that perceived control and perceived intensity of stress would contribute more than personal dispositions to the prediction of coping responses.

These predictions were based on previous studies indicating the importance of situational characteristics in the coping process (e.g., Holms, Holroyd, Hursey, & Penzien, 1986; McCrae, 1984; Terry, 1991), and the low predictive value of personality traits on coping responses (e.g., Cohen & Lazarus, 1973; Fleishman, 1984; Folkman & Lazarus, 1980; Lazarus & Folkman, 1984; Parkes, 1986).

2. Australian and Greek sports officials would differ in personal dispositions, situational appraisals, and coping responses.

This hypothesis was based on previous literature findings on the influence of culture on stress and coping (for a review, see Duda & Allison, 1990). Although in one study (Strong, 1984), cultural values and practices influenced the ways in which individuals from different nations coped with problems, the scarcity of such studies did not enable the formulation of predictions about the nature of potential differences between Greek and Australian referees.

3. The referees' personal dispositions, situational appraisals, and coping responses would vary as a function of age.

Previous investigations have demonstrated that age is a factor that affects the coping process (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987; Kennedy, 1985; Larsson, Kempe, & Starrin, 1988; Laughlin, 1984; McCrae, 1982; Osipow et al., 1985; Taylor, Daniel, Leith, & Burke, 1990). Therefore, researchers have strongly suggested that the influence of age should be considered as a factor in the examination of stress and coping (Goldsmith & Williams, 1992).

Research with young baseball players revealed that self-esteem increased with age and experience (Kalliopuska, 1987). It was predicted in the present study that older subjects would report higher self-esteem and optimism than younger subjects. In past studies older subjects generally experience less stress than younger subjects (e.g., Osipow et al., 1985). Thus, it was predicted that older referees would perceive situations to be less stressful compared to younger referees. Based on differences found between older and younger individuals in other aspects of the stress and coping process, it was also hypothesised that older and younger referees would differ in their perceptions of controllability. However, the nature of these differences was not predicted due to the absence of related research examining the effects of age on perceived controllability. Likewise, because research examining variations in coping as a function of age has utilised measures other than approach and avoidance coping (e.g., passive coping, anger control), predictions regarding the direction of differences in coping responses of basketball referees as a function of age were not formulated (for a discussion on the effects of age on stress and coping see the specific section in the review of the related literature that follows).

4. The referees' personal dispositions, situational appraisals, and coping responses would vary as a function of gender.

Although the examination of gender differences was not a primary objective of this study, differences between male and female referees in personal, situational, and coping

variables were also expected as a result of gender differences of a more general nature (e.g., Abra & Valentine-French, 1991; Greenglass, 1991; Smallman, Sowa, & Young, 1991; Yamamoto & Davis, 1982). Specifically, it was predicted that male subjects would use more approach and less avoidance coping strategies than females (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980, 1982; Stone & Neale, 1984), and that male subjects would report higher levels of self-esteem compared to female subjects (e.g., DeMan & Blais, 1982; Lirgg, 1991). However, due to the little and equivocal research examining the effects of gender on situational appraisals, the nature of these differences was not predicted.

5. Personal dispositions would be related to subjects' coping responses.

5a. High levels of self-esteem and optimism would be positively and moderately related to approach, and negatively to avoidance coping strategies. In previous research, high self-esteem and high optimism have been associated with active coping efforts, whereas denial and behavioural disengagement have been found to be negatively related to self-esteem and optimism (Carver et al., 1989; Scheier et al., 1986). However, some researchers have demonstrated that the overall predictive value of global personality traits (e.g., self-esteem, optimism, hardiness, neuroticism) is moderate to low (Cohen & Lazarus, 1973; Folkman & Lazarus, 1980; Lazarus & Folkman, 1984; Parkes, 1986). Thus, only moderate correlations between personal dispositions and coping responses were expected.

5b. Monitoring would be moderately correlated with approach, and blunting with avoidance coping. Theoretically, Miller's (1987) monitoring and blunting dimensions are similar to the constructs of approach and avoidance coping. However, empirical findings have shown that monitoring is not associated with active coping (a relative to approach dimension) (Carver et al., 1989; Miller, Brody, & Summerton, 1988), and that blunting is unrelated to most personality scales and coping modes (Carver et al., 1989; Miller et al., 1988). Thus, only moderate correlations between the coping styles of monitoring and approach, and between blunting and avoidance were expected.

5c. Personal dispositions, specifically self-esteem and optimism, would be moderately related (Carver et al., 1989; Scheier et al., 1986).

6. Situational appraisals (i.e., perceived degree of stress and controllability) would be correlated with subjects' approach and avoidance coping responses during the three highly stressful game-related situations.

6a. Perceived stress would be positively related to approach coping and negatively related to avoidance coping. These predictions were again based on research findings that utilised the emotion- and problem-focused, and the monitoring and blunting dimensions as classifications of coping responses, constructs somewhat analogous to avoidance and approach. According to these findings, monitoring and approach coping have been related to high perceived stress, whereas blunting and avoidance coping have been related to low perceived stress (e.g., Madden et al., 1990; Miller, 1980, 1989; Miller & Mangan, 1983; Miller, Leinbaca, & Brody, 1989), although evidence for the opposite pattern is also available (e.g., Anderson, 1977; Billings & Moos, 1981; Endler & Parker, 1990; Pearlin & Schooler, 1978). Miller's research with hospital patients has provided strong support to the notion that monitoring is often more distressing than blunting.

6b. Perceived controllability would be positively correlated with approach coping and negatively correlated with avoidance coping. Previous research has linked controllability with variations in coping (e.g., Carver et al., 1989; Folkman & Lazarus, 1980). In these studies it was revealed that problem-focused coping was predominant in situations amenable to control, whereas emotion-focused coping was used more in situations appraised by the subjects as uncontrollable. Based on the parallelism between problem- and emotion-focused coping, and the dimensions of approach and avoidance coping, it was predicted that perceiving situations as controllable would result in the use of more approach than avoidance type coping responses.

6c. Perceived stress and perceived control would be negatively correlated. That is, low perceived control would be correlated to high perceived stress. This hypothesis was based in Adler (1924) theorisations and in Madden et al.'s (1990) findings with basketball

players, that lack of control over the situation results to elevated degrees of stress. However, evidence that high perceived controllability increases perceived stress is also available (e.g., Averill, 1973; Thompson, 1981).

7. Personal and situational variables would be related.

7a. High self-esteem would be correlated with low perceived stress (Brustad, 1988; Brustad & Weiss, 1987; Chan, 1977; Pearlin & Schooler, 1978). A similar relationship was anticipated between optimism and perceived stress.

7b. Perceived control would be moderately correlated with both optimism and self-esteem (e.g., Carver et al., 1989; Scheier et al., 1986).

Study III

Examination of Selected Dispositions and Situational Appraisals as Predictors of Coping Responses to Acute Stress Among Adult Basketball Players

To test the strength and the consistency of the coping patterns for basketball athletes, the hypotheses examined in this study were similar to those in the previous study. Thus, studies II and III differed only in terms of the sample under examination (basketball officials versus players, respectively) and with respect to the stressful situations that were used to trigger the subjects' coping responses. Specifically, the purposes of the third study were:

1. To evaluate the extent to which basketball athletes exhibit consistency in their coping responses across a range of qualitatively different acute stress situations. This time, the situations that were selected to assess the players' coping responses were adopted from those identified as highly stressful in a past study conducted by Madden, Summers, and Brown (1990). These included "Having the Ball Stolen, Receiving a 'Bad' Call From the Referee, Missing a Lay-Up or an Easy Shot," and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us."

2. To further examine the effects of personal dispositions (i.e., optimism, self-esteem, monitoring, blunting) and situational appraisals (i.e., perceived stress, perceived control) on approach and avoidance coping responses of basketball athletes.

3. To examine differences between male and female basketball players in personal dispositions, situational appraisals, and coping responses. Because the sports officiating-vocation is dominated by males, data from the second study did not allow any gender comparisons. Thus, study III focused on differences between genders in the above sets of variables.

Research Hypotheses

In the third study, selective variables were examined as predictors of approach and avoidance coping among basketball athletes, as measured by a self-report measure of coping style. As mentioned earlier, the hypotheses examined in this study were similar to those of study II. Therefore, the justification for each hypothesis explained in study II holds true for study III. However, study III assessed the responses of basketball players, as opposed to study II in which the responses of basketball referees were assessed. In addition, unlike study II that examined cultural differences, study III focused on gender differences in the athletes' coping responses.

It was hypothesised that situational appraisals and personal dispositions would affect the subjects' use of approach and avoidance coping strategies. Specifically, it was predicted that:

1. Subjects' coping responses across situations would be more variable than stable.
 - 1a. Subjects would exhibit low stability in their coping responses across situations.
 - 1b. Subjects' approach and avoidance coping responses would depend more on situational appraisals than on personal dispositions.

2. The athletes' personal dispositions, situational appraisals, and coping responses would vary as a function of gender.

2a. Male subjects would use more approach and less avoidance coping strategies than females.

2b. Male athletes would report higher self-esteem compared to female athletes.

2c. Perceived stress and perceived control would differ between male and female basketball players. However, due to the relative absence of research examining the effects of gender on situational appraisals, the nature of these differences was not predicted.

3. Personal dispositions would be related to subjects' coping responses.

3a. High levels of self-esteem and optimism would be positively related (at a moderate level) to approach, and negatively to avoidance coping strategies.

3b. Monitoring would be moderately correlated with approach coping style, while blunting would be moderately correlated with avoidance coping style.

3c. Self-esteem would be moderately related to optimism.

4. Subjects' appraisals of situations would be related to their approach and avoidance coping responses during the four highly stressful game-related situations.

4a. Perceived stress would be positively related to approach coping and negatively related to avoidance coping.

4b. Perceived controllability would be positively correlated with approach coping and negatively correlated with avoidance coping.

4c. Perceived stress would be negatively correlated with perceived control.

5. Personal and situational variables would be related.

5a. Personal dispositions would be correlated with perceived stress. Negative correlations were anticipated between perceived stress and both self-esteem and optimism.

5b. Perceived control would be moderately correlated with both optimism and self-esteem.

Operational Definitions of Terms

Acute stress - a sudden and short-term exposure to demanding situations that exceed the individual's resources. Examples of acute stressors for sport participants include making a mistake, receiving unpleasant comments from coaches or spectators, and dealing with an injury.

Approach - an individual's style or preference in coping with stress characterised by attending to the stressful event or to its cognitive and emotional inner interpretations. Approach coping style has been used interchangeably in literature with terms such as vigilance, attention, sensitisation, monitoring, which refer to very similar coping constructs.

Avoidance - an individual's style or preference in coping with stress characterised by ignoring the stressful event or its cognitive and emotional inner interpretations. Avoidance coping style has been used interchangeably in literature with terms such as repression, disengagement, and blunting, which refer to very similar coping constructs.

Basketball Officials' Sources of Stress Survey (BOSS) - refers to the self-report instrument developed for this study to assess the sources and intensity of acute stress experienced by basketball referees during games.

Blunting - a tendency to cognitively ignore threat-relevant information.

Coping - all efforts by the individual to adapt to external or internal demands. Coping refers to any response that serves to prevent, avoid, or control emotional or physical distress.

Coping style - the individual's preference for certain coping responses.

Coping Style Inventory (CSI) - refers to the self-report instrument developed for this study to record the individuals' approach and avoidance coping strategies across selected sport-related acute-stress situations.

Cognitive appraisal - the process of assessing the stressful situation in terms of its characteristics and consequences for the person's well-being.

Culture - the sum total of the ways of life of a group of people.

Miller Behavioral Style Scale (MBSS) - a self-report instrument developed to examine people's coping style in terms of their preferences for information or distraction when presented with four realistic stressful situations.

Monitoring - a tendency to attend to or request information pertaining to the source of threat.

Stress - a perceived imbalance between environmental demands and the individual's resources to cope with those demands. Stress may reflect threat to one's ego or physical well-being.

Stressors - external (environmental) stimuli and/or internal (cognitive) perceptions that cause the stress response.

Assumptions

It was assumed that:

1. All subjects were able to comprehend and respond accurately to the surveys used in this study.
2. There were no significant personality differences between the individuals who completed the surveys and those who did not.
3. Although surveys were mailed before the weekend in order to ensure that referees would receive them at the beginning of the week, the researcher had no control over the time of completion, or the mood of the referees when they completed the surveys.
4. Within the confines and limitations of obtaining self-report data, all surveys were answered accurately.

Limitations of the Study

1. Research regarding the practical implications of the investigation of stress and the coping process has focused in three areas: (a) examining the effects and interactions between personal and contextual factors with regard to their strength in predicting coping responses and effective adaptation, (b) developing methods and inventories for screening subjects according to their characteristics for a given intervention, and (c) exploring interventions to modify behaviour and cognition in order to improve coping and reduce stress. Although the majority of studies in the industrial psychology literature assume a direct relationship between coping and performance, the present study examined the actual coping process rather than to evaluate the effects of coping on performance. It was postulated that a better understanding of the coping process would, in turn, facilitate research regarding the influence of coping on performance outcomes.

2. Only self-report measures were used to investigate the process of coping. Researchers speaking of the limitations of self-report instruments have referred to the

desire of the subjects to present themselves in a positive light, the use of verbal reports as an ego defense, inadequate memory problems, language ambiguity, and retrospective falsification (Lazarus & Folkman, 1984). To Scheier et al. (1986), self-report surveys that provide the subjects with a list of possible responses may result in overstatements about the degree to which a given response is actually used. Pearlin and Schooler (1978) advised that in survey studies "we rely on the reported experience of emotional upset as our indicator of stress, looking exclusively at the unpleasant feelings of distress of which people are aware" (p. 4). Hence, the use of self-report measures may have accounted for possible inaccuracies in the findings. Nevertheless, several other researchers have supported the use of self-report methods as adequate measures of the coping process (e.g., Folkman & Lazarus, 1980; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984; Miller, 1992), and perhaps, as the only way to gain an insight on what is happening in someone's head.

3. Findings of the present study are applicable to Australian and Greek basketball referees and players, and may not reflect characteristics and coping behaviours of other populations. Indeed, environmental and cultural differences (e.g., the conditions of competition, the skill level of participants, the importance of basketball competitions in different countries, and the norms of acceptable behaviour) may influence the degree of stress experienced by individuals of other nationalities and the way they react under strain (see Duda & Allison, 1990).

Review of Literature

The review of related literature is organised into three sections. The first section will discuss the concept of stress and its influence on one's performance and well-being. Sub-topics include chronic and acute types of stress and the methods used for its measurement. The antecedents or sources of stress for individuals, especially among sport competitors, will also be discussed. Because previous research has shown that individuals' perception of stress as well as their coping responses vary as a function of age, findings regarding age differences between older and younger subjects will be reviewed. Similarly, cross-cultural studies of individual differences, stress, and coping will be examined to study cultural differences in the sources of and responses to stress. Variability in stress appraisals and individual coping responses due to age or cultural background, has implications for the development of stress management programs. Future interventions have to be designed for the specific needs of the population under examination, taking into account age group and cultural characteristics.

The second section of this review will describe the process of coping and its importance to adaptation and subsequent somatic and psychological health. The role of cognitive appraisal in the coping process will be outlined. Recent research has confirmed the words of Epictetus, an ancient Greek philosopher, that people are disturbed not by things, but by the views that they take of things. Coping responses and the methods that

have been introduced for their classification will also be addressed. Among these, the categorisation of coping responses into approach and avoidance coping styles has received support from the majority of the coping literature. Studies that have investigated the degree to which people exhibit preferred coping styles across time and across situations will also be reviewed here. Researchers have suggested three major categories of variables that may affect the coping process (i.e., personal, situational, and environmental factors). These will be reviewed, together with literature findings regarding their respective influences on coping.

A great degree of the reviewed literature will be devoted to the use and efficacy of coping strategies, for it constitutes one of the most important themes for the development of more effective stress management interventions. The discussion will elaborate on the relative advantages and disadvantages of approach and avoidance coping in relation to their short- or long-term outcomes. Methodological issues regarding the assessment of the efficacy of coping strategies, and finally, the need for a new measure of coping will be addressed at the end of this section. In the third section, the strengths and weaknesses of previous stress management interventions and the degree to which these programs can be applied to sport, considering personal and situational factors, will conclude the review of related literature.

Stress

Stress has been conceptualised in numerous ways in the literature. Some researchers refer to stress as an environmental stimulus, others as a response to an environmental stimulus, and others as an interaction between the stimulus and the response. Stimulus models focus on external (environmental) events that place excessive demands on the individual (e.g., Cannon, 1932; Holmes & Rahe, 1967). According to these models certain environmental events are inherently stressful and cause the same response (strain) to all individuals. Examples of stressful events include natural disasters, accidents, and unemployment.

Response models were mainly developed by the biological and medical community. Supporters of the response models maintain that stress is the non-specific reaction of the body to any demand placed on it (Selye, 1956). This approach assumes that serious demands placed on the organism trigger hormonal and neurological reactions that are designed to prepare the person to fight or flee imminent danger. Selye's well-known General Adaptation Syndrome entails the stages of alarm, resistance, and exhaustion. However, both the stimulus and response models fail to recognise individual differences and the role of cognition in the stress process.

Recently, a third model, the transactional theory of stress and coping has been proposed by Lazarus and his colleagues (e.g., Folkman & Lazarus, 1980, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984). Stress is defined as "a relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). According to this approach, stress is neither the stimuli nor the person's response, but rather a dynamic bi-directional process between the individual's perception and the environment. The transactional theory of stress, forming the theoretical foundation of this study, emphasises the individual's perception of an event or a situation as demanding or threatful.

Effects of Stress on Cognition and Performance

Not all stress has negative effects on the individual's well-being. In fact, a certain amount of stress is necessary for a person to maintain his or her well-being (Benson, 1975). Stress is considered to be adaptive because its physiological effects prepare the individual to deal with the demands of the situation. Stress may also serve as a motivator for the accomplishment of various tasks. However, excessive amounts of stress may have deleterious effects on the person's psychological and somatic well-being (Anshel, 1990b; Selye, 1956). An array of physiological and psychological symptoms arise when

individuals do not have (or believe that they do not have) the resources required to deal with a particular situation. Numerous studies have examined extensively the effects of excessive stress. Research on the long term physiological effects of stress has shown that prolonged stress may result in migraine attacks (Sorbi & Tellegen, 1988), immune system deficits (for reviews, see Dorian & Garfinkel, 1987; O'Leary, 1990), ulcers, coronary heart diseases, hypertension, and ultimately death (e.g., Biondi & Pancheri, 1987; Cinciripini, 1986; Engel, 1971; Kamarck & Jennings, 1991). Excessive stress may also influence the psychological well-being of the individual (e.g., Billings & Moos, 1982; Holahan & Moos, 1985; Nakano, 1991). Short term effects of excessive stress include muscle tension, headaches, anxiety, and reduced concentration (Lysens, Steverlynck, Van den Auweele, & Ostyn, 1986).

A plethora of sport-related studies have revealed that stress and anxiety are related either directly or indirectly to sport performance. The negative effect of excessive amounts of stress on the athletes' physiological and psychological well-being has been well-documented (for reviews, see Burton, 1988; Wilks, 1991). Stress has also been linked to negative emotions (e.g., sadness, anxiety, anger) which, in turn, have been linked to impaired performance (e.g., Kleine, Sampedro, & Melo, 1988; Landers, 1980; Mace & Carroll, 1986). For example, Kleine et al. (1988) found that track and field athletes high in state anxiety exhibited increased heart rates (in addition to the expected levels due to the physical work load) during the entire period of testing, and poor running performance. Not only are high anxiety levels related to poor performance but high performance is associated with low levels of anxiety. Research has demonstrated that elite athletes are characterised by few interfering anxiety reactions (worry cognitions) (e.g., Krohne & Hindel, 1988).

Stress also impedes performance by increasing the occurrence of injuries. Empirical findings from the stress-illness and stress-accident literature have illustrated that the excessive physiological and psychological stress induced by sports competition increases the likelihood and severity of injuries compared with non-competitive situations (e.g., Kerr & Minden, 1988; Nelson, DePalms, Gieck, McCue, & Kulund, 1981). For

instance, Nelson et al. reported that the number of injuries occurring during intercollegiate lacrosse competitions occur 10 times more often than in training. Outside the sport environment, Morgan (1979) found that the athletes' interpersonal relationships at home, work, and at social settings were negatively affected by the high stress conditions imposed on them during training and competitions. Other researchers have found no direct relationship between stress and physical performance (e.g., McCutcheon, Lummis, & Ellis, 1989). They suggested that other physical and psychological variables associated with exercise (e.g., technique, fatigue) may be more important than stress in affecting performance.

Another large portion of literature, particularly in industrial psychology, has examined the relationship between stress and exercise. Exercise may have a buffering effect on stress and performance. Indeed, from an ergonomic point of view, research has highlighted the impact of fitness on employee performance, turnover, absenteeism, and commitment (for a review, see Sutherland & Cooper, 1990). The benefits of exercise extend to reducing employees' perceived distress, and increasing worker satisfaction and overall psychological well-being. For example, Tucker (1990) surveyed 4,032 adults on their perceived distress (e.g., perception of workload, anxiety, work pressures, family problems, and depression) and their life-style habits. Findings revealed that high levels of physical fitness were associated with low perceived psychological distress. Morgan (1985) found that physical activity is associated with reductions in state and trait anxiety and depression, and with increases in self-esteem. However, as Morgan pointed out, the mechanisms through which exercise affects mood can only be hypothesised.

Tenable hypotheses regarding the positive ways in which exercise affects mood include the psychological advantages of exercise as a means of distraction from other life problems, as well as physiological responses such as the metabolism of monoamines and the release of endorphins. It has also been suggested that regular physical activity may fortify the body's physiological functions and enhance the individual's emotional functioning so that the stressors of life are viewed in a more positively light (Sutherland & Cooper, 1990). These findings suggest that researchers examining stress with fit and

healthy sport participants should be aware of the beneficial impact of the subjects' fitness levels on their stress appraisals.

In summary, it appears that excessive stress may impede physical performance, and contribute to psychological symptoms such as depression and reduced satisfaction with the activity. Implications in sport include the need for effective stress management programs for the regulation of excessive stress for sports participants, which will in turn increase their performance, satisfaction from the activity, and overall well-being, and decrease the likelihood of sustaining injuries. Thus, the purpose of the present study, rather than examining the impact of stress on performance, will investigate the *mechanisms* through which certain conditions or psychological resources affect the individuals' responses to stressful events. These include the effects of personal and situational factors on the coping process.

The Measurement of Stress

The methods that researchers employ in order to measure stress can be grouped under four broad categories: (1) physiological measures, (2) performance tests, (3) behavioural observations, and (4) self-report measures. *Physiological measures* include blood pressure, heart rate, galvanic skin response, and biochemical measures (e.g., secretion of hormones or catecholamines). Limitations of physiological methods include the need for equipped laboratories, the possible induction of additional anxiety to the subjects by using electrodes and intrusive physiological devices, and the need to employ artificial rather than real life stressors. *Performance tests* measure the ability of individuals to perform certain tasks after they have been exposed to stressful stimuli. Such tests assume that if subjects show impaired performance, the reduction in performance quality is due to stressful conditions. However, performance measures fail to account for the influence of other environmental (e.g., weather conditions, athletic field or court, crowd behaviour) or internal factors (e.g., fatigue and motivation of subjects). *Behavioural observations* refer to the assessment and evaluation of the subjects' reactions

and/or performance by a closely related third person (e.g., spouse, supervisor, coach) who is familiar with the subject's usual mannerisms or performance. However, often such measurements do not correlate with physiological or psychological instruments that are supposed to measure similar outcomes (e.g., Rotella, McGuire, & Gansneder, 1985). *Self-report measures* include interviews or psychological inventories designed to record how individuals perceive certain stressful events. Arguments against the use of self-report measures are based on certain methodological problems and limitations inherent in survey methods (also see Lazarus & Folkman, 1984, p. 321). For example, one cannot be sure that subjects honestly report their experiences about stressful events. Also, people may over- or understate their degree of stress for different reasons (e.g., personal dispositions, belief systems, or values).

Because of the disadvantages in the various methods of measuring stress, the use of a combination of different methods has often been recommended by researchers. However, efforts to measure the effects of stress by utilising combinations of these methods have not always been successful. Possible reasons for the lack of success in measuring the effects of stress by using several different methods and the inconsistency of these findings, include the confusion between physiological and psychological stress and the questionable relationship between coping and performance (Steptoe, 1989). The majority of researchers in the area of stress and coping processes have relied on the use of self-report instruments of psychological stress and coping processes as the main method of gaining insight into what is happening in people's minds. In fact, several studies have shown valid relationships between self-reported coping and adaptation outcomes (e.g., Folkman & Lazarus, 1980; Lazarus & DeLongis, 1983). In view of these findings, Lazarus and Folkman (1984) suggest that it is possible to get a partial picture of the coping process with the use of self-report measures. Miller (1992), endorsing this notion, contends that survey methods allow researchers to reliably identify individual differences in coping styles. Self-report represents the primary means by which chronic and acute stress have been measured in recent years.

Chronic and Acute Stress

The distinction between chronic and acute stress depends on the duration of the event and the demands imposed upon the individual. Chronic stress refers to persistent and long-term stress such as experienced in work conditions, or chronic illness. Acute stress, on the other hand refers to short-term, time-limited events such as arguing or making a physical or mental mistake while performing (Anshel, 1990b). Chronic and acute stressors are derived from different sources and affect different cognitive and somatic processes (Lazarus & Folkman, 1984; McCarty, Horwatt, & Konarska, 1988). For example, in regard to the physiological effects of stress, Mahl (1953; cited in Lazarus & Folkman, 1984) reported that gastric acid secretion occurs only with chronic, but not acute, stressors. A possible explanation for this may be that reactions to a threatening stimuli are heightened when subjects have time to process internal sensations (Pennebaker, 1982). Although chronic stressors are more likely to have long-term effects, those which induce acute stress are more likely to be of higher intensity (Fleming et al., 1984). Incidents of acute stress may or may not lead to chronic stress, depending on the effectiveness of the person's coping skills.

Anshel (1990a) discussed the short- and long-term psycho-physiological effects of acute stress in sports. According to Anshel's review of research, short-term effects of acute stressors in sport include reductions in one's mental preparedness to perform (i.e., as information processing capability), risk taking behaviour, ability to focus attention to relevant aspects of the situation, and the ability to make rapid decisions. Acute stress may also increase muscular tension while reducing motor coordination. Among the long-term effects of acute stress are lowered self-esteem and self-expectations, problems in self-regulation of behaviour, and possibly burnout and drop-out of competitive activities. More importantly, the literature suggested that each different type of stressor may necessitate different coping responses for effective coping (Anshel, 1990b; Matheny et al., 1986; Roth & Cohen, 1986; Smith, 1986); it is possible that different coping strategies may be effective for dealing with acute as compared to chronic stressors

(Cohen, 1987). For example, the time-pressure during acute stress situations does not allow sufficient time for problem-solving strategies such as elaborate thoughts on plans and options, or seeking advice and social support. Instead, decisions must be made on the spot, without the opportunity to study all available options or to practise the response.

The distinction between chronic and acute types of stress is important, especially in rapidly executed, competitive sports such as basketball. Because of the game's speed there is usually little opportunity for extensive cognitive activity during competitions. Often there is time only for quick reactions. Nonetheless, during the game participants are likely to engage in irrelevant cognitive thoughts, such as worries about potential failure, distractions due to external stimuli or fatigue, or self-evaluations. It appears that the psychological skills and coping responses of players and referees can make a difference on the outcome of the game. Basketball competitions provide excellent research settings and opportunities for those researchers who are interested in exploring the effects of stress, because participants (players and referees) are often confronted with critical situations such as a close score, deciding on ambiguous calls, or hitting free-throws in front of a loud crowd.

Sources of stress for basketball participants can also be classified as "on court" and "off court." Chronic sources of stress, in general, can be traced to difficulties associated with "off court" activities (e.g., travel, family problems), as shown in Purdy and Snyder's (1985) study. Chronic stressors are not always related to the individual's on-court ability and are common to many professions. Acute sources of stress, on the other hand, are often problems that arise during a game and usually do affect the sport participant's performance (Kaissidis & Anshel, in press). Because these acute stressors are related to performance, they constitute one of the obstacles in reaching professional standard in sports. Considering the different physiological and psychological effects of acute and chronic stress, it is apparent that researchers should distinguish between chronic and acute sources of stress when examining their respective effects on cognitive processes and motor performance.

Sources of Stress in Sports

The term "stressor" refers to unpleasant or noxious stimuli that cause the stress response. The demands that a particular event may impose on a person and the (perceived) intensity of the stressor depend on individual and environmental characteristics. Nevertheless, people with similar characteristics or common interests (e.g., police officers, medical patients, the poor) often encounter comparable stressors. To date, researchers have examined the sources of stress for certain groups of individuals such as teachers (e.g., Kyriakou & Sutcliffe, 1978; Tokar & Feitler, 1986), police officers (e.g., Larsson et al., 1988; Lester, 1982), social workers (Taylor-Brown, Johnson, Hunter, & Rockowitz, 1982), and athletes (e.g., Cohn, 1990; Gould & Weinberg, 1985; Scanlan & Passer, 1978, 1979; Weiss, Wiese, & Klint, 1989). The methods by which these studies have assessed stress include structured interviews and self-report based on surveys developed either theoretically or empirically.

The importance of identifying sources of stress in a work environment has been outlined by Taylor-Brown et al. (1982). Their suggestions have direct implications for the sport environment. These include: (a) allowing individuals to assess their level and intensity of stress in attempting to counteract it, (b) offering future sport participants a better understanding of the type and intensity of stressors that they are likely to experience, (c) developing a training program aimed at increasing the person's sensitivity to stressors likely to be encountered, (d) furnishing the supervisor with an objective rating of the subordinate's stress and assessing personal needs for future stress management programs, and (e) allowing for systematic research of the problem. Thus, the assessment of sources of stress of a selected population is an important feature for the development of intervention programs, because it provides valuable insight into, and a better understanding of the nature of actual and potential conditions that may cause or influence stress levels.

As mentioned previously, the majority of previous studies that have attempted to assess sources of stress for particular populations have failed to differentiate between

acute and chronic sources of stress. In addition, what is notably absent in these studies is follow-up examinations of the subjects' specific responses to the sources of stress. In order to affect any changes in the way subjects cope with acute stress, individuals should be aware of these situations that are particularly problematic for them personally, and of their current reactions to these situations. Only after sources of stress have been identified can an effective stress management program focus on teaching more effective coping strategies for specific situations likely to be encountered (Sarason, Johnson, Berberich, & Siegel, 1979). It appears that the sources and intensity of acute stress for basketball participants and their responses to stress are in need of further examination.

Sources of Stress for Athletes

During the past decade researchers have systematically examined stress with athletes of various sports including wrestlers (Gould, Horn, & Spreeman, 1983a, 1983b; Gould, & Weinberg, 1985), gymnasts (Weiss et al., 1989), soccer players (Scanlan, & Passer, 1978, 1979), golfers (Cohn, 1990), figure skaters (Scanlan, Ravizza, & Stein, 1989), and basketball players (Fisher & Zwart, 1982; Madden et al., 1990). The negative effects of stress on performance as have been discussed earlier were also evident in these studies. For example, findings from Pierce and Stratton's (1981) study revealed that 44% of 543 youth sport participants reported that certain sources of stress affected and prevented them from reaching their optimal performance. Among the most frequently reported situations (endorsed by approximately 62% of the respondents) were "Not Playing Well" and "Making Mistakes."

With specific reference to basketball, Fisher and Zwart (1982) examined the degree of anxiety experienced by 40 male college athletes in 18 potentially stressful situations before, during, and after the game. For each situation subjects were asked to indicate on a 5-point scale the degree to which each of 11 possible response modes (e.g., dry mouth, elevated heart rate, get an uneasy feeling) reflected their physiological or psychological response during the particular event. Top-ranked stressors included causing a shooting foul two seconds before the end of a tied-score game, being criticised by the coach for

bad play, and being the target of abusive behaviour by the crowd. A factor analysis of the athletes' responses revealed three dimensions: "personal threat," "outcome certainty or ambiguity generated by the situation," and "feelings of anticipation created." Of these factors, personal threat, and outcome certainty or ambiguity generated by the situation accounted for the largest portion of the degrees of anxiety reported by players.

In another study of the sources of stress and coping of Australian basketball players, Madden et al. (1990) reported somewhat different results to Fisher and Zwart (1982). The researchers developed and administered the Stressful Situations in Basketball Questionnaire (SSBQ) to 133 players, aged 15 to 44 years, who participated in organised competition. The SSBQ consists of 20 game situations that are ranked on a 5-point Likert scale from 0 (not stressful) to 4 (very stressful). Stressors that received the highest ratings included "My Personal Form is in a Slump..." and "My Team is Losing and the Opposition is Holding up Play by Keeping the Ball Away From us." Other items that were ranked among the top five stressors were "Referee Decisions Have Been of Poor Standard," "Having the Ball Stolen From me," and "Missing a Lay-Up or an Easy Shot."

The differences between the findings of Madden et al. (1990) and that of Fisher and Zwart (1982) can be attributed to several factors. First, the items that were included in the survey of each were dissimilar and unequal in number. For example, two items that received high ratings in the second study, but were not included in the former, were "Abuse by the Crowd," and "Poor Referee Decisions." Thus, neither survey comprised a complete list of the stressful situations likely to occur during a game. Secondly, Fisher and Zwart included in their survey pre- and post-game situations whereas Madden et al. focused only on game situations. Third, Fisher and Zwart also used a second testing instrument, the similarity of basketball situations, to measure the degree of perceived similarity of the subjects' feelings to each possible pair of the same 18 stressful situations that were used in the S-R inventory of anxiousness in basketball (their first testing instrument). Thus, the methods by which these researchers measured anxiety differed substantially. Finally, the characteristics of the populations examined in the two studies were also quite diverse. Differences in sample characteristics such as culture, age,

education, skill level and importance of competition between the athletes who participated in the two studies did not allow for accurate comparisons between their responses. Both studies, however, provided valuable insight into the sources of worry for the particular populations.

The sources of stress for a particular population are highly dependent on the characteristics of the sample under examination. For instance, a completely different pattern of sources of stress was revealed in a study with 22 young male gymnasts (Weiss et al., 1989) as compared to Fisher and Zwart (1982) and Madden et al. (1990). Four of the five top ranked stressors for the gymnasts were related to significant others' evaluations and expectations and only one related to performance (i.e., remembering routines). Contrary to the previously reviewed studies with basketball athletes, "Making Mistakes" was the least stressful item for the young gymnasts. Such findings are indicative of the specificity of sources of stress depending on the environmental context and the characteristics of the sport and the population involved. This suggests that research concerned with the assessment of sources of stress has to proceed on a vocation- or profession-specific design.

Sources of Stress for Referees

Stress is an inevitable component of sports officiating. Referees constitute a large sample of individuals who, in addition to daily life stressors, experience considerable stress and pressure during competitive events. In their review of literature, Weinberg and Richardson (1990) maintain that sources of stress for sports officials include self-imposed demands for perfection, and expectations and daily assessment of performance by coaches, players, spectators, the media, supervisors, and colleagues. Anecdotal evidence suggests that stress among sports officials insinuates deleterious psychological and somatic effects on the individual's health ranging from decreased satisfaction to various degrees of psychological burnout and physiological illnesses (Fucini, 1979; Smith, 1982; Zoller, 1984).

Although stress in athletes has been extensively examined by researchers, similar studies with referees are relatively scant. Past research consists mostly of descriptions of demographic and biological characteristics of sports officials (e.g., Quain & Purdy, 1988). Empirical studies on sources of stress with sport arbiters have examined soccer (Taylor & Daniel, 1988; Taylor et al., 1990) and basketball officials (Purdy & Snyder, 1985), and have compared football with volleyball officials (Goldsmith & Williams, 1992).

Taylor and Daniel (1988) developed the Soccer Officials Stress Survey (SOSS) to examine the sources of stress for soccer officials. A factor analysis of the survey items revealed six stress factors: Interpersonal Conflicts, Fear of Physical Harm, Time Pressures, Peer Conflicts, Role-culture Conflict, and Fear of Failure. Results revealed virtually no relationship between the referees' degree of perceived stress and drop-out rate, or any officiating or background variables.

In a more recent study by Taylor et al. (1990), factor analysis of the responses of 529 Canadian soccer officials to an inventory similar to the SOSS inventory revealed an additional factor that was named Fitness Concerns. Fear of Failure, a factor describing external and internal evaluative aspects of officiating, received by far the highest mean stress rank, followed by Role-culture Conflicts, and Time Pressures. Fear of Failure was also strongly associated with feelings of burnout. Items comprising this scale that received the highest ratings were "Having a Bad Game" and "Making a Mistake." The factor named Role-culture Conflicts referred to the feeling by referees that their work was not appreciated. In a discussion relevant to the role-conflict, Smith (1982) observed that although referees are the utmost authority of the contest, they are treated disrespectfully. Smith argues that in the "heat of the game" sport participants and spectators fail to understand the pressure of officiating and to identify with the referees and their role. Instead, they appear to be completely indifferent to the feelings of the sports officials. "Interpersonal Conflicts," the third factor revealed in Taylor et al.'s (1990) study, was also related to burnout. It appears that learning the necessary skills to deal with criticism, arguments, and abuse by coaches, players, and spectators is crucial in preventing feelings

of burnout. Also, they found that younger soccer officials tend to report more burnout compared to their older counterparts, a finding comparable to research from other disciplines such as occupational psychology (e.g., Osipow et al., 1985). In view of their finding that fear of failure related strongly to feelings of burnout, Taylor et al. speculated an association between sports officiating self-esteem and burnout, suggesting that "officials with a high officiating self-esteem may be least prone to developing feelings of burnout" (p. 93).

In a similar study, Goldsmith and Williams (1992) examined the perceived sources of stress for football and volleyball officials using a revised version of the SOSS. This time a factor analysis of the SOSS revealed five factors, three of which were identical to the ones perceived by soccer officials (i.e., Fear of Physical Harm, Time Pressures, and Fear of Failure) and two new ones (i.e., Verbal Abuse and Pressure Game). "Fear of Failure" was again the highest ranked source of stress and "Fear of Physical Harm" the lowest. However, the identified stress factors were not significant predictors of the subjects' overall stress during officiating. "Fear of Failure" was positively associated with the level of officiating and negatively to age. Age had a slight but not significant effect to sports officials' perceived stress in different levels. In view of these findings, the researchers suggest that future studies should control for the effects of age when examining stress differences among referees of different levels. This suggestion is taken into account in the first and second parts of the present study.

Goldsmith and Williams acknowledged that a limitation of both Taylor et al.'s (1990) and their own study is that the SOSS that was used does not contain a complete list of potential sources of stress for sports officials. Indeed, important sources of stress in soccer, football, and volleyball officiating such as "Being Evaluated by Superiors" or "Inadvertent Whistles" were not included. Finally, officiating volleyball (a non-contact sport) was found to be less stressful in regard to "Fear of Physical Harm" than officiating football (a contact sport).

Research with basketball officials has been even less extensive than that with basketball athletes. In one of the rare studies in this area, Purdy and Snyder (1985)

identified several "negative aspects of officiating" (p. 62) as determined by 689 American high-school basketball officials. Their survey was more concerned with demographic characteristics and reasons for officiating rather than assessing the intensity of the sources of stress for basketball officials. Responses included chronic sources of stress that were examined in terms of their frequency of occurrence rather than in terms of their intensity. Results revealed that negative aspects of officiating included travel (70%), the unpopular role of referee (56%), family commitments (41%), stress and pressure of the job (35%), and the lack of time to improve their knowledge and skills (28%).

In an unpublished study, Rotella et al. (1985) attempted to identify sources of stress and appropriate coping responses of basketball officials. Their inventory, administered to NCAA officials, among others, included 65 items that represented a mixture of chronic, pre-game, and post-game potentially stressful situations. Referees were asked in the survey to rate "each of the following situations as to the degree of stress they may contribute for you in the fulfilling of your duties and responsibilities as a basketball official" on a scale from 1 (does not contribute to the degree of stress I feel) to 4 (makes a significant contribution to the degree of stress I feel). Five items relating to interactions with coaches (intentional baiting by coaches, dealing with coaches, coaches' influence on selection and retention, ratings by coaches, and coaches' criticism in press), two with supervisors (rating by supervisor, support of conference supervisor in tough situations), three acute game situations (assessing technical fouls, subjective calls, and working big games), three general outside sport conditions (travelling to and from games, coordinating being an official with a full-time job, and demands on family), and one item regarding cooperation with incompetent partners were rated as the top 14 stressors. Among other findings, it was found that lower levels of derived satisfaction, poorer personal health, and greater perceived stressfulness were related to total number of perceived stressors and total stress symptoms. Finally, contrary to other studies (e.g., Goldsmith & Williams, 1992; Taylor et al., 1990), the researchers found no relationship between the level of perceived stress and any of the demographic or biographic variables. A criticism of the study is that the time required to complete such a large number of items in the sources of

stress survey ($N = 182$) may have overwhelmed respondents, thus affecting the validity of their responses.

Surprisingly, one neglected area of research is the degree to which athletes constitute a source of stress for sports officials. Although "poor" decisions by the referee are highly stressful for basketball players (see Madden et al., 1990), the degree to which players' actions stress officials has not been addressed. Finally, among other issues not addressed in previous studies are cross-cultural differences and the effect of age on sources of stress and coping behaviour of basketball officials and athletes.

Sources of Stress and Age

One variable that has been found to affect a person's perceptions and responses to stress is age. For example, previous research in the education literature has demonstrated that, among other variables, age is good predictor of the degree of stress that Australian teachers experience (Laughlin, 1984). Osipow et al. (1985) and Folkman and Lazarus (1980) found that subjects' degrees of stress differed as a function of age. In sport, Taylor et al. (1990) contend that age is the only biographical variable that is negatively associated with burnout of soccer referees and their intention to quit.

Kennedy (1985) found significant differences in the types of stressors reported by college-age subjects and those reported by elderly subjects. Similarly, Osipow et al. (1985) found "a pattern of shifting sources of stress at different ages" (p. 103). In the latter study, older workers reported stress due to greater responsibility and work overload, whereas younger workers experienced more stress due to physical environment sources (e.g., heat or cold, fumes, work shift stress), role insufficiency, and the conflicts of differing values and objectives when determining role boundaries with colleagues. In general, older subjects reported less strain than did younger subjects.

Folkman et al. (1987) also reported significant differences in the type of "hassles" (i.e., ordinary stressful transactions of day-to-day living) between two age groups, mean ages 40 and 63 years, respectively. Younger adults reported significantly more hassles in

finances, family, and work, whereas older persons reported problems related to environmental and social issues, home maintenance, and health. The researchers attributed the differences to changes in the way people perceive stress across the life-span. Younger subjects appraised their problems as significantly more changeable compared to older subjects.

In summary, some studies have demonstrated that age, more than other biographical factors, has a considerable effect on people's perceptions and responses to stress, while others found no such evidence. Findings among studies that have reported age differences suggest that younger individuals are usually more stressed and use different coping responses than older persons. Goldsmith and Williams (1992) recommend that the ways in which sources of stress and coping responses vary as a function of age should be considered in the study of stress and coping. Kennedy (1985) suggests that, since different interventions and coping strategies are recommended for different causes of stress, "an awareness that certain types of stressors may be more salient for certain age groups may be helpful in providing prevention and intervention strategies for coping with stress" (p. 302). This awareness provides a similar rationale for the study of cross-cultural comparisons in the stress and coping process.

Sources of Stress and Cross-Cultural Differences

Cross-cultural research that compares characteristics of members of different countries has been well established in the scientific literature. Investigators have examined personality traits, stress, appraisal, coping responses, and psychophysiological symptoms among individuals of different ethnic and racial groups. For example, several investigators have examined whether individuals with different ethnic or racial backgrounds differ in psychological dispositions such as trait anxiety or self-esteem. Ben-Zur and Zeidner (1988) found more significant cross-cultural and gender differences between Israeli and American students in the traits of anxiety, curiosity, and anger than in the states of these same dimensions. In an attempt to examine the link between self-

appraisals and stress, Learner, Iwawaki, Chihara, and Sorell (1980) found that Japanese adolescents (especially females) had lower self-esteem and scored lower in bodily physical attractiveness and physical effectiveness than American subjects of the same age groups. Differences in self-concept as a function of age and gender were greater for Japanese than for American subjects. Other research has shown that culture may also influence the individuals' causal attributions to success and failure. Kashima and Triandis (1986) found that undergraduates from Japan and the United States differed in their attributions when coping with ambiguous issues such as a person's ability, but were relatively similar under explicit situational conditions.

Cross-cultural differences have also been studied in terms of the level and the intensity of perceived stress. For instance, Keinan and Perlberg (1987) found that although sources of stress were ranked similarly by Israeli and American academics, the intensity of perceived stress varied between groups. Research with teachers from the other countries has revealed similar findings. Tokar and Feitler (1986) found that the patterns of job-related reported stress were similar between teachers from the UK and the US, however, American teachers reported higher levels of stress than British teachers. Yamamoto and Davis (1982) found no differences in the amount of stress experienced by American and Japanese school children across 20 upsetting life events. In both cultures older children experienced more types of stressors and higher levels of stress. Sex differences were evident only among Japanese children, with boys experiencing more stress than girls. Finally, a study by Orth-Gomer (1979) with residents of two major cities, New York and Stockholm, revealed that self-reports of stressful experiences differed in their sources, but not in quantity. Swedish subjects reported more job-related stress whereas Americans ascribed their stress to family conflicts.

As discussed in previous sections, the manner in which individuals perceive events can make a difference in their emotional responses. To examine whether differences in emotions across cultures were a function of different appraisals of the events, Mauro, Sato, and Tucker (1992) asked American and Asian university students to describe their emotional experiences during an incident of their choice. Dimensions of appraisals

included "primitive" (i.e., observation of changes in the environment) and more "complex" appraisals (i.e., comparisons of one's actions or emotions to social norms). Findings revealed that the more primitive dimensions of appraisal (pleasantness, certainty, attentional activity, coping ability, and goal/need conduciveness) were relatively consistent across nations. On the other hand, significant cultural differences existed in three dimensions (control, responsibility, and anticipated effort) of the more complex appraisals. Few differences were evident in the remaining two dimensions (legitimacy and norm/self compatibility). The patterns of relations between appraisals and subjective experience of emotions were relatively similar across nations. However, as the authors themselves acknowledged, they had no control over the situations that were reported by the subjects. Some subjects might have described their emotions during life-threatening events while others reflected ego-threatening situations. As a result, findings of the study may have been a function of the differences in situations reported rather than differences in appraisals or emotions. Failing to consider or control for the situations in which stress is experienced is a common limitation among studies. Sharma and Sud (1990) attempted to overcome this limitation by asking individuals from different cultures to describe their experiences during a standard situation (examination stress). Results revealed differences between and within Asian and Euro-American cultures in the levels and patterns of test anxiety in terms of its worry and emotionality components.

In the area of sport psychology, studies that have addressed the issue of cultural differences in the stress and related area are scarce. Researchers in other sports-related disciplines have examined racial/ethnic differences in regard to physical performance capabilities, motor skill development, sport performance, and participation in sports (for a review, see Duda & Allison, 1990). The reasons for the existence of differences found between different racial or ethnic groups are still unclear. Due to our limited understanding of the role of psychological factors observed differences have often been attributed to social and biological factors. Duda and Allison assert that a more systematic examination of the influence of racial or ethnic factors on sport behaviour is needed:

There is little doubt that the world of sport and exercise is characterised by cultural diversity.... Yet the field of sport and exercise psychology has made only a few attempts to determine the meanings, values, and motivations, that the physical domain holds among diverse cultural groups. The potential theoretical and practical benefits of cross-cultural analyses in sport and exercise psychology are innumerable. (p. 126)

To support their argument, Duda and Allison outlined several reasons that justify the need for cross-cultural studies. Firstly, the researchers pointed out that, according to findings from the field of general psychology, culture affects both cognition and affective responses (e.g., values, sense of time and space, perspectives toward competition and cooperation, success and failure, causal attributions). Rules, logic systems, national memories, beliefs, ideologies, social roles, and verbal and nonverbal communication systems vary across different nations. Comparative studies may help understand the structure and values of a society. In addition, although people may exhibit similar behaviour, it is possible that the subjective meaning, purpose, and value of the activity may be different for members of various cultures (also see Taft, 1977). Thus, it is not safe to assume that findings from American research, for instance, are applicable to individuals from other cultures and vice versa.

A second way in which the pursue of cross-cultural research may be beneficial is that comparing the mainstream culture with the experiences of others provides a better understanding for the mainstream culture by forming a basis for contrast and evaluation of behaviours, which otherwise are taken for granted (Duda & Allison, 1990). Such comparisons have theoretical, sociological, and practical consequences for the development of multicultural societies. Furthermore, counselling and cognitive interventions should take into account that individuals with different cultural backgrounds vary in their perceptions of mental and physical symptoms, as well as in their views regarding the need for treatment. Finally, cross-cultural research is in line with the scope of scientific inquiry in that it offers theoretical analyses and practical knowledge that

exceed by far the narrow views of those studies that only examine a particular group of people or behaviours.

Regarding the methodology that cross-cultural researcher should follow, Duda and Allison (1990) allege that self-report methods using standard questionnaires are adequate measures provided that the scales that are used are valid and conceptually equivalent in the cultural context. Among other possible designs, the researchers suggested a "contextual analysis" referring to the examination of the extent to which individual behaviours and perceptions vary across similar situations. Finally, Keinan and Perlberg (1987) maintain that researchers conducting cross-cultural investigations should be cautious in respect to the openness and willingness of individuals from different ethnic and racial backgrounds to admit their problems in regard to stress and coping. According to the researchers, this consists of a common methodological problem inherent in the cross-cultural assessment of stress and psychopathological symptoms by self-report measures.

In summary, research from various cultures has shown differences in both cognitive and behavioural domains, including personality characteristics. Cross-cultural research, especially in the area of psychology, has been encouraged by researchers who argued that its benefits are indisputable. An area in which cross-cultural research is notably absent is the examination of stress and coping with acute stress, particularly among sports officials and players.

The Process of Coping

Cognitive appraisal is the first stage of the coping process, considered by many (e.g., Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter et al., 1986; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984) to be the link between the stressor and the individual's coping response.

Cognitive Appraisal

Epictetus, an ancient Greek Stoic philosopher, stated more than 20 centuries ago that people are not disturbed by things, but by the views that they take of things. What Epictetus maintained has recently been adopted by cognitive psychologists who contend that no situation or event is stressful in itself. Instead, it is the individual's perception and interpretation of the situation that causes stress. Hence, cognitive appraisal refers to the process through which the individual evaluates a stressful event in relevance to its potential influence for his or her well-being (Lazarus & Folkman, 1984).

According to Lazarus and Folkman's (1984) model, a person's appraisal of a situation follows several steps. The individual initially evaluates a potentially stressful encounter through *primary* appraisal. During this first evaluation the person may categorise an event according to its intensity and implications for her or his well-being as irrelevant, benign-positive, or stressful. In the last case, when the individual perceives that the situation is potentially stressful, then he or she may classify the event in one of three categories: (a) harm or loss, (b) threat, or (c) challenge. The same event may be categorised as loss, challenge, or threat by three different persons.

Once the first stage of appraisal has been completed, the person re-evaluates the situation examining what, if anything can be done to overcome, prevent, or minimise the harmful effects or potential danger of the situation. During *secondary* appraisal the individual deals with the following questions: (a) what options are available, (b) can I do what it takes (efficacy expectancy), and (c) if I use a certain strategy, will it work

(outcome expectancy). Secondary appraisal has most often been measured by researchers with a four-item self-report scale asking subjects the extent to which they believed that the situation was one "that you could change or do something about, that you had to accept, in which you needed to know more before you could act," and "in which you had to hold yourself back from doing what you wanted to do" (Folkman, Lazarus, Gruen, & DeLongis, 1986, p. 574). Finally, *reappraisal* refers to the continuous re-assessment of the situation as new information becomes available in regard to its recent developments.

The importance of appraisal in coping and adaptation has been demonstrated in a number of research studies (Folkman, Lazarus, Dunkel-Schetter et al., 1986; Folkman, Lazarus, Gruen et al., 1986; Larsson et al., 1988; Parkes, 1984; Steptoe & Vogele, 1986; Terry, 1991; Wallbott & Scherer, 1991). Wallbott and Scherer, for example, found that the type of stressor was of major influence for the subjects' degree of stress (measured by self-reports, non-verbal facial reactions, and physiological arousal). Furthermore, McCrae (1984) found that one's perception of a stressful event as loss, threat, or challenge determines to a great extent the coping strategies that one tends to use. Results from his study revealed that events appraised as threatful produced strategies such as faith, fatalism, and wishful thinking, whereas situations perceived as challenging were associated with the use of strategies such as rational action, positive thinking, and self-restraint. Folkman et al. (1986) extended this line of research by examining the coping strategies used by individuals in terms of both their primary and secondary appraisal. Primary appraisal measured what the subjects considered to be at stake during the encounter (i.e., physical well-being, self-esteem, goal at work, financial strain, loss of respect for others, well-being of a loved one), whereas secondary appraisal measured the subjects' perceived coping options (i.e., alter the situation, accept it, have to hold back, and seek more information). Findings confirmed the researchers expectations that coping would be dependent on both primary and secondary appraisal.

Research examining the relationship between situational appraisals, coping responses has also found that subjects performed better on a psychomotor task when they appraised the situation as challenging (Larsson & Anderzen, 1987). Adrenalin excretion

during stressful conditions was associated with situational appraisals (relevant, little benign-positive, and threatening) and extensive use of cognitive strategies (containing negative self-talk). One limitation of Larsson and Anderzen's study was that in the absence of real threat, the loss of a monetary award was the substitute stressor.

Nevertheless, some evidence exists indicating that factors influencing coping may do so directly rather than through appraisals (Newton & Keenan, 1985; Parkes, 1986). For instance, Parkes found that situational factors, stable individual characteristics, and environmental factors were direct predictors of coping behaviour. However, the researcher did not attempt to examine the mediating role of appraisal.

In the contrary, Lazarus and Folkman (1984), in an overview of previous findings, concluded that appraisal variables "do indeed explain coping and emotional responses" (p. 316). Thus, it appears that appraisal is the link between the stressful encounter and the individual's coping responses.

Coping Responses

As indicated earlier, coping refers to the person's "cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). The cognitions, emotions, and behaviours in which people engage when encountering stressful events are referred to as coping responses.

Several observations can be made regarding the definition of coping. First, the focus of the definition is not on the outcome but on the process of coping. Thus, behavioural responses that do not master the stressful situation or the person's internal responses are still considered to be coping behaviour. On the other hand, coping behaviour does not include automated responses (i.e., coping requires effort on behalf of the individual). Rather, the process of coping is consciously controlled by the individual. As a result, the act of coping is not classified according to its effects (e.g., reality-distorting versus reality-adapted) nor to its effectiveness (e.g., successful versus

ineffective coping) but, instead, to certain characteristics of the coping process (Krohne, 1988). These characteristics include whether the reactions of the individual are of a cognitive or behavioural nature and/or whether the individual adopts an approach or avoidance mode of coping.

Secondly, as indicated above, the term coping refers to both the cognitive and behavioural efforts of the individual to manage the demands of the situation and the emotions they generate. Cognitive responses refer to the attempts of the individual to alter internal elements such as his or her subjective perception of objective situations or to reduce an unpleasant emotional state (e.g., anxiety, anger). Behavioural responses usually relate to those acts of the individual that aim to actively change or avoid external elements of the situation. And thirdly, coping is viewed as a complex and constantly changing interaction between the person and the environment.

Finally, Matheny et al. (1986), in their model of coping, distinguish between "preventive" and "combative" coping. Preventive coping refers to ways of increasing one's resistance to the effects of stress before it occurs (e.g., by improving one's socio-psychological or material resources). Combative coping, on the other hand, refers to strategies that are used once the stressful encounter has occurred (e.g., planning or taking action to change the situation). Much of the coping literature has concentrated on the examination of the conceptual framework of combative, as opposed to preventive, coping strategies and their effectiveness on the reduction of stress.

Focus of Coping

Two major coping formulations have been developed by researchers. The first categorises coping responses according to their focus; the second according to the method or coping style of the individual. According to the first formulation, coping responses can be categorised as problem-focused, appraisal-focused, and emotion-focused (Pearlin & Schooler, 1978). Problem-focused coping refers to attempts to change the situation. However, people cannot or do not always choose to engage in activities that aim to alter the situation because of one or more of the following reasons: (a) they may not recognise

the source of stress, (b) they may lack the knowledge or experience necessary to modify the situation, (c) often changing a situation creates new problems and additional stress for the person, and (d) the situation markedly exceeds the present coping resources of the individual (Pearlin & Schooler, 1978).

Appraisal-focused coping refers to attempts to change the meaning of the situation. The importance of appraisal has been outlined earlier. Thus, it has been postulated by cognitive psychologists that if an individual can change his or her perception of a situation then the emotional distress caused by the threat will be minimised or eliminated. Strategies often used to reduce emotional stress include: (a) positive comparisons (e.g., this is better than if something else had happened), (b) selectively ignoring threatful aspects of a situation while attending to more positive aspects of it (e.g., ignoring the size of the waves while focusing on the amount of the fish caught), (c) the substitution of rewards (e.g., I will now suffer this but I will profit in that way), and (d) the devaluation of things that are out of reach (e.g., money is not important) (Pearlin & Schooler, 1978). However, although such responses can be effective in reducing emotional distress, the actual situation remains unchanged and threats of physical harm may still exist.

Attempts to control one's emotions, or "emotion-focused" coping refer to these coping responses aimed to manage one's sentiments, most often during unavoidable situations. Techniques used to control emotions include denial, acceptance, relaxation, engaging in other more pleasant activities, or converting the suffering part into a moral victory (Pearlin & Schooler, 1978).

Coping Styles

One direction taken by researchers in examining the coping process has been the role of a person's preferred way of coping, referred to as coping style. Two of the more common dimensions are approach and avoidance coping styles.

Approach and avoidance. As indicated earlier, an approach coping style refers to behavioural, cognitive, and emotional activity directed towards the threat, whereas

avoidance refers to similar activity directed away from the threat (Roth & Cohen, 1986). The dimensions of approach and avoidance and their relative formulations, vigilant-nonvigilant, repression-sensitisation, reducers-augmenters, denial-intrusion, monitoring-blunting (for a review see Roth & Cohen, 1986), have been used to predict coping responses across a variety of settings.

Monitoring and blunting. One of the concepts that reanimate the core idea of approach and avoidance is Miller's (1987) monitoring and blunting coping styles. Miller has demonstrated that people can be divided into coping style groups based on their preferences to seek information or distraction when encountering various stressful situations. Monitoring refers to "the extent to which an individual is alert for and sensitised to threat relevant information" (Miller, 1990, p. 99), whereas blunting refers to seeking distraction and avoiding information related to the source of stress. Although the constructs of monitoring-blunting and approach-avoidance appear to be similar, they are not identical. The difference between Miller's (1987) monitoring and blunting and Roth and Cohen's (1986) approach and avoidance is that the former conceptualisation is limited to the *informational* part of responses irrespective of the individual's behavioural, or emotional reactions (Carver et al., 1989). By contrast, the approach and avoidance dimensions also refer to the behavioural and emotional reactions of the individual dealing with a stressful encounter. For example, a person may monitor a situation and choose not to employ instrumental action (approach). A study examining individual characteristics in health-seeking behaviour illustrated that monitoring and blunting dimensions are different to problem- and emotion-focused coping responses (Miller et al., 1988). Results showed that although during their visit to the physician high-monitors demanded more tests, information, and counselling, these patients desired a less active role on their treatment than did low monitors. The researchers suggest that problem-focused coping is a broader notion than monitoring. Although monitors tend to prefer information they may not seek this information for its instrumental value.

Finally, although the categorisation of coping responses into problem- and emotion-focused and approach and avoidance coping styles are apparently independent, some research has shown that both constructs may be elements of the same coping structure, only at different levels of analysis. Tobin, Holroyd, Reynolds, and Wigal (1989) conducted hierarchical factor analysis on a modified version of the Ways of Coping Checklist (Folkman & Lazarus, 1980) and found three levels of factors that resembled the ones most commonly identified by previous researchers. Their hierarchical model included eight primary factors, four secondary factors, and two tertiary factors. At the primary level, factors included problem-solving, cognitive restructuring, social support, express emotions, problem avoidance, wishful thinking, social withdrawal, and self-criticism, dimensions of coping often found in empirical research. Factors at the secondary level included two types of problem-focused and two types of emotion-focused coping, each one split into engagement and disengagement activities. At the tertiary level, responses appeared to be organised into engagement and disengagement activities, thus resembling the constructs of approach-avoidance that have been identified in a large portion of previous studies in coping. As coping styles are considered to be personal dispositions, they will be further discussed in the later section reviewing personal factors that influence the coping process.

Theoretical Framework of the Coping Process

Controversy exists over the degree to which personal dispositions, in general, and coping styles, in particular, influence coping behaviour. Two traditional theoretical perspectives, the trait and the situational model, have been proposed to explain the ways individuals respond to stressful encounters. Comparisons between the trait and the situational model of coping show that the two formulations differ in the degree to which they assume a consistency in coping style over time and across situations due to the influence of personal characteristics on the context within which the stressor is experienced.

Supporters of the *trait model* argued that individuals tend to exhibit a stability in their coping responses across situations and over time (e.g., Averill & Rosenn, 1972; Byrne, 1964; Horowitz, 1976; Kobasa, 1979; Miller, 1980, 1987, 1992; Petrie, 1978; Roth & Cohen, 1986). The assumption underlying this approach is that personal dispositions determine, to a great extent, a person's coping responses.

Lazarus and Folkman (1984), criticising the trait theory, argued that in the majority of related studies the predictive value of coping behaviour based on trait measures has been "very moderate" (p. 288). In response to this criticism, Krohne (1988), a supporter of the trait theory, refutes Lazarus and Folkman by arguing that the research to which Lazarus and Folkman refer in their literature review has used invalid instruments for the measurement of coping traits. The prediction of coping style based on dispositional measures would have been more valid if such measures had been used to predict actual coping behaviour rather than the outcome of that behaviour.

Supporters of the *situation-specific* theory of coping (e.g., Holms et al., 1986; McCrae, 1984, Terry, 1991) have argued that assuming individuals consistently engage in approach or avoidance strategies fails to consider the nature of the threat or the characteristics of the situation. For example, McCrae alleges that coping responses are mainly determined by the objective or perceived characteristics of the encounter. Thus, the situational approach maintains that people tend to respond in similar ways when dealing with the same encounter, although the intensity or the duration of their relative response may vary.

As indicated, research evidence regarding the importance of personal versus situational characteristics as determinants of coping behaviour has been equivocal. Some findings have illustrated the importance of personal factors while other studies have demonstrated that situational factors shape individual coping responses. Thus, it appears that the coping process is more complex than previously envisioned. It has become apparent that neither the situational nor the trait approach of coping takes into account a potential interaction between situational and personal characteristics.

During the past decade, an alternative *interactional* model developed by Lazarus and his colleagues over a number of years (e.g., Lazarus, 1966; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984), the "person-by-situation" approach has been advanced. In this process-oriented theory of stress, appraisal, and coping, the researchers suggest that coping is a function of the person, the situation, and the environment. Their theorisation has been widely accepted after being tested and validated by numerous studies. For instance, Parkes (1986) has demonstrated that personal, situational, and environmental factors account for a significant portion of the variability of individual coping responses. What is yet to be confirmed, however, is the degree to which each factor affects the complex coping process. The few studies that have addressed the latter issue will be discussed in the following section. The next section will discuss literature findings regarding the three major factors that are considered to influence coping.

Factors that Influence the Coping Process

According to the interactional theory of stress and coping, the coping process is influenced by personal, situational, and environmental factors (Lazarus & Folkman, 1984).

Situational Characteristics

Situational characteristics are defined as the objective features of the event and are "related to the immediate nature of the stressful transaction, which was the specific focus of the individual's coping attempts" (Parkes, 1986, p. 1279). Formal properties of situations that can influence primary appraisal and coping include novelty, predictability, temporal factors (e.g., imminence, duration, time uncertainty), timing in relation to one's life cycle, and ambiguity (Lazarus & Folkman, 1984). Miller (1990) added to the above list the amount and type of control, information, and coping interventions made available to the individual. Other formal properties of situations include the magnitude of demands

for change, the kinds of adjustment needed, and the positive or negative connotations of the stressful incident.

Novelty refers to those situations with which individuals are relatively inexperienced. The appraisal of novel situations is usually inferred by relating them to previous experiences or by general knowledge. The variable of novelty is of special interest in the study of coping with young or inexperienced groups of people. For example, situations such as dealing with an angry player, or having to endure abuse from upset coaches or spectators may be entirely new to young referees. Anecdotal evidence confirms the relative difficulty of novel situations. Smith (1982), for example, recalls the distress that he experienced when he first began his career as a wrestling referee. He was willing to accept abusive treatment by coaches if he "...had made a decision which they thought was wrong...(but) was not...ready for the abusive form in which such criticism was expressed" (p. 36). Apparently, the novelty of certain aspects of officiating imposed demands that exceeded Smith's coping resources.

A second situational variable that is believed to influence a person's coping responses is the degree of situation predictability. Predictability refers to the degree to which environmental characteristics can be discerned, discovered, or learned (Lazarus & Folkman, 1984). Research studies with animals have demonstrated that predictable situations are preferred compared to uncertain situations, even when they are uncontrollable and distressing (e.g., signalled shocks) (for a review of this literature, see Miller & Grant, 1979). However, research conducted with humans is relatively more complicated. As a result, consistent and satisfactory conclusions have been scarce.

A third category of situational variables includes time parameters of stressful situations (temporal factors) such as imminence, duration, and temporal uncertainty. Research regarding temporal factors has presented some interesting findings. Imminent situations cause appraisals that are characterised by their intensity and urgency. Less imminent events, which allow time for coping responses, complicate the process of appraisal because such events have been shown to heighten or decrease one's degree of arousal depending on the type of the situation (e.g., threat, loss, or challenge). The

duration of a stressful event is another important parameter that affects a person's coping response and adaptation. Research has distinguished between several patterns of duration and demonstrated that each pattern influences appraisal in a different way (e.g., Cohen, Lazarus, Moos, Robins, Rose, & Rutter, 1982). Prolonged stressors, for instance, may lead to exhaustion or to emotional habituation (i.e., reduction of stress response as a result of repetitive exposure to a stressor). Another factor that influences coping responses is temporal uncertainty (i.e., not knowing when problematic incidents will arise). The previous literature suggests that temporal uncertainty induces a state of alertness and preparedness, which consequently reduces stress reactions (Monat, Averill, & Lazarus, 1972). Finally, the timing of stressful events in regard to one's life cycle may considerably affect the person's reactions (Neugarten, 1979). This has particular importance for those individuals who fail to put aside their daily or chronic problems before they engage in other important tasks (e.g., police officers, air-traffic controllers, sports officials). In such cases, it is presumed that the impact of an acute stressor on the individual will be exacerbated.

As has been noted earlier, according to the transactional model of coping, situational variables and personal dispositions are related. Lazarus and Folkman (1984) suggest that situational variables such as ambiguity may determine the extent of influence of personal characteristics on the coping process. For example, highly ambiguous situations call for the intervention of personal factors to shape the meaning of the situation for the individual. Rotter (1966) argues that generalised control expectancies influence appraisals usually when the situation is ambiguous or novel. Rotter's locus of control theory divides people into internals and externals according to the extent to which they believe that they can effect change in their lives by their own behaviour. In highly ambiguous situations individuals with an internal locus of control will appraise the situation as controllable, whereas persons with an external locus of control will appraise the situation as uncontrollable. Likewise, it would be expected that optimists or individuals with high self-esteem should perceive a stressful situation more favourably than pessimists or individuals low in self-esteem. On the other hand, when the situation is unambiguous it

would be expected that general beliefs and personal traits should not influence appraisal significantly.

According to the transactional approach cognitive appraisal has a core role in the process of coping. *Situational appraisals* refer to characteristics of the situation viewed as a function of appraisal. Terry (1991) argues that the individuals' perception of the stressful situation is considered to be more important than its objective characteristics. Situational appraisal variables that will be discussed below include perceived stress and controllability.

Perceived stress. When the demands of an event largely exceed the individual's coping resources the event is perceived as threatening. Stress can be viewed both as a product of appraisal that influences coping as well as a consequence of unsuccessful coping. The latter view can be described as a feedback process through which the individual reappraises the situation considering the new information after his or her attempts to cope with it. Depending on the effectiveness of the individual's coping responses a new state of stress may emanate. However, cognitive models of stress consider appraisal to be an antecedent rather than a consequence of stress. According to this view, stress is a product of the individual's appraisal of a situation. For example, researchers have demonstrated that appraisals of social evaluation, physical danger, ambiguity, importance, and control were significantly correlated with state anxiety of adult employees (Edwards & Endler, 1989).

As discussed earlier, high levels of stress impair the individual's information processing and problem-solving abilities, among other mechanisms. Based on these findings it has been assumed that varied degrees of perceived stress will produce different coping responses. Studies have confirmed this hypothesis, that the use of coping strategies differs as function of the degree of perceived stress experienced by the individual during a stressful situation. Anderson (1977), for example, reported that individuals with high levels of perceived stress at the time of the incident used more emotion-focused strategies and fewer problem-focused responses in the long run. Similar

coping patterns were reported in another study by Endler and Parker (1990) in which measures of state anxiety revealed that high state anxious subjects tend to engage in emotion-oriented coping activities. Conversely, low state anxious subjects employed more task-related coping strategies. Less clear results were reported by Aldwin and Revenson (1987) who found that the perceived stressfulness of a situation was positively related to six of the eight coping strategies on the Ways of Coping Scale. Research by Miller and her colleagues (e.g., Miller, 1980, 1989; Miller et al., 1989; Miller & Mangan, 1983), utilising the dimensions of monitoring and blunting, has reported evidence that monitoring may be a more stressful coping style than blunting. The influence of perceived stress on coping responses was also examined with regards to sport competition.

Madden et al. (1990) examined the coping strategies that basketball players use during competition. To measure perceived stress the researchers used their Stressful Situations in Basketball Questionnaire. Basketball players reported their levels of perceived competitive stress in regard to a stressful situation (i.e., experiencing a slump in personal performance). Coping strategies were assessed with the Ways of Coping with Sport Checklist. Although the degree of perceived control was not measured in the study, the researchers postulated that perceived loss of control may lead to high levels of perceived stress. Findings showed that coping varied as a function of perceived stress, except in the opposite direction to that reported by previous studies. Basketball players who rated themselves as highly stressed used more increased effort and resolve, general problem-focused coping, social support-seeking, and wishful thinking coping strategies than low stressed players. These findings appear to contradict the outcomes of previous studies (e.g., Anderson, 1977; Endler & Parker, 1990). Madden and his colleagues argued that perhaps basketball players were using strategies that may have opposite to the desired effects. Increased effort and problem-focused activities may increase the level of arousal of the already highly aroused athletes, thus impeding performance. These findings indicate the need for interventions that will teach athletes more effective coping strategies to deal with the demands of the competition. Another finding that emerged

through Madden et al.'s study was that low stressed players used fewer coping strategies compared to high stressed athletes whose need to cope appeared to be higher.

Thus these results of studies examining the relationship of perceived stress with individuals' coping responses suggest that the appraised stressfulness of a situation affects a person's coping responses. However, the manner in which stress appraisals influence coping responses is still unclear. Studies in the general coping literature indicate that individuals who are characterised by a blunting (or avoidance) coping style are more likely to report low levels of stress (Miller, 1980, 1989; Miller et al., 1989; Miller & Mangan, 1983), while evidence from the sporting area suggests that high levels of stress are associated with problem-focused coping strategies (e.g., Madden et al., 1990).

Perceived control. Control can be examined objectively or subjectively. In the first case, control refers to objective situational conditions that may or may not be amenable to change by any one individual. In the second case, control is defined as one's perception about whether she or he can do something to change a specific situation. In this instance situational appraisals of control are considered to be a part of secondary appraisal (Folkman, 1984). A further distinction is possible between a person's perceptions of controllability over the external stimuli and over the person's internal emotional reactions and thoughts (e.g., control over the behaviour of the coach versus self-control over one's emotions). Rothbaum, Weisz, and Snyder (1982) referred to primary control as those efforts attempting to change the world, and to secondary control as those efforts to bring oneself into line with environmental forces. In every case control appears to be a complex concept likely to be multifaceted.

Beliefs about control may consist of the following characteristics:

1. *Generalised ways of thinking.* Referring to control in a general manner is to consider it as a personal disposition. Persons with an internal locus of control accept responsibility for the outcomes of their own behaviour and work hard toward desired objectives. On the other hand, those individuals with an external locus of control believe

that what happens to them is a matter of "luck," or "chance," and are less likely to exert effort to bring changes in their lives (Rotter, 1966).

2. *Situation-specific appraisals.* Examining control with respect to the contextual characteristics classifies it as a situational factor. Situation-specific control entails outcome and efficacy expectations. Efficacy expectancies refer to one's internal beliefs that she or he is capable of doing what it takes to accomplish the task. Once again, efficacy expectancies do not only refer to controlling the environment but also to managing one's internal responses to the stressful situation (e.g., emotions and cognitions). The degree to which people perceive that they have control over a stressful situation is believed to have a key role to the coping process. According to Bandura's (1977) self-efficacy model, people's perceptions of control over the situation influence their selection of activities, the effort that they will expend, and their persistence in accomplishing the task. Thus, individuals are expected to avoid situations that they perceive as exceeding their personal coping skills and approach situations that they see themselves as capable of handling.

Based on Rotter's (1966) definition of the locus of control, it would be expected that internal individuals would be more likely to perceive situations as more controllable than persons with an external locus of control. Several studies, however, have found no relationship between general beliefs about control and situational appraisals of control (e.g., Nelson & Cohen, 1983; Sandler & Lakey, 1982). These findings suggest that, apart from generalised control beliefs, situational characteristics also influence individuals' control appraisals.

Evidence regarding the influence of the degree of perceived control on coping has been reported in several studies. Folkman et al. (1986), for example, examined the relationships between primary appraisal, secondary appraisal, encounter outcomes, and coping responses of community-residing adults. Results confirmed the hypothesis that the coping strategies used by individuals depend on whether they perceive the situation as changeable or unchangeable. Specifically, in changeable situations subjects employed confrontive, planful problem-solving, positive reappraisal, and accepting responsibility

coping stratagems. When the situation was one that the subjects had to accept because it was beyond their control they used more distancing and escape-avoidance patterns. Similar results were obtained in several other studies (Carver et al., 1989; Folkman & Lazarus, 1980; Folkman et al., 1987; Scheier et al., 1986). In general, results from these studies suggest that controllable situations are associated with active coping efforts, whereas less controllable situations generate the use of alternative strategies. However, the degree of controllability over the situation does not always determine the strategies used by individuals under stress. As mentioned earlier, although the situation may clearly call for one strategy, often individuals use another (Averill, O'Brien, & DeWitt, 1977; Averill & Rosenn, 1972; Miller, 1990).

The relationship between perceived control and perceived stress is still unclear. Adler (1924) argues that most individuals desire to control their environment. Thus, those who prefer to affect situations by the way of direct action (i.e., exert instrumental rather than cognitive control) should be expected to experience high degrees of stress and helplessness in uncontrollable situations. In their study with basketball players Madden et al. (1990) confirmed this hypothesis in that relatively uncontrollable situations were perceived as more stressful compared to controllable events. The desire to create a sense of control, even if it is illusory, is also evident in ritualistic behaviours such as wearing "lucky" clothes for important competitions (Fleming et al., 1984). Much of the coping research has been based on the assumption that having control over the outcome of a situation is stress reducing. However, this is not always the case, that is, people do not always prefer to have control over stressful situations. Evidence suggests that having control over the situation sometimes can also be stress-inducing (see reviews by Averill, 1973; Thompson, 1981). Several interpretations based in the interactional theory of stress have been proposed to explain such findings.

First, it has been argued that control over a situation may generate loss in other areas or conflicts with other values and commitments that are held by the individual or those imposed by society (Folkman, 1984). For example, consider the caring parents who have to enforce punishment to their beloved child. Secondly, several studies have

illustrated that control may increase distress when it conflicts with a person's preferred style (e.g., Averill et al., 1977; Miller, Combs, & Stoddard, 1989; Mills & Krantz, 1979; Shipley, Butt, & Horwitz, 1979). To illustrate, consider the sports referee who has been instructed to penalise the angry coach by administering a "technical foul" when all the referee would like to do is to walk away and continue with the game. This response would be especially likely if avoidance was the referee's coping style. Thirdly, the acquisition of information and control carries with it an increased sense of responsibility surrounding the outcome (Ludwick-Rosenthal & Neufeld, 1988). An individual who is unable to produce a satisfactory outcome in a controllable situation may feel incompetent and blamable for the event's consequences. Thus, individuals may prefer to avoid the sense of accountability that knowledge and ability to control the situation carry. Also, the availability of multiple coping options can sometimes create additional stress because of the dilemma placed by the different coping paths and the self-imposed expectations to make the best choice.

In summary, research has shown that perceived control and perceived stress influence individual coping responses. High perceived stress and perceived control have been positively related to approach coping responses and negatively related to avoidance coping. However, findings regarding the relationship between perceived control and perceived stress are equivocal.

Environmental Factors

Environmental factors refer to the relatively constant psychosocial and physical characteristics of the environment in which the stressful transaction occurs (Parkes, 1986). Research has demonstrated that people vary their use of particular coping strategies as a function of the kind of the environment in which they find themselves (Carver et al., 1989; Folkman & Lazarus, 1980; Holahan & Moos, 1987; Lazarus & Folkman, 1984; Parkes, 1986). Evidence on the influence of environment on individual coping responses includes comparisons of coping behaviour in different environments. For instance, Folkman and Lazarus compared coping behaviour in work settings to that

found in family environment. Among their findings was that subjects employed more problem-focused coping in work settings than in family environments.

Billings and Moos (1981) also acknowledged the influence of environmental characteristics in coping behaviour, especially in junction with other variables such as social support and personal resources (e.g., tolerance for anxiety). Events on the list of stressors that was used included illness, death, financial/economical problems, children, and other interpersonal and non-interpersonal factors. Results from their study, however, showed only moderate differences in coping strategies among various types of life-stressors within different environments. As the researchers pointed out, the lack of significant differences in the study might have been due to the yes/no response format that was used, a method which did not allow measurements of the frequency of the strategies used.

Personal Factors

Personal factors refer to relatively stable personality constructs that people draw upon to help them withstand stressful situations (Pearling & Schooler, 1978). Examples of personal factors that may influence coping with stress include self-esteem, optimism, locus of control, Type-A, and trait anxiety. The majority of the coping literature has supported the notion that personal dispositions influence to a certain degree the individual's coping behaviour (Carver et al., 1989; Holahan & Moos, 1987; McCrae & Costa, 1986; Parkes, 1986; Pearling & Schooler, 1978; Terry, 1991). For example, McCrae and Costa examined the influence of personality traits such as neuroticism, extroversion, and openness to experience on coping responses. Both self-report measures as well as spouse- and peer-ratings (external-behavioural measures) were used in the study. Results showed that all of the above personality dimensions were related to the subjects' coping behaviour. In a later study, Carver et al. (1989) reported modest links and between several personal disposition measures (e.g., self-esteem, locus of control, hardiness, Type A and B, trait anxiety, monitoring and blunting, social desirability) and ways of coping as measured by their COPE scale. Nevertheless, the

researchers contended that the results were significant for most scales. Pearlin and Schooler (1978) suggested that one's general psychological resources have also a buffering effect in the distress that individuals experience under strain. More specifically, findings from their study revealed that self-denigration, mastery, and self-esteem, in a hierarchical order of efficiency, were moderators of the subjects' perceived stress. On the other hand, several studies have found very low correlations between personal dispositions and actual coping behaviour (e.g., Cohen & Lazarus, 1973; Folkman & Lazarus, 1980).

In view of the equivocal findings, Miller (1992) suggests that dispositional differences may only manifest themselves under certain situational conditions. For example, researchers have demonstrated that the physiological and self-reported symptoms that accompany monitoring and blunting were only evident under high threat situations (e.g., Phipps & Zinn, 1986). Thus, conditions that may bring about the effects of personal dispositions include highly stressful events (Miller, 1992; Sparks & Spirek; 1988), and ambiguous or uncontrollable situations (see Lazarus & Folkman, 1984). Ludwick-Rosenthal and Neufeld (1988) reviewed the available research evidence regarding the effects of individual differences on coping behaviour and admitted that previous findings have been controversial. Nevertheless, the authors contend that:

The role of individual differences in coping dispositions as potent predictors of an individual's amenability to different intervention approaches deserves greater consideration. Failure to consider these individual difference variables may result in an overall weakened effect of an intervention in that significant benefits for some patients are dampened by a lack of effort for others. (pp. 338-339)

Lazarus and Folkman (1984) summarise that coping and appraisal are believed to be influenced to a certain degree by individual differences in psychological characteristics, personal resources and capacities, and personal commitments and values.

Beliefs and commitments. According to Lazarus and Folkman (1984), two variables that appear to make a difference in appraisal and coping are the individual's commitments

and personal beliefs. Commitments are an expression of what is important to the person, whereas beliefs are cognitive configurations of how things are in the environment. Commitments and beliefs underlie behaviour and direct individuals to and away from situations. The importance and the risks associated with an incident can either motivate and sustain behaviour or can cause severe stress. If a person is highly committed to the pursuit of a task then any doubt about the completion of the task can produce stress. Consequently, knowing one's commitments can help identify his or her areas of vulnerability. Vulnerable persons could be defined either as those whose commitments are endangered by the stressful situation or as persons with limited or deficient coping resources.

Self-esteem. Self-esteem refers to personal judgements of worthiness and positive feelings about oneself. High self-esteem has also been associated with a better quality of life across subjects from various cultures (Keller, 1987). It has been suggested that self-esteem, like other personal dispositions, may have a mediating role to the degree of perceived stress in coping. As reported earlier, Pearlin and Schooler (1978) examined the effects of psychological resources such as self-esteem, mastery, and self-denigration. Findings revealed that self-esteem dimensions had a buffering effect on subjects' perceived stress. Specifically, individuals with high self-esteem engaged in positive, active strategies to cope with stress. The positive correlation found between high self-esteem and adaptive coping strategies partially explains the mediating role of self-esteem on stress appraisals during the process of coping. Other studies have shown that low levels of self-esteem were associated with increased stress. Chan (1977), for example, reported evidence that self-esteem, helplessness, and chronic anxiety were good predictors of stress responses. In the sporting setting, Brustad and Weiss (1987) found that young male baseball players who scored high in Competitive Trait Anxiety reported lower levels of self-esteem and more frequent worries about their performance than did their less anxious counterparts. However, no significant differences were reported for female softball players in the study. In a later study with basketball players of both

genders (aged 9 to 13 years), Brustad (1988) confirmed Chan's findings that low self-esteem is a predictor of high competitive anxiety. Research has also demonstrated that high self-confidence is linked with better performance. For example, Taylor (1987) found that self-confidence, somatic anxiety, and cognitive anxiety were significant predictors of the performance of athletes from various college varsity sports. In other studies with wrestlers (Dwyer & Carron, 1986) and weight lifters (Mahoney, 1989), high self-esteem was found to be a characteristic of elite performers.

Of particular interest is the finding that participation in sports is related to high levels of self-esteem and self-confidence. Athletes often report higher levels of self-esteem when compared to non athletes (e.g., Hoffman, 1986). Thus, it appears that not only self-esteem may be a resource for coping with stress when competing, but that participating in sports may increase one's levels of self-esteem and, hence, promote successful coping.

Finally, researchers have often found differences in the degrees of self-esteem reported by male as compared to female subjects (e.g., De-Man & Blais, 1982; Lirgg, 1991). Lirgg's meta-analysis of differences between genders in self-confidence (a dimension closely related to self-esteem) in physical activity revealed that overall differences favoured males.

Optimism. The dimension of optimism has received relatively recent attention by researchers in the area of coping (e.g., Carver et al., 1989; Scheier & Carver, 1985; Scheier et al., 1986). Optimism has been defined as a person's tendency to form favourable expectations for her or his future (Carver et al., 1989). Theoretically, optimists are individuals who expect things to go their way, and thus, should engage in active task-related coping (Scheier et al., 1986). Research evidence suggests that dispositional, as opposed to situational, optimism is a prospective predictor of adaptive coping with stressful situations and that optimists and pessimists differ in their coping efforts. Scheier et al., for example, examined the role of optimism in the process of coping in two studies with undergraduate students. In the first study respondents were

asked to recall stressful situations from their past experience and report their reactions to the situations they had chosen, whereas in the second study subjects were presented with five hypothetical situations relevant to college students (e.g., final exams). Results from both studies confirmed the hypothesis that optimists and pessimists utilise different strategies to cope with stress. As was expected, optimism was positively associated with problem-focused coping, emphasising the positive aspects of a situation, and seeking social support. Pessimism was positively related to denial and distancing in the first study, and positively related to focusing on stressful feelings and disengagement from the goal in the second study. When the event was relatively uncontrollable optimism was related to acceptance or resignation. Contrary to the researchers' predictions, ratings of the importance and controllability of the situation were only moderately associated with optimism and pessimism.

Scheier, Matthews, Owens, and Magovern (1989) examined the recovery process of middle aged male coronary artery bypass patients in regard to their levels of optimism at different points of time. Results showed that before the stressful clinical procedure optimism was positively related to the employment of problem-focused coping strategies and negatively related to the use of denial. The week that followed surgery optimists showed a faster physical recovery rate and returned faster to normal life activities. Six months after surgery individuals high in optimism reported a better quality of life. However, it is not clear whether the optimists' conditions and quality of life were objectively better than those of subjects who were not as optimistic, or if the findings were due to the tendency of optimists to see that every dark cloud has a silver lining.

In summary, findings regarding personal factors and their effects on coping have illustrated that personal dispositions such as optimism and self-esteem may be moderator variables of coping with stress. Carver et al. (1989) suggest that research should further examine the effects of coping dispositions and personality traits in order to determine their contribution to successful coping.

Coping style. Much literature has examined coping styles as a relevant component of coping. Coping style refers to an individual's preferred way of coping. Approach and avoidance coping styles are two constructs that have played a historical role in the development of coping research (Roth & Cohen, 1986). These coping styles and the related constructs monitoring and blunting have been discussed earlier, in the section examining the process of coping and the categorisation of individuals' coping responses according to their focus (e.g., problem- and emotion-focused) or their method (e.g., approach and avoidance). As coping styles are considered to be dispositions, their influence on individuals' coping responses will be further discussed in this section.

Variations of the coping style theme are based on the degree to which they assume coping to be consistent across situations. Thus, coping is assumed to be consistent: (a) across a wide variety of stressful situations, in which case coping styles are viewed to be analogous to personal dispositions, and (b) under similar circumstances but possibly changing as features of the environment or cognitive appraisals of the environment change (Compas, 1987). Lazarus and Folkman (1984) argue that the reason why the predictive value of coping styles has been low in studies that have assumed stable coping styles is that these studies did not take into account the characteristics of the situation. On the other hand, some studies have illustrated that even in situations that clearly demanded the use of one coping strategy some people continued to use another (e.g., Averill & Rosenn, 1972; Miller, 1990; Miller & Mangan, 1983), thus supporting the existence of stable coping styles.

Research findings would have been more conclusive if the conceptualisation, measurement, and the indicators that researchers used to examine the effectiveness of approach and avoidance coping styles had been more systematic (Roth & Cohen, 1986). For example, a variety of instruments have been used to measure the coping process (for a review, see the section "the need for a new measurement of coping"). As a result, comparisons between findings of studies that have utilised dissimilar measures are inappropriate. Moreover, past studies have assumed that approach and avoidance fall into a bipolar continuum, forming the parts of one dimension with two opposite ends, not

catering for those individuals who fall in the middle of the scale (i.e., those who use both styles) (e.g., Averill & Rosenn, 1972; Byrne, 1961; Horowitz, 1976). Recent studies have suggested that approach and avoidance should be considered as two different dimensions rather than two ends of the same continuum (Miller, 1990; Roth & Cohen, 1986).

The relationship between coping preferences and other, more traditional, personal disposition variables is of particular interest to this study. This issue has also been investigated by Carver et al. (1989) who simultaneously administered measures of several personal dispositions (optimism, self-esteem, hardiness, locus of control, Type A tendencies, trait anxiety, and social desirability), a measure of general coping style (monitoring and blunting), and their newly devised COPE scale. University undergraduates who participated in the study were asked to indicate how they usually feel and what they usually do when they are under a lot of stress. Factor analysis of the items comprising the COPE revealed 14 factors describing general coping responses (e.g., active coping, turning to religion, alcohol-drug disengagement, denial). Further analyses of the data revealed moderate correlations between most personality and coping scales, thus suggesting that personal dispositions, general coping preferences, and coping strategies are not identical. As mentioned in an earlier section, those coping strategies that are believed to be adaptive were linked to the personal qualities that are acknowledged to be beneficial. A second experiment in Carver et al.'s study examined the stability of coping responses across situations that varied in regard to controllability and importance. Coping responses were measured using a dispositional and a situational version of the COPE scale. Results revealed patterns similar to their first experiment, and modest correlations between dispositional and situational coping as well as a few differences among some of the coping scales. In addition, it was found that the use of coping strategies varied based on the subjects' perceived importance and controllability of the situation.

Although the modesty of the correlations between personal dispositions and coping responses found in Carver et al.'s (1989) study may seem to question the importance of

traditional global traits in situational coping, earlier studies have shown that dispositions such as extroversion, optimism, neuroticism, and locus of control are associated with some aspect of the coping process (McCrae & Costa, 1986; Parkes, 1984, 1986; Scheier et al., 1986). Cohen (1987) argues that dispositional coping measures show good predictive validity and "tap" general personality dimensions. In view of their results and findings of previous studies, Carver et al. (1989) suggest that future research should examine coping preferences separate from personal dispositions in order to assess their relative importance in the coping process.

In summary, research evidence regarding the existence of dispositional coping styles, their relationship with more traditional personality constructs, and their influence on individual coping responses has been inconclusive. Yet, researchers acknowledge that the identification of coping styles may assist in better matching individuals and appropriate interventional programs. Moreover, studying the coping styles of individuals who cope successfully might be beneficial in understanding the factors that contribute to stress reduction and in providing useful information for those who have difficulties in coping (Schultheis et al., 1987).

Researchers have repeatedly emphasised the importance of considering the effects of and reporting subject characteristics such as age, gender, and experience in experimental studies (e.g., Endler & Parker, 1990). Only when such characteristics are known investigators are able to integrate research findings (Schultheis et al., 1987).

Coping and Gender

Research on the effects of gender on individuals' coping responses has been inconclusive. The majority of previous studies suggest that men and women differ in their use of coping strategies when dealing with stressful situations. Pearlin and Schooler (1978) found marked differences in coping strategies between males and females, with women dealing less effectively with stress than men. Specifically, women were more

likely to use avoidant-, emotion-oriented coping, while men tended to use approach- and task-oriented coping.

The notion that men, as compared to women, use more active and approach coping and less avoidance coping when dealing with stressors has been supported by several studies (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980, 1982; Stone & Neale, 1984). Other researchers found no gender differences in regard to problem-focused coping, although they found clear differences in emotion-focused and avoidance coping (Endler & Parker, 1990; Frydenberg & Lewis, 1991; Labouvie-Vief, Hakim-Larson, & Hobart, 1987). Women in these studies used more avoidance and emotion-focused coping strategies than men. On the other hand, some research has revealed no evidence of differences in coping due to gender (e.g., Folkman et al., 1987; Miller, 1987). In view of the findings that illustrated gender differences in coping, Wallbott and Scherer (1991) assert that research examining coping patterns that does not consider gender differences is inconclusive.

Coping and Age

As mentioned earlier, research has shown that sources of stress vary as a factor of age. Studies have also examined the effects of age on the coping strategies that people use to deal with their sources of stress. The majority of these studies have found some changes in individual's coping strategies as a function of age (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987; Larsson et al., 1988; Pearlin & Schooler, 1978). For example, Pearlin and Schooler found substantial relationships between age and coping strategies, but no overall advantages between younger and older subjects regarding the efficiency of the coping strategies that each group utilised. According to Pearlin and Schooler, dealing with marital problems, the older seek advice less often and are "more likely to engage in a controlled reflection of marital problems, both of which help to reduce stress; but the older, too, more often practice selective ignoring, which is counterproductive in the marital and parental areas" (p. 15). Their findings suggest that

individuals do not become more vulnerable and less able to cope effectively with stress as they age.

Larsson et al. (1988) examined appraisal and coping strategies of police officers dealing with acute stressors. Findings revealed that primary appraisals differed between the two age groups in that, older subjects appraised situations more as benign-positive and challenging than their younger counterparts. Differences in coping between the two age groups were only observed in regard to the "anger control" and "wishful thinking" coping strategies, with younger, less experienced, subjects reporting using these strategies more than older, more experienced, police-officers. However, their results indicated that age affects the subjects' appraisals of situations more than their actual coping responses. Finally, the officer's organisational position had a direct effect on coping, thus suggesting that experience or qualifications should also be considered when the subjects' age varies.

Folkman et al. (1987) also found significant differences in the coping strategies used by different age groups. Older, compared to younger, subjects used more passive and more mature coping strategies, sought less social support, accepted more responsibility, and used more distancing and positive appraisal. Such findings tend to substantiate Smith's (1982) argument that the primary coping strategy of older persons is to "adopt a distanced way of approaching reality" (p. 271) thus avoiding emotional involvement. On the contrary, Weigel and Weigel (1987) reported that younger members of rural families used more avoidance coping strategies than older members. Once again, younger subjects reported more stress than older subjects.

Other research studies have found no clear differences in the subjects' coping responses due to age (e.g., Folkman & Lazarus, 1980; McCrae, 1982). McCrae examined the ways in which older and younger adults (aged between 21 and 91 years) coped with stressful situations and found that older subjects coped in much the same way as younger subjects. However, younger subjects, compared to middle-age and older subjects, tended to rely more on hostile reaction and escapist fantasy in response to most stressors.

To explain the differences found in sources of stress and coping as a factor of age Folkman et al. (1987) offer three interpretations. Firstly, the developmental interpretation suggests inherent, stage-related changes in the ways people cope as they age. Thus, changes in coping are due to age rather than to environmental factors. Secondly, their contextual interpretation suggests that age differences in coping result from changes in the sources of stress. According to this approach people have to cope with qualitatively and quantitatively different encounters at different stages of their lives. Finally, the cohort interpretation suggests that members of various age groups differ in stress and coping because they grew up under different historical and contextual periods in society, and hold different values and beliefs.

Results from Folkman et al.'s (1987) study tended to support the developmental interpretation and so did results from a series of experiments in sport by Backman and Molander (1986a, 1986b). Specifically, Folkman et al. found clear differences between older and younger subjects in the type and amount of hassles they reported, and their coping patterns. Younger subjects reported more hassles having to do with finances and work, whereas older subjects reported more hassles having to do with environmental and social issues, home maintenance, and health problems. In terms of coping, younger individuals used more active, interpersonal, problem-focused forms of coping, whereas older persons, compared to younger subjects, used more passive, emotion-focused forms of coping. As differences in subjects' coping responses were apparent across diverse contexts, and as the coping patterns of each age group were generally appropriate to their stage of life, the researchers concluded that these findings were "for the most part consistent with a developmental interpretation" (p. 182). Backman and Molander (1986a, 1986b) examined the ability of several age groups of adult players to cope with situations of high arousal in miniature golf. Performance decrements were observed in high level competition for older golfers who were less proficient than their younger counterparts in coping with high-stress conditions. Differences were attributed to an age-related decline in task-relevant cognitive abilities such as memory, decision making, and attention. Osipow et al. (1985) added that perhaps older persons develop coping resources that

younger individuals lack, or that through experience older subjects acquire wisdom that assists them in dealing with stressors and in reducing the negative effects of stress.

A methodological problem pertaining to the studies by Backman and Molander (1986a, 1986b) and Folkman et al. (1987) is that the assessment of the subjects' stress and coping was short-term rather than longitudinal. As Compas (1987) suggests in his review of the age-related coping literature, in order to effectively study the effects of age on coping, longitudinal studies that examine differences in the modes of coping with the same individuals as they mature over time are needed. To overcome this limitation, McCrae (1989) conducted a longitudinal study of the coping mechanisms used by a sample of adults, testing and re-testing the same individuals over a long period of time to see whether they changed coping strategies as they matured. Results revealed a modest consistency in the subjects' coping responses over a period of seven years, showing that aging itself had little effect on coping behaviour. Thus, McCrae's findings did not support the developmental interpretation.

In summary, some studies have demonstrated that age influences both perception and coping responses to stress, while others have reported equivocal results. In terms of stress appraisals, results from studies that have found age differences suggest that younger individuals are usually more stressed. In terms of coping responses to stress, evidence suggests that older persons use different coping strategies than younger individuals. However, findings tend to vary as a result of the inconsistency in the measurement of coping responses. Yet, it appears that the ways in which sources of stress and coping responses may vary as a function of age should be considered. Likewise, differences in coping responses of individuals from different cultures may assist for the design of intervention strategies for coping with stress.

Coping and Cross-Cultural Differences

As indicated earlier, research examining sources of stress, appraisal, and coping responses of individuals from different countries is relatively scarce. The little available

literature has indicated that cross-cultural differences may exist in all three components of coping, sources of stress, appraisal, and coping responses. One such study found several differences in the coping responses of German and Israeli adolescents (Seiffge-Krenke & Shulman, 1990). More specifically, results showed that both cultures used mainly adaptive forms of coping and limited withdrawal behaviour. Israelis exhibited more consistent responses across situations and experienced greater stress due to cognitive factors compared to Germans who tended to exhibit situation-specific responses, and demonstrated clear patterns of approach-avoidance coping styles. Coping responses were influenced by the gender and age of the subjects, particularly for Israelis, with older subjects using fewer coping strategies than younger subjects.

Not only do sources and intensity of stress, appraisal, and coping responses vary among different nations, but so do the psychological and physiological symptoms and disorders due to stress. For example, occupational stress was found in more stress-related disorders for Brazilian professionals than for those from the United States (Sime, Rossi, & Lubbers, 1990). Differences in psychological symptoms (e.g., depression, anxiety, somatic discomfort, and stress) caused by stressful life events have also been reported between American black and white student-athletes (Smallman et al., 1991).

Further evidence of cultural differences in stressful life events and physical health problems was revealed between Asian and Caucasian graduate students, with the Asians feeling healthier than Caucasians (Leong, Mallinckrodt, & Kralj, 1990). However, no significant differences were found in terms of the subjects' psychological health. The researchers emphasised the role of socialisation experiences and its influence to the manifestation of symptoms in individuals from different cultural backgrounds. Finally, in Orth-Gomer's (1979) study New Yorkers were found to be twice as high in risk of dying of a coronary heart disease than Stockholm residents. The authors suggested that factors that should be considered as contributors to these cross-cultural differences include differences in genetic constitution, external physical environment, and personal habits such as eating, smoking, and drinking.

Research that has examined stress appraisals and coping responses while simultaneously considering differences due to personal dispositions is scarce. An example of such an approach is a study of the stress and psychological and behavioural responses of bus drivers in India and the United States (Evans, Palsane, & Carrere, 1987). The researchers found that Type A and Type B bus drivers in India exhibited and reported stress and psychological symptoms in a manner consistent with their personality type. In the United States, Type A and B bus drivers also differed in terms of perceived stress and psychological symptoms, but exhibited similar behavioural responses when driving in stressful conditions. These findings also illustrated the influence of contextual characteristics (i.e., norms for socially accepted behaviour, strict laws) on the individual's coping responses. For example, one may surmise that, although Type A drivers in both countries may be inclined to react to the stressful driving conditions by blowing their horns, differences in the severity of penalties imposed by traffic authorities in each country may limit drivers' coping responses. These findings suggest that researchers should not neglect considering the influence of contextual and social variables when examining cultural differences in coping responses.

Coping in Sports

Research investigating the process of coping in sports is scarce. Among few other studies, Krohne and Hindel (1988) examined the relationships among trait and sport-specific trait anxiety, coping dispositions, coping responses, and success in sports with top table-tennis players. Results indicated that successful subjects experienced low cognitive anxiety and utilised more avoidant than vigilant coping strategies.

In their study of the sources of stress and coping with Australian basketball players reviewed earlier, Madden et al. (1990) found that athletes reporting high perceived stress used increased effort and resolve, problem-focused coping, social support seeking, and wishful thinking coping strategies more than subjects reporting low perceived stress. Finally, in a study which has also been reviewed earlier, Rotella et al. (1985) attempted to

identify sources of stress and common coping responses of basketball officials. Subjects were asked to rate the frequency to which they used several general- (16 items) and referee-specific (8 items) responses in order to relieve their stress. General responses included "smoke cigarettes, exercise," and "confront the problem." Examples of sport-specific strategies included "blow a loud whistle," and "prepare thoroughly -- physically." Among the most frequently used general coping responses were ranked "exercise," "confrontation," and "time management." Least employed general coping strategies were "smoke cigarettes" and "drink alcoholic beverages." The most frequently employed game-related coping strategies were "prepare thoroughly -- physically, prepare thoroughly -- mentally," and "blow a loud whistle," whereas the least frequently employed strategy was "assess technical fouls." Only two of the 24 items ("prepare thoroughly -- mentally," and "use relaxation skills") referred to cognitive efforts of the individuals to manage their stress. Moreover, the researchers did not examine coping patterns as a function of coping style. Thus, it appears that further research is needed to discern the role of personal and situational factors on the coping process in sports.

Effects of Personal and Situational Characteristics on Coping and Adaptation

Much of the literature has examined the effects of personal and contextual variables on coping responses or on coping outcome independent of each other. On the other hand, according to the transactional theory, individuals' coping responses may be influenced by interactions between personal and contextual factors. For example, as it has been discussed earlier, the influence of personal dispositions such as self-esteem on a person's appraisal of the situation may be greater in ambiguous than in unequivocal situations. Likewise, perhaps optimists perceive stressful situations more favourably than pessimists.

Three models have been proposed to explain the ways in which personal factors and situational appraisals may influence coping responses and coping outcome (for a review

see Terry, 1991). The additive model proposes that personal and situational factors directly influence the coping process, and the effects of these factors are independent from each other. Based on this model, variables such as self-esteem and optimism affect an individual's coping responses irrespectively of his or her situational appraisals. The mediating model assumes that appraisal shapes the effects of personal factors on coping. This model postulates that personal dispositions can only affect coping through appraisal. Finally, the interactive model suggests that personal dispositions buffer the effects of appraisal on coping. According to this model, coping is a result of the interactions between personal variables and situational appraisals. Research comparing the efficacy of these models has been scarce. Moreover, the few studies that have tested personal and contextual factors for their additive, mediative, or interaction effects on coping and/or adaptation have yielded mixed results (e.g., Parkes, 1986; Terry, 1991).

Several studies have examined the relationships of a number of personal and situational variables with coping responses and adaptation. These studies can be categorised in one of two groups, those that have tested the mechanism through which personal and contextual variables are linked with the individuals' actual coping responses (e.g., approach-avoidance, problem- or emotion-focused strategies), and those that have focused on the outcome of coping (e.g., stress, satisfaction, psychological symptoms).

In the first category, Holahan and Moos (1987) assessed the coping strategies used by a sample of 400 adults who entered psychiatric treatment for depression and those used by a second sample of 400 normal subjects. Among the variables that were entered in the regression analysis that was employed for the purposes of the study were socio-demographic (e.g., education, income), personality traits (e.g., self confidence, an easy-going manner), and contextual factors (e.g., negative life events, family support). Results revealed that all of the above variables were significant predictors of the active and avoidance coping strategies employed by the subjects.

Somewhat different findings were reported by Holms et al. (1986) in regard to coping with everyday life stressors. Results revealed that, compared to personal

characteristics, the type and the characteristics of the stressor appeared to best predict the individual's coping responses. Similar findings were reported by Fleishman (1984).

Parkes (1986) argues that because coping is theoretically regarded as a mediator of the relationship between stress and well-being, factors that predict stress outcomes should also be able to predict coping responses. One of the most influential studies in the second category of studies, those that have examined personal and contextual variables as predictors of coping outcome, is Pearlin and Schooler's (1978) investigation of the relative contributions of personal dispositions and coping responses to psychological well-being. Pearlin and Schooler interviewed 2,300 subjects to determine whether it is a person's personality or their coping responses that make the most difference in regard to appraised stress intensity. As mentioned before, measures of personal dispositions included self-denigration, mastery, and self-esteem, whereas psychological well-being was measured by the amount of strain experienced by the subjects in four different contexts. Overall, findings were characterised by the lack of clear-cut patterns. Results showed that in areas where there is little opportunity for control (e.g., in the work-environment) coping behaviour was least effective in reducing the subjects' perceived stress, whereas personal dispositions were more helpful. In other contexts where individual efforts can influence the outcome of the situation (e.g., marriage, parenting, and household economics), coping responses were more helpful than psychological resources. These findings suggest that effective coping responses form the primary agent for reducing stress in the context of interpersonal relationships. In uncontrollable situations in job or finances, however, the individual's psychological characteristics are most important in sustaining well-being.

Several studies reported evidence for interactional effects between situational and personal variables (e.g., Martin & Lefcourt, 1983; Pearlin, Lieberman, Menaghan, & Mullen, 1981; Terry, 1991). McCrae and Costa (1986) examined the interactions among personal dispositions, coping strategies, and perceived happiness. The study showed that using efficient strategies was associated with subsequent reported happiness and life satisfaction. This result was partially due to the interaction between personal

dispositions, effective strategies, and degree of happiness. When psychological measures were partialled out the correlation between coping efficiency and subsequent happiness was reduced. Thus, their results provided support for the interactional model of stress and coping.

Aldwin and Revenson's (1987) study supported both interactional and additive models as a function of the type of coping mode they examined. Specifically, when the researchers examined problem-focused coping strategies findings supported the interactional model, whereas when they examined emotion-focused coping results supported the additive model. In view of these results the researchers suggest that perhaps problem-focused strategies are a function of the situation, whereas emotion-focused strategies are more dependent on the individual's personality.

Findings by Parkes (1986) are comparable to Aldwin and Revenson's (1987). Parkes investigated the effects of selected variables within all three factors that influence coping, environmental, personal, and situational. Coping measures included general coping, direct coping, and suppression. Although the results provided support for the interactional model of stress and coping, the patterns of relationships differed depending on which mode of coping (direct, general, suppression) was examined. Specifically, general coping responses were predicted by an additive model whereas direct coping and suppression were best predicted by an interactive model. All three factors, environmental, personal, and situational, were significant predictors of direct coping responses. Both situational and personal variables contributed significantly to the prediction of suppression. Environmental variables, with only a minimal effect for suppression, were the best predictors for general coping. Although Parkes did not examine the role of cognitive appraisal, results suggested that environmental, personal, and situational factors may directly and independently affect coping. The researcher concluded that "...different interactions between personal and environmental variables, acting through different appraisals, may underlie the different types of coping responses..." (p. 1290). Nevertheless, the importance of appraisal cannot be underestimated. Along with Lazarus and Folkman (1984), Wallbott and Scherer (1991)

emphasise the importance of carefully examining "how subjects themselves evaluate different stressful situations and the ways in which individual differences affect these evaluations" (p. 154).

Consistency of Appraisal and Coping Responses

As discussed earlier in the review of the coping models, the conflict regarding the degree of the influence of personal and situational characteristics on the individual's coping responses has yet to be resolved. In fact, the question of whether individuals exhibit consistent cognitive reaction patterns across different situations is a central theme of interactional personality psychology (e.g., Bem & Allen, 1974; Bem & Funder, 1978; Conley, 1984, 1985; Endler & Magnusson, 1976; Larsson et al., 1988). Likewise, a central theoretical question to be examined in the present study regards the degree of intra-individual consistency of coping responses across different stressful situations (i.e., whether individuals who differ in coping style dispositions differ always). If individuals are consistent in their coping behaviour then the prediction of stress reactions will be superior and stress interventions will be facilitated.

Past studies that have addressed the issue of coping consistency have investigated the temporal (over time) consistency (e.g., McCrae, 1989) or have examined the cross-situational consistency of coping styles (e.g., Larsson et al., 1988). The existing theoretical coping models provide support for both consistency and variability of appraisal and coping responses across situations. First, according to the interactional model of stress and coping (Lazarus & Folkman, 1984), individual appraisal is constantly changing as the situation develops. Based on this model it would appear that a person's coping responses change from situation to situation. Secondly, according to the trait model (e.g., Averill & Rosenn, 1972; Byrne, 1964; Horowitz, 1976; Kobasa, 1979; Miller, 1980, 1987; Petrie, 1978; Roth & Cohen, 1986), if personal dispositions do affect the individuals' coping responses in a given situation, then some consistency in appraisal and

coping should be anticipated due to the influence of stable personal dispositions such as coping preferences.

Relatively few researchers have examined the consistency of individuals' appraisals and coping responses across situations. Empirical findings from these studies have been equivocal. In terms of studies examining the consistency of appraisals, in their study with police-officers Larsson et al. (1988) found that although subjects' primary appraisals were strongly influenced by the characteristics of the situation, secondary appraisals were highly consistent across situations. They attributed the unexpected consistency to the uniformity in training of police-officers, the work socialisation among officers, and to selection variables (e.g., only certain individuals apply and get the job). In another study, Folkman, Lazarus, Gruen et al. (1986) examined the relationships among personal factors, appraisal, coping, health status and psychological symptoms of middle-aged adults, and the consistency of their appraisals and coping responses across five daily stressful situations. Results showed that both primary and secondary appraisal varied as a function of environmental conditions.

In regard to the consistency of coping responses across situations, some studies have reported high consistency (e.g., Billings & Moos, 1981; Miller et al., 1988; Stone & Neale, 1984), others low consistency (Edwards & Endler, 1989; Folkman & Lazarus, 1985; Menaghan, 1982), and others high consistency for certain coping responses and low consistency for certain other coping responses (Folkman, Lazarus, Gruen et al., 1986). In the first category of studies examining the consistency of subjects' coping responses across situations, several studies have revealed consistent patterns in coping preferences across situations (Miller et al., 1988), and on a day-to-day basis when dealing with similar (Stone & Neale, 1984) or with different daily stressors (Billings & Moos, 1981). For example, Billings and Moos reported only modest differences in coping strategies used among different types of negative life stressors such as illness, children, economic, death, and other inter-personal and non inter-personal factors.

In the second category, researchers have argued that coping across different situations is more variable than stable (Folkman & Lazarus, 1985; Menaghan, 1982).

These researchers contend that it is possible that coping modes may even change during different stages of the same stressful encounter. For example, Folkman and Lazarus (1985) examined the coping strategies used by students across the three stages of a midterm examination, anticipation, waiting stage after the exam and after grades were posted. Results showed that subjects used combinations of problem- and emotion-focused strategies during each stage of the exam. Problem-focused and positive reappraisal coping strategies were more prominent during the anticipation period, whereas distancing was more salient at the waiting period.

In the third category of studies examining the consistency of subjects' coping responses across situations, Folkman, Lazarus, Gruen et al. (1986) found that certain coping strategies showed moderate variability across situations (e.g., confrontive coping, seeking social support, problem solving) whereas others were relatively stable (e.g., positive reappraisal). These results suggest that some variables may be more influenced by personal dispositions (e.g., emotion-focused coping responses) than other variables that may be more influenced by the context of the situation (e.g., problem-focused coping responses). Thus, it is still unclear whether individuals exhibit consistent coping responses across situations and whether the influence of personal dispositions is greater or less than that of situational appraisals.

To examine the extent to which general coping style dictates actual coping style, Carver et al. (1989) administered a general and a situation-specific version of their COPE scale to undergraduate students. Subjects were asked to report both their usual ways of coping with stress as well as their actual coping responses on specific stressful situations. Specifically, in the general dispositional version of the COPE scale subjects were questioned about their coping preferences when dealing with stress in general, whereas in the situation-specific version they were asked to indicate how much they had relied to each coping strategy when dealing with a specific stressor that they experienced during the last two months. Results showed moderate correlations between specific and general coping scales. Carver et al. acknowledged that if subjects had reported their coping responses to standardised scenarios, correlations might have been even stronger.

In an experiment designed to further investigate the relationship between dispositional and actual coping style, Krohne and Hindel (1988) examined dispositional measures of sensitisation and repression, and situation-specific measures of attentional focusing (approach) and avoidance techniques used by table tennis players. Results showed that only the dispositional mode of sensitisation was related to the attention focusing strategies that were used by athletes during actual competition.

The majority of the studies that have attempted to assess the consistency of appraisal and coping responses across different situations share a common methodological problem. The coping measures that have been used in these studies usually require subjects to describe their own experiences of stressful situations. Because of the wide variety of the episodes reported by the subjects, researchers are often unable to accurately categorise and compare coping responses across dissimilar situations (Larsson et al., 1988). One rare study that has surpassed this limitation was conducted by Sidle, Moos, Adams, and Cady (1969). They assessed individual responses across the same three problematic hypothetical situations and reported mixed results for consistency and situational variability. Specifically, they found that subjects exhibited both preferred- and situational-specific coping responses.

As Chaplin and Goldberg (1984) recommend, the consistency of coping responses needs to be examined using similar classification methods. If subjects were to report their responses to identical situations, then comparisons of coping styles as well as the examination of the influence of personal dispositions would be facilitated. Larsson et al. (1988) add that in order to assess the actual appraisal and coping responses of subjects in a retrospective manner, situation-specific rather than global measures of coping need to be used.

Coping Effectiveness

A plethora of research has aimed to ascertain which coping strategies are beneficial for the individual and which are not. To measure coping effectiveness studies have utilised

measures of performance (e.g., task completion, evaluation by coach, goals scored) and/or psychological well-being (e.g., distress, perceived satisfaction, psychological symptoms) (for a review, see Suls & Fletcher, 1985). The majority of these studies have concentrated on assessing the individual's psychological health and well-being without being directly concerned with performance aspects (e.g., Billings & Moos, 1981, 1982; McCrae & Costa, 1986; Pearlin & Schooler, 1978). The assumption underlying this approach is that, considering the detrimental effects of stress on performance, healthier and happier individuals should perform better in specific tasks, in particular, and in life, in general. Thus, these studies surmise that efficient coping responses reduce the individual's stress who then perform better.

However, the assessment of the effectiveness of coping behaviour is not an easy task. A basic methodological problem, common to the research studies throughout the literature examining the consistency of coping, is the non-systematic conceptualisation and measurement of approach and avoidance coping (Roth & Cohen, 1986). In particular, Suls and Fletcher (1985) acknowledge the difficulty of evaluating coping effectiveness because of the interactions of attention and avoidance strategies with contextual factors.

For example, factors that need to be considered when evaluating the efficacy of coping strategies include: (a) the point at which coping effectiveness should be evaluated, (b) the controllability aspects of the stressful situations, (c) the definition of the area in which a problem has to be solved, (d) indicators of successful coping, and (e) the compatibility or relationship between coping style and situational demands (see Krohne, 1988; Roth & Cohen, 1986). A more detailed discussion on each of these factors follows.

Temporal factors. Evidence has suggested that the time of testing is important in determining the efficiency of coping strategies employed by subjects. For example, when studies measured coping outcome immediately or in relatively short-term periods, avoidance strategies were found to be associated more with adaptive outcomes, whereas

when the outcome measures were long-term effective individuals employed more attention (approach) strategies (Mullen & Suls, 1982). One limitation of such findings is that the investigation of the short term effectiveness of coping strategies consisted of different subjects than individuals who took part in the long term project. Nevertheless, these findings are comparable to Roth and Cohen's (1986) notion that avoidance strategies may be helpful in the short term. However, the authors recognise that problems in effective coping may arise in the long run if one does not deal with the demands of the problematic situation when appropriate.

Controllability of the situation. In most cases one cannot tell in advance whether a coping strategy is efficient or not without considering the situation. For instance, a factor that is believed to influence the coping process and determine coping effectiveness is the controllability of the situation. In general, avoidance appears to be a better strategy if the situation is uncontrollable, whereas approach appears to be more adaptive when the individual has a certain degree of control over the situation. Often, controllable incidents require vigilance for awareness and proper action. On the other hand, during uncontrollable events avoidance may benefit individuals by reducing their anxiety, whereas approach does not appear to have any obvious advantages. To illustrate with an example the above points, avoidance would appear to be a more efficient strategy for patients with terminal cancer because avoiding thoughts and emotions about the uncontrollable disease may at least lessen the patients' depression and anxiety. Conversely, for those individuals who are suffering from asthma attending to the symptoms of the disease and following medical advice and treatment may improve or even solve the problem. Likewise, in sport competition dwelling on a past mistake (approach) does not change the outcome but rather distracts the performer's attention from the game and may even create new problems. Alternatively, forgetting the mistake (avoidance) and directing attention to the next task should be more beneficial to performance.

Considering the characteristics of the situation also has implications for effective coping interventions. Miller (1990) suggests that effective self-regulation may involve the ability to discriminate variations in situational factors (e.g., controllability, predictability) and to tailor one's coping strategy according to the demands imposed by the situation (e.g., to use the appropriate avoidance techniques in uncontrollable events). Once the problem has been identified and individuals have become aware of the stressful situations that affect them, the next phase is to train people and enhance their sense in identifying critical situational factors.

Definition of the area (in which a problem has to be solved). Stress situations are often interrelated. As Krohne (1988) points out, a specific behaviour that deals with the demands of a situation efficiently may at the same time create a new problem in another area. Moreover, coping efforts rarely affect only the person who generates the coping behaviour. Most often coping occurs in social settings and influences interpersonal relations with others in the stressful situation. Therefore, when examining the effectiveness of coping behaviour, one should also take into account the ways in which the individuals involved in the incident interact. Consider, for instance, the interactions that take place in a basketball contest between the players and the referees, each one of whom may constitute a source of stress for the other. Administering a technical foul to a player may be an effective response for the referee because it deals with the problem (player behaviour), but at the same time it creates a problem for the player, the coach, and the team. The official's coping response (technical foul) may, in turn, trigger the player's or the coach's reaction and create new disciplinary problems. Thus, as this example illustrates, the evaluation of the efficiency of coping may be quite complex.

Indicators of successful coping. It is often difficult to decide whether or not a response is adaptive. In the studies reviewed by Mullen and Suls (1982), for instance, the effectiveness of coping strategies was most often defined in terms of physical adaptation, which was measured by subsequent somatic/physiological assessment.

However, measures of psychological well-being (e.g., measures of perceived satisfaction or distress) and performance (e.g., task completion, scores) have also been used in research as indicators of successful coping. In uncontrollable situations, for example, effective coping consists of preventing the external encounter from causing emotional distress and psychological harm (Krohne, 1988). Thus, one should not regard as efficient those strategies that only control the person's emotions without affecting the source of the threat, particularly in cases when the stressor may be potentially harmful in the long run. It appears that the efficacy of coping responses cannot be judged merely by the individual's physical adaptation. Instead, measuring the efficiency of coping responses should consider their effects in all three areas, physical adaptation, psychological well-being, and performance.

These considerations also apply in the measurement of the effectiveness of interventional programs designed to assist individuals in coping with stress. It appears that there is a need to conceptualise and establish an accurate method for the evaluation of the effectiveness of the treatment. Previous programs have aimed to enhance performance by managing the individual's physiological, cognitive, affective, and/or behavioural responses. In turn, a number of studies have attempted to examine the effectiveness of various stress management interventions. Indicators of successful interventions include assessments of physiological responses, psychological reports of cognitive and affective responses, and performance tests and behavioural observations. Findings from some of these studies failed to show significant differences between interventions or between treatment and non-treatment conditions (e.g., Long & Haney, 1988a; Tolman & Rose, 1989). Others demonstrated the superiority of one strategy over another (e.g., Long & Haney, 1988b). Cognitive-behavioural interventions appear to be compatible with the interactional theory of coping (Lazarus & Folkman, 1984). Empirical studies that have illustrated the effectiveness of cognitive-behavioural interventions in improving motor performance and/or in reducing anxiety include studies with volleyball (Crocker, 1989a, 1989b), gymnastics (Mace, Eastman, & Carroll, 1987), basketball (Meyers, Schleser, & Okwumabua, 1982), and tennis athletes (Anshel, 1990b). Cognitive-behavioural stress

inoculation training has been found to be effective in the management of chronic pain of adult patients irrespective of their age group (Puder, 1988).

Among others, a cognitive behavioural intervention that has been shown to reduce excessive anxiety responses and improve performance is Meichenbaum and Cameron's (1983) Stress Inoculation Training (SIT). The effectiveness of the SIT has been successfully tested with abseilers (Mace & Carroll, 1985), and classroom teachers (Cecil & Forman, 1990). Meichenbaum and Cameron (1985) describe their cognitive-behavioural intervention approach as follows:

The treatment procedures are designed to facilitate adaptive appraisals (conceptualisation phase) to enhance the repertoire of coping responses (skill acquisition and rehearsal), and to nurture the client's confidence in and utilisation of his or her coping capabilities (application and follow-through phase). (p. 117)

A popular stress management program in the area of sports is Smith's (1980) cognitive-affective training. To evaluate its effectiveness Crocker, Alderman, and Smith (1988) examined the performance and the affective, cognitive, and behavioural responses of volleyball players. Although no differences in affective responses were observed, improvements in cognitive and performance measures provided support for Smith's program. Smith's cognitive-behavioural training was also found to reduce anxiety and negative emotions of individuals during academic test performance (Smith & Nye, 1989). Other effective interventions include combinations of methods such as progressive relaxation and cognitive coping (e.g., Hillenberg & Collins, 1986), and rational-emotive therapy (Ellis, 1962) with cognitive-behavioural coping skills (e.g., Forman, 1990). Also, Anshel's (1990b) recently developed COPE model, which is the only available intervention designed to deal with the management of acute stress, has been successful with baseball, softball (Anshel, Gregory, & Kaczmarek, 1990), and tennis players (Anshel, 1990b).

Cognitive-behavioural interventions have become more popular during the past decade, gaining the recognition of researchers as a number of studies have demonstrated their effectiveness. In a 1984 study Hamberger and Lohr discussed the existing cognitive

stress management programs and their effectiveness. They concluded that Meichenbaum's SIT appeared to be the most beneficial, although, as they acknowledged, further research is required to examine which components of the stress inoculation procedures are the most essential. Nevertheless, new and perhaps more advanced interventions have been designed since. Therefore, updated reviews are needed to assist researchers and practitioners to select the one that best fits the needs of a particular population.

Compatibility between coping style and situational demands. The benefits of further investigating the role of personal dispositions and situational characteristics, and their relationship with approach and avoidance coping responses have been emphasised by researchers (Anshel, 1990b; Heikkinen, 1986). Anshel, for example, speculates that considering personal and situational variables should amplify the effectiveness of stress interventions. A factor that calls for thorough attention when examining the efficacy of coping strategies is the compatibility between the individual's coping style and the demands of the situation. In support of the interactional theory of stress and coping (Lazarus & Folkman, 1984), researchers have postulated that some individuals benefit more than others by the use of certain strategies (Krohne, 1989; Miller, 1989). Recently, the examination of coping effectiveness in the disciplines of medicine (e.g., Brody, Miller, Lerman, & Smith, 1989; Fry & Wong, 1991; Miller & Mangan, 1983) and clinical psychology (e.g., Cohen & Roth, 1984; Cook, 1985) has included attempts to identify patient variables that make a person more responsive to a specific form of treatment. The aim of such investigations was to assist the clinician in selecting the most suitable treatment for clients who seek treatment for anxiety, depression, pain, obesity, and dependence on alcohol and tobacco, considering their personal preferences. In one such study Avants, Margolin, and Salovey (1990-91) examined the effectiveness of progressive muscle relaxation, distraction imagery, focused imagery, and listening to music as means of reducing the anxiety of undergraduate students. Only distraction imagery and listening to music assisted subjects in reducing their anxiety. It was evident

that personal variables such as pessimism and cognitive anxiety had a significant effect in anxiety reduction. Finally, subjects characterised by a blunting coping style were more likely to find all stress management procedures appealing.

It has been postulated that individuals fare better in dealing with stressful situations when they are able to tune in to favourite and well-learned coping responses than when these options are not available (Carver et al., 1989). The practical implications of the argument are numerous. For instance, a person who is accustomed to seeking social support under stressful conditions may respond differently in situations where social support is not available. Or, the referee who dislikes direct confrontation may have difficulty coping with having to assess a penalty to a furious coach.

A fair amount of research in this area examining the fit between individual coping style and situational demands has been generated by Miller and her coworkers (e.g., Miller, 1980, 1981, 1989, 1990, 1992; Miller & Mangan, 1983). These studies have included hospital patients with various levels of intensity in their medical conditions. The researchers proposed that when the demands of the situation oppose one's coping style, one would exhibit high physiological reactions and report relatively higher levels of stress. Similarly, it was hypothesised that stress interventions would be most effective when procedures matched one's preferred coping style. Miller (1987) suggests that a distinction based on subjects' preferred coping style should be made before designing stress management interventions. Findings from her study illustrated that patients whose treatment opposed their preferred style showed more distress than those who were treated in respect to their coping style. The smaller the discrepancy between the subjects' preferred style and the treatment offered, the less was the observed psychophysiological distress. In another study, Miller and Mangan (1983) compared the stress reactions of 40 female patients prior to a diagnostic gynaecological procedure (colposcopy). Subjects were divided into information-seekers and blunters according to their scores on the Miller Behavioural Style Scale. High pre-surgery information and low pre-surgery information was administered to subjects of the two groups. Results showed that subjects who received threat relevant information that opposed their preferred style exhibited greater

levels of arousal as measured by physiological, self-report, and behavioural measures than those subjects who received treatment that matched their preferred coping style. Patients coped better when the level of pre-surgery information was consistent with their coping style.

Research on the compatibility between coping style and situational demands with different populations has revealed similar results (Cohen & Roth, 1984; Cook, 1985). Cook (1985), for example, examined self-reported and physiological stress responses of female undergraduates classified into repressors and sensitizers by the Repression-Sensitization Scale (Byrne, 1961). Results confirmed the prediction that information interfering with the subjects' preferred style would increase the severity of their physiological reactions. Findings also showed that repressors exhibited larger physiological reactions than approachers when the demands of the situation opposed their preferred style.

Other studies, however, have revealed no significant interactions between the subjects' preferred coping style and the treatment they received. For example, Steketee, Bransfield, Miller, and Foa (1989) found that matching animal phobics based on the type of information desired and their preferred coping style did not affect the outcome of phobia treatment. Likewise, Brody et al. (1989) found that the information desired by primary care patients and the information offered by the physician were not related to the subjects' satisfaction.

In their review of related studies, Dance and Neufeld (1988) conclude that although there is little consistency in the interactions between aptitude and treatment effectiveness, research findings have indicated that it is possible to distinguish between two broad groups of individuals based on their preferences for active or less active coping styles.

Once researchers realised the importance of individual characteristics in the coping process a new question emerged, whether one's coping style can be altered to fit the demands of the situation without causing additional stress to the individual. If this was possible, then the focus of stress interventions should be on the modification of the individuals' coping preferences based on the demands of the situation rather than on the

design of interventions suited to fit one's preferred style. This method could prove to be particularly useful in situations with little potential control opportunities. If a person can control the choice and execution of their coping responses, then interventions should teach subjects to recognise sources of stress, evaluate situations in terms of their controllability, and engage in the most appropriate cognitive strategies.

To investigate this possibility Fleischer and Baron (1988; cited in Miller, 1989) in an unpublished study examined dental patients during restoration procedures, considered to be an uncontrollable yet familiar situation. Patients who were categorised as information-seekers (monitors) and were taught to engage in cognitive-avoidance techniques by listening to relaxing music as a means of distraction showed significant reductions both in self- and observer-rated distress. Other studies have shown that interventions can affect the degree to which a person uses certain coping strategies. For example, Long (1988) showed that stress inoculation training combined with exercise not only reduced school teachers' stress and anxiety, but also decreased the use of emotion-focused and increased preventive coping. Similarly, teaching migraine patients relaxation techniques and coping strategies has been shown to increase the use of active coping and decrease avoidance and depressive reactions (Sorbi & Tellegen, 1988).

Krohne (1988) argues against this approach that instead of modifying an individual's coping style "a psychological intervention should aim at supporting a patient's [*individual's*] style of coping and, if possible, at matching situational circumstances with this style" (italics added, p. 20). To empirically test the effectiveness of interventions that match individual coping styles, Fry and Wong (1991) investigated the long-term effects of pain management training with 69 elderly subjects. Prior to interventions subjects were divided into two groups based on their preferences for problem- and emotion-focused coping strategies. Pain management interventions that matched individual coping preferences were presented to each group, while a third (control) group was given a mixed-focus intervention. Post-intervention measures of pain, anxiety, and arthritis impact were taken after 16 and 24 weeks. Findings revealed that all three interventions increased the subjects' satisfaction and adjustment and reduced

reported anxiety and pain symptoms. However, problem-focused interventions were the most effective followed by emotion- and mixed-focused interventions, respectively.

Nevertheless, research has shown that individuals with a large coping repertoire cope better with stress (Rosenbaum, 1989). Other studies have demonstrated that it is possible to enhance children's coping repertoires and assist them in dealing with threat and delay of gratification (Gallagher, Miller, & Mischel, 1988; cited in Miller, 1989). These findings may also apply to young or inexperienced referees. Thus, it appears that it may be beneficial to develop interventions that will teach individuals a variety of cognitive and behavioural coping strategies in order to improve their self-regulatory skills.

Often however, altering the characteristics of the environment is a more difficult task than modifying a person's coping style. The question whether counsellors should attempt to change the style of the individual or whether they should, instead, teach skills and offer interventions consistent to the subject's coping style remains tenable. The effect of treating patients according to their preferred coping style and the ability to alter coping styles in response to situational demands need further testing under situations that differ in characteristics such as controllability or imminence. Future research along this line may reveal significant findings with implications for individuals across many disciplines. For instance, for predictable stressors, it may be possible to assess personal coping styles and administer the appropriate preparation and instructions. Perhaps, during uncontrollable situations individuals may benefit by adjusting their coping style to the demands of the situation. Thus, stress management programs should consider the fitness of individual coping style and coping instructions. Failure to do so may cause additional stress rather than solve the problem (Miller, 1990).

In summary, researchers are in agreement that the assessment of the effectiveness of coping is not an easy task. Among the factors that counsellors should consider before teaching "effective" coping strategies is the fitness between the individual's coping style and the demands of the situation.

Costs and Benefits of Approach and Avoidance

As it has just been discussed, it appears that no single coping style is adaptive in all situations. Rather, the appropriateness of each coping response is a function of the person's preferred coping style and the demands of the situation. This section will review three models that provided general guidelines on the appropriateness of using each coping style considering the characteristics of the situation. Findings from studies favouring an avoidance and then approach coping styles with respect to personal and situational factors will be examined. Theoretically, when viewed in a broad way problem-focused strategies are similar to the construct of approach, whereas emotion-focused strategies refer to an internal focus and, most often, ensure disengagement from the task. Therefore, studies that have used the distinction of coping strategies into problem- and emotion-focused will be presented together with those that utilised the dimensions of approach and avoidance. Finally, a review of the results of a meta-analytic study of previous research findings on the effectiveness of approach and avoidance coping responses will serve as the summary of this section.

Krohne's coping effectiveness model. In an attempt to incorporate the possible coping patterns that emerge from both the individuals' dispositions and their actual coping cognitions as they are affected by the characteristics of the situation, Krohne (1986) defined four coping modes:

1. *A rigid vigilance (approach) mode:* Persons who are in this category tend to attend to relevant information about the situation irrespective of its demands and characteristics (e.g., controllability, predictability). These individuals, speculated Krohne, are more likely to face threat under ambiguous situations. In cognitive terms they are characterised by an "intolerance of uncertainty or negative surprise...a tendency to minimise 'misses'" (p. 238).

2. *A rigid avoidance mode:* Individuals in this mode tend to withdraw behaviourally and cognitively from all information or relevant features of the stressful situation, again without considering its demands and characteristics. These persons are

characterised by "an intolerance of emotional arousal...a tendency to minimise 'false alarm'." (p. 238). According to Krohne, rigid avoiders are under threat prior to confrontation with potentially stressful events, as soon as they become aware of the first negative-relevant cues of the situation. Their response is to avoid these relevant cues all together.

3. *Non-defensive mode*: A flexible use of coping strategies based on the demands of the situation. These individuals act according to the degree of controllability over the stressful situation using either direct action or avoidance strategies. Non-defensive individuals plan well-balanced responses according to the demands and characteristics of the situation.

4. *Unstable coping mode*: Individuals in this category use different coping strategies regardless of the characteristics of the situation. Because of the unstable manner in which they respond to stress they have been characterised as "unsuccessful copers" or "high-anxious persons." They use a mixture of approach and avoidance strategies irrespectively of the situation, in their attempt to cater for both "misses" and "false alarm" at the same time. They are characterised by a high degree of anxiety, which is increased by their efforts to control the situation and choose the best coping response, which in turn creates a constant conflict about the appropriateness of the strategy they adopt. According to Krohne (1986), a limitation of his model is that it refers only to internal responses that aim to alter the individual's perception of the situation, and not to those reactions planned to alter the situation.

Coping effectiveness as a function of controllability. The controllability of the situation has been considered to be an influential factor in appraising the threat and selecting the coping response. Miller (1990) presented a model designed to describe the adaptiveness of the monitoring-blunting coping styles based on the controllability of the situation (see Table 1). The researcher claims that the ability to identify variations in situational variables such as control is a prerequisite of efficient self-regulation.

Table 1*Adaptiveness of Coping Styles in Controllable and Uncontrollable Situations.*

	Low monitoring/ high blunting	High monitoring/ low blunting
Uncontrollable situations	A: Reduces anxiety and frustration	C: Increases anxiety and frustration
Controllable situations	B: Interferes with execution of instrumental actions	D: Allows for execution of instrumental actions

Note. From "To see or not to see: Cognitive informational styles in the coping process" by Miller, 1990, in M. Rosenbaum (Ed.), Learned resourcefulness: On coping skills, self-regulation, and adaptive behavior (p. 119), New York: Springer Press.

To illustrate the application of Table 1 in a sport context, consider a sports official who suddenly becomes aware of the presence of his or her supervisor situated next to the score-keepers' desk. The referee realises there is not much that can be done to remove the supervisor from the court (uncontrollable situation). Each time the referee blows the whistle he or she monitors the supervisor's reaction and becomes more and more anxious as the supervisor keeps taking notes about her performance (Cell C). Rather than attending to threat-relevant cues (e.g., supervisor shaking head or taking notes), this referee would perform better if he or she ignored the supervisor's presence and focused in game-relevant activities (Cell A).

Next, consider a referee who is being harassed by the coach of a team. Attending to the coach's arguments in this case serves two purposes. First, it provides the referee with a source of feedback about his performance. The coach's feedback has the potential to be beneficial provided that the referee acknowledges the fact that the coach's comments are likely to be slightly biased. Secondly, being constantly aware of the coach's behaviour allows the referee to take action and penalise the coach with a technical foul when he or she exceeds the limits of acceptable behaviour (Cell D). By administering the appropriate penalty the official may prevent further abusive behaviour from the coach, and thus reduce the negative effect that the coach's inappropriate acts may have on the behaviour of players and spectators. On the other hand, if the referee chooses to totally avoid confrontation with the coach further problems may arise (Cell B).

Approach versus avoidance coping style effectiveness. A third attempt to provide general guidelines for effective coping behaviour is Roth and Cohen's (1986) list of potential costs and benefits of approach and avoidance (Table 2). In regard to the benefits of avoidance first, Roth and Cohen suggest that avoidance strategies help to prevent anxiety from becoming a barrier for further action. Reducing emotional arousal in situations where action needs to be taken may be beneficial because it prevents interference from the correct decisions. Krohne and Hindel (1988), referring to sporting competitions, argue that "In a situation requiring immediate decisions and, hence, a

Table 2*Potential Costs and Benefits of Approach and Avoidance.*

Reaction	Benefits	Costs
Approach	Appropriate action	Increased distress
	Ventilation of affect	Non-productive worry
	Assimilation and resolution of trauma	
Avoidance	Stress reduction	Interference with
	Allows for dosing	appropriate action
	Increased hope and	Emotional numbness
	courage	Intrusions of threatening material
		Disruptive avoidance behaviours
		Lack of awareness of relationship of symptoms to trauma

Note. From "Approach, avoidance, and coping with stress" by Roth and Cohen, 1986, American Psychologist, 41(7), p. 817.

protection against any interfering event, players who preferably use avoidant coping strategies and rarely employ vigilant behaviour will be especially successful" (p. 228). If one's attention is distracted by external or internal disturbances, the individual will no longer be able to employ all the technical and tactical skills in a wise fashion after considering the demands of the situation. This conception was confirmed in Krohne and Hindel's study with high level table-tennis players. Findings indicated that players who frequently employed avoidance and relatively few approach strategies exhibited less anxiety than players who used relatively few avoidance coping strategies. Vigilance, on the other hand, was associated with increased cognitive anxiety. These findings appear to substantiate Gallwey and Kriegel's (1977) conception regarding the way people tend to interfere with their own ability to learn and perform. The authors argue that attending to inner self-talk on what to do in order to perform better increases anxiety and inhibits performance. Quieting the mind and avoiding negative thoughts overcomes self-imposed mental limitations and enhances performance.

However, Krohne and Hindel (1988) refer to avoidance as a means of "selective inattention," a mode in which one disregards irrelevant and distracting information and worry cognitions and attends to more useful input such as performance-relevant cues. As Suls and Fletcher (1985) point out, there is a semantic objection in the definition of approach and avoidance. For example, attending to external situational characteristics can also be considered avoiding internal signals and emotions. Conversely, avoiding the situation may involve attending to one's internal feelings and thoughts. Hence, when Roth and Cohen (1986) argued that when action is required approach strategies appear to be more effective, they referred to approach as an orientation towards situation-relevant characteristics, while at the same time implying the avoidance of all irrelevant and distracting material. Nevertheless, to clarify the issue, as it has previously been defined, approach strategies require activity oriented towards the situation and/or its emotional manifestations, whereas avoidance refers to behavioural and mental escapism from the stressor and all relevant material or emotions.

Returning to the discussion regarding the benefits of avoidance, Roth and Cohen (1986) also contend that avoidance facilitates approach strategies by providing the time necessary for gradual recognition of the threat and for planning coping strategies. Disengagement acts like a breather in the short run. Moreover, avoidance strategies may be especially helpful in acute stress incidents when the individual has little control over the situation, or when there are no short term effects (Mullen & Suls, 1982). As Anshel (1990a) illustrates using a sport example, players (or sports officials) "cannot afford to become distracted nor demotivated if an umpire or referee makes a 'wrong' call in situations in which sport activity is ongoing" (p. 6). On the other hand, it is possible that, in such uncontrollable situations approach strategies may allow for venting of one's emotions.

Some researchers in the medical area have investigated the effectiveness of coping strategies as measured by the patients' subsequent levels of satisfaction with the information provided to them during treatment. In one study Steptoe, Sutcliffe, Allen, and Coombes (1991) assessed the anxiety and satisfaction of metastatic cancer patients with the information provided about tests, treatment, and care, in general. Results showed that an avoidant coping style was associated with higher levels of perceived satisfaction. Patients reporting the highest level of satisfaction with information and the lowest levels of anxiety were more avoidant in their coping style than the remainder.

In other research, self-reports of dental patients and behavioural observations by their dentists has shown that external distraction in the form of music was an effective coping strategy for reducing the patients' pain and discomfort, while increasing their perceptions of control (Anderson, Baron, & Logan, 1991). Finally, Krohne and Hindel (1988) argue that an indisputable advantage of avoidance coping, compared to approach, is that it requires much less effort on behalf of the individual.

Nevertheless, avoidance coping includes "costs" such as failure to recognise dangerous aspects of the situation and to take action against the threat. For example, an athlete who does not pay attention to the symptoms of a new injury may end up with more severe complications than if he or she had not avoided the routine of medical examination

procedures. Kobasa (1982) found that lawyers who dealt with life stress by relying on avoidance strategies showed more psychological and physical strain symptoms than those who used approach. Similarly, Holahan and Moos (1985) found that individuals who showed psychological dysfunction under stress also reported that they tended to rely on avoidance techniques. Finally, Pearlin and Schooler (1978) reported that in their study those individuals who used selective ignoring, rather than taking action and using problem solving strategies, when dealing with interpersonal problems in the controllable areas of parenting and family also showed increased degrees of stress.

Similar to Roth and Cohen (1986), Larsson et al. (1988) maintains that although avoidance may be an effective strategy in stressful situations with no immediate complications it may have adverse somatic, emotional, and social disturbances in the long run. For example, the referee who does not attempt to discuss and resolve a conflict about a particular call with the coach as soon as possible after the end of the game may have to deal with the coach's criticism in future games. This postulation received empirical support in a study that examined the medical problems reported by monitors and blunders (Miller et al., 1988). Although there were no differences in the amount of discomfort and distress reported by the subjects, high monitors reported less severe medical problems than low monitors. Comparable results were reported by Ebata and Moos (1991) in a study of the long-term adjustment of healthy and distressed adolescents. Overall, individuals who used more approach and less avoidance coping were more emotionally adjusted. This highlights the importance of active strategies such as efforts to change, manage, or positively reappraise a problematic situation, for good long-term adjustment. Hence, as Cook (1985) suggests, perhaps stress management interventions should include distraction in the short run, and approach strategies in the long run.

Studies reviewed so far praised the short term benefits of avoidance strategies, but recommend approach coping in the long run in order to reduce chances of future complications. On the other hand, other studies have indicated that even in the long run avoidance strategies have a better effect on the individual's health. In fact, a finding common in the studies by Miller and her colleagues (e.g., Miller, 1980, 1989, 1990;

Miller & Mangan, 1983) with medical patients is that high monitors/low blunters represent a vulnerable population in response to every day stress and exhibit more frustration and poorer modulation of stress compared to their low monitors/high blunters counterparts. For example, Miller (1990) found that high-risk coronary patients were twice as likely to be characterised by a high monitor style. Moreover, Miller and Mangan (1983) found that the recovery rate from colposcopy gynaecological procedures was more rapid for blunters than for monitors. After two days, monitors continued to show more discomfort and pain than blunters. Another study by Miller et al. (1989) revealed that hypertensive patients were more likely to be characterised as high monitors and express more concern about their health status than normotensive patients who were likely to be characterised by a low monitor coping style. In summary, Miller (1990) maintains that it is more distressing and emotionally costly to be a monitor than a blunter. Considering these findings it may well be that certain coping responses or styles (e.g., a tendency to attend to threat-relevant information) have detrimental effects on the morale and well-being of sport participants. It may also be necessary to pay special attention to the needs of those individuals who are characterised by a high monitoring/low blunting coping style. Perhaps it would be safer and healthier for sports participants to engage more often in avoidance strategies, at least when the situation allows.

However, approach coping too has certain benefits. Continuing their discussion, Roth and Cohen (1986) contend that approach, which is defined as an orientation towards a threat, allows for noticing possible changes in the situation. Hence, the individual is able to take advantage of any opportunity or new information that becomes available. Furthermore, according to Krohne (1989), attending to threat-relevant information strategies allows prolonged warning time for the individual, and thus, a high degree of preparedness. On the other hand, costs of approach may involve consequences such as:

...heightened reactions of fear, i.e., emotional costs; increased self-protective behaviour, i.e., instrumental costs; the intake of many invalid signals, i.e., cognitive costs" and often "regret about wasted resources in the case of 'false alarm' (i.e., in case of confrontation with an invalid warning signal). (Krohne, 1989, p. 238)

Other studies have utilised the problem- versus emotion-focused classification of coping responses. Findings from the majority of these studies tend to support the use of the active or problem-focused responses as the most adaptive strategy. In several such studies individuals who preferred to engage in problem-focused, also referred to as task-oriented behaviour, reported being less anxious compared to subjects who preferred to employ emotion-oriented coping (Endler & Parker, 1990; Sarason & Sarason, 1981). Moreover, Billings and Moos (1981) found that adult community members who used active attempts to deal with a problem reported less stress than those who relied on avoidance strategies. In a subsequent experiment by the same researchers (Billings & Moos, 1982), individuals who used problem-focused coping responses also reported fewer life stressors. Results from Nakano's (1991) study of the coping responses of female Japanese undergraduates also supported the notion that active-behavioral and problem-focused coping may moderate, while emotion-focused coping and avoidance may enhance the stress-symptoms psychological/physical well-being relationship. Finally, in a study that examined the subjects' physiological responses, avoiders and repressors were found to have larger physiological reactions than approachers and sensitizers respectively, thus illustrating that approach coping is a healthier response style than avoidance (Cook, 1985).

A number of studies have investigated the respective benefits and costs of approach and avoidance coping. A major contribution in the query regarding the efficacy of avoidance versus approach strategies is Suls and Fletcher's (1985) meta-analysis of findings from previous studies. Although the overall results of their meta-analysis did not provide support for any one strategy's superiority over the other, when the studies under examination were grouped according to whether they examined short or long term outcomes several interesting patterns emerged. It was revealed that immediately or soon after the stressor's impact avoidance strategies were associated with positive adaptation more often than approach. The authors suggested that avoidance may be beneficial at an early stage because the individual does not have the resources to deal with the stressor at the moment, an interpretation consistent to Roth and Cohen's (1986) guidelines.

However, the majority of the studies that were entered in Suls and Fletcher's meta-analysis examined only low imminent situations, and no acute, high imminent, and high pressure events. Aware of this limitation, the reviewers add that avoidance strategies are more beneficial than approach strategies only when the consequences of short-term stressful events are relatively small. On the other hand, attention (approach) strategies appear to be related to better adaptation when the chronic period of outcome measurement exceeds the 3-7 days. Likewise, when the researchers examined studies that defined approach as attention to sensations rather than emotional processing avoidance was found to be a less efficient strategy in terms of adaptation.

When the researchers entered in the meta-analysis studies that used trait measures of approach and avoidance results favoured individuals characterised by an avoidant coping style. Further computations suggested that the mere use of any of the two cognitive techniques (either avoidance or approach) appeared to facilitate adaptation as compared with no instruction controls. In view of these results, Suls and Fletcher (1985) conclude that "...providing a subject or patient with a systematic way to cope is better than letting them fall back on their own devices, which may be initially haphazard" (p. 271). Their proposition received further support in a later study (Krohne, 1989) with patients facing a surgical operation. Results showed that minimal use of both approach and avoidance strategies was associated with high biochemical stress reactions, whereas the mere use of one or both groups of strategies by subjects was associated with lower degrees of stress. Thus, the investigator recommended that teaching individuals a variety of coping responses may result in a flexible coping style that is adaptive to situational demands. Krohne (1988) refers to this adaptive coping style as non-defensiveness.

Evidence for the benefits of a flexible coping style is not recent. As early as 1978, Pearlin and Schooler found that the quantity of the coping responses and psychological resources that individuals possessed appeared to minimise the chances of experiencing excessive emotional stress. Subjects in their study reported using more coping strategies in highly stressful situations compared to less stressful incidents. To interpret these results the researchers suggest that stressful events may require more strategies, or that

individuals used more coping strategies to increase the likelihood that one will be successful. However, Pearlin and Schooler found that using a greater variety of coping responses had no clear benefits in reducing reported stress. The researchers propose that although having a large coping repertoire may be useful, it may be more time and energy efficient if one could choose the most effective strategy for each situation. They conclude that "it is clearly better to be armed both with a repertoire of responses and a reservoir of resources than to have either alone" (p. 12).

In a later study, Billings and Moos (1981) found that better social networks, higher socioeconomic status and educational background were associated with the use of active coping responses and served as mediators buffering the effects of stress. Ell (1986) examined the characteristics of patients who cope successfully with illness of similar degrees of seriousness. Results showed that those who could overcome their illness used a variety of coping strategies, were more internal, and had access to and effectively used social network support. More recently, Holahan and Moos (1987) examined whether individuals armed with better resources used active or avoidant strategies. The researchers defined as active those strategies that are oriented toward confronting the problem, a definition similar to that for approach strategies. Results indicated that individuals with greater personal and environmental resources used significantly more active than avoidance strategies when dealing with stressors.

Cohen (1987) contends that there is no research consensus about which coping style is most useful. Rather, the effectiveness of each coping style has to be evaluated in respect to the characteristics of the situation and the individual(s) concerned. Hence, Roth and Cohen (1986) refer to the "ideal case of coping" where the benefits of avoidance and approach strategies are realised and the costs minimised.

Methodological Considerations

Several methodological and theoretical limitations apply in the study of coping. These problems vary from the general difficulty of measuring coping (a constantly

changing process) to the low psychometric properties of the scales that have been used for measuring coping. These can be categorised in limitations in the design and methodology of the studies that examined the coping process and in limitations of the instruments used to measure the subjects' coping responses.

Problems in the Design of Past Studies

Methodological problems or limitations evident in previous studies include the difficulty of measuring a changing process such as coping, the difficulty of assessing one's intentions by examining coping responses, the non-systematic measurement of coping effectiveness, the use of laboratory rather than realistic studies, the failure to distinguish between chronic and acute stress, and the relative absence of coping research in sports.

Based on Lazarus and Folkman's (1984) definition coping as a constantly changing process, asking individuals how they cope at a specific moment does not capture their entire coping efforts. Lazarus and Folkman contend that "there is no substitute for the direct assessment of coping acts and how they change with changing demands of the situations as they are appraised by the person" (p.130). Krohne (1988) also emphasises the importance of studying coping as it occurs, that is, as a procedure rather than as a single event. Krohne contends that a scale has yet to be developed that will assess coping responses while encountering a stressful event.

Fleming et al. (1984), in their review of literature, argue that the variety of coping options available in most incidents makes it difficult to assess a person's intentions (i.e., understand why one chose a particular strategy) when he or she engages in a particular behaviour. For example, it is not certain if a sports official avoids responding to a coach's arguments due to avoidant coping style or is simply showing a lack of courage in using the appropriate coping technique. Also, a strategy that may work for a person at a particular time and in a given situation may not work at another time or in different situations. According to the Fleming et al., a third limitation in the study of coping is the failure to examine the effectiveness of coping strategies. As discussed earlier, researchers

have often associated coping effectiveness with the outcome of the situation, and other times with the individual's psychological symptoms, perceived satisfaction, or performance.

A large number of experimental studies in the area of coping have been conducted in laboratory settings using artificial tasks and situations such as the cold pressor task (for a review, see Suls & Fletcher, 1985). Several researchers have argued that it is important to examine the coping process in naturalistic life situations. Larsson et al. (1988), for example, assert that in realistic situations inefficient coping often results in serious consequences for the individual's well-being, as opposed to laboratory settings where subjects do not deal with real threats or dangers. Likewise, Lazarus and Folkman (1984) argue that research findings from real life situations, compared to superficial findings in laboratory settings, are of superior value to the study of the coping process. Thus, these researchers question the validity of findings in laboratory studies and their applicability in realistic life situations.

Another limitation inherent in the vast majority of the studies examining the influence of personal and environmental factors on coping responses is their failure to distinguish between chronic and acute stress. Several researchers have demonstrated that chronic as opposed to acute stressors have different effects on the individual's well-being, and thus, may require the use of different coping strategies (also see "Chronic and Acute Stress"). Therefore, research in the area of coping should differentiate between the two types of stress.

As discussed earlier, it is very likely that several variables may differ for subjects selected from various populations. These may include the sources of stress, the psychological skills and the physiological demands of performing motor skills, the personal characteristics of the individuals involved in the vocation, and the options available for action. Thus, the importance of situation-specific studies for the conceptualisation of stress and coping and the implications for the individuals' well-being cannot be overemphasised (e.g., Folkman, Lazarus, Dunkel-Schetter et al., 1986; Krohne, 1988). The majority of previous studies in the area of coping have been

conducted with medical patients or psychology undergraduates, whereas there is a virtual absence of coping research with sport participants.

Finally, a variety of self-report scales have been developed and used to measure coping responses. Some of the limitations of previously developed scales will be discussed, followed by suggestions for improving the measurement of coping.

The Need for a New Measure of Coping

Issues regarding methodological problems of existing coping scales include the non-systematic conceptualisation of coping, the variety of situations used to trigger subjects' responses, the examination of ego- versus physical-threat situations, the difficulty to distinguish between avoiders and "true" avoiders, the underdeveloped psychometric properties of some scales, and the inclusion of inapplicable coping items.

Previously developed coping scales have examined individual coping responses to a variety of stressful events (Endler & Parkes, 1990). In using these instruments, several researchers have attempted to identify the basic dimensions of coping responses (e.g., Pearlin & Schooler, 1978; Billings & Moos, 1981, 1984; Folkman & Lazarus, 1980, 1985). For example, Billings and Moos (1981) identified three coping modes, active-cognitive, active-behavioural, and avoidance. Roth and Cohen (1986) classified coping in approach and avoidance strategies, and Folkman and Lazarus (1980) separated strategies into emotion- and problem-focused coping responses. The non-systematic conceptualisation of coping responses throughout the literature limits the generalisability of many research findings.

Likewise, it appears that the appropriateness of comparing data from subjects' coping responses on dissimilar stressful situations is questionable. This limitation is quite common in studies that have not used standardised scenarios of stressful situations and have allowed subjects to select and respond to their past personal stressful experiences.

Furthermore, Krohne (1988) notes the need to differentiate between ego- (or evaluative-) and physical-threat situations when examining coping responses. Rarely have the effects of ego-threatening incidents (e.g., evaluation by significant others, fear of

failure) been assessed by investigators. Instead, the trend among the majority of previous studies has been to evaluate coping responses during events that impose physical threats for one's well-being (e.g., medical problems).

Cook (1985) refers to "true" repressors and sensitizers, suggesting that it is difficult to determine whether individuals report or suppress their actual stressful feelings and behaviour according to their coping tendencies (approach or avoidance). Research has, indeed, demonstrated that true avoiders, because of their personal style, report less subjective stress reactions than they physiologically manifest, as opposed to sensitizers who report more stress than their physiological reactions indicate (Krohne, 1989). This may partially explain the discrepancies found in studies that have used both self-report and physiological measures of stress. Future studies should consider the individual's actual responses as manifestations of stressful feelings.

Another issue of concern in the measurement of coping is the poor psychometric properties of some of the scales that have been used by past research. For example, one of the first scales developed for the purpose of measuring dispositional coping is the Repression-Sensitization scale (Byrne, 1961). However, subsequent research found this scale to be highly correlated with measures of trait anxiety, thus lacking discriminant validity (Cohen, 1987). Another problem with the R-S scale is that it is uni-dimensional. Roth and Cohen (1986) oppose the appropriateness of uni-dimensional measures of coping style arguing that they fail to cater for individuals that fall in the middle of the scoring distribution.

Several other coping scales have been developed in more recent years by various researchers (e.g., Carver et al., 1989; Endler & Parker, 1990; McCrae, 1984; Miller, 1987). These scales differ on their level of generality and applicability, according to the researcher's goals. Endler and Parker (1990), in discussing the limitations of the existing instruments, refer to the lack of empirical support and poor psychometric properties such as low internal consistency and high correlations between subscales. For instance, in some of these scales Cronbach's (1951) alphas reach as low as .35 (McCrae, 1984), .41

(Billings & Moos, 1984), or .44 (Pearlin & Schooler, 1978), indicating low internal consistency.

An inventory that has shown better psychometric qualities and has been used extensively by researchers during the past few years is the Ways of Coping Scale (WOCS) (Folkman & Lazarus, 1980). The WOCS was intended to be used as an episodic coping measure. Its latest version, the Ways of Coping Questionnaire (WOCQ) (Folkman & Lazarus, 1985), consists of 67 items that comprise eight factors. Broad categories include problem- and emotion-focused coping strategies. The WOCQ has its limitations too. Since it was first developed the inventory has been factor analysed in several studies. However, each analysis contributes new factors due to the particular subject sample under examination or the situation being studied. In addition, as Carver et al. (1989) point out, the distinction between problem- and emotion-focused strategies is not very clear. Because most coping responses can fit into both categories (i.e., responses can be categorised as either or both problem- and emotion-focused) it is often difficult to classify individuals' responses to one of these two categories. Also, researchers have often dropped or added items to the WCQ or the WOCQ according to the population under investigation (e.g., Parkes, 1986; Scheier et al., 1986), adding to the methodological problems mentioned earlier.

Miller (1987) developed the Miller Behavioural Style Scale (MBSS), a trait measure of coping that classifies individuals as monitors and blunters on the basis of their "preferences for information and distraction in a variety of naturalistic stress situations" (p. 346). The MBSS has been found to be an instrument with good discriminative and predictive validity in a series of studies, used mainly with hospital patients (e.g., Miller, 1987; Miller, 1990). One strength of the survey is that its monitoring and blunting scales have been found to be unrelated to trait measures such as repression-sensitization, depression, anxiety, optimism, attributional style, and Type A.

A more recently developed inventory for the measurement of coping that has shown good psychometric qualities is the COPE scale (Carver et al., 1989). Respondents are asked to recall a stressful situation and describe what they usually do when dealing with a

stressor, by circling a number from 1 to 4 on given response options. Based on factor analyses of data obtained from a large sample of undergraduates, Carver et al. identified 11 factors including scales such as "active coping, acceptance, planning, turning to religion, denial," and "alcohol-drug disengagement." The COPE has shown good discriminant validity when subjects' responses were compared to measures of personal dispositions and Miller's (1987) measure of dispositional coping (MBSS). As mentioned, the correlations between the MBSS' monitoring and blunting dimensions and the COPE's active coping and disengagement scales, respectively, were not significant. Carver et al. (1989) ascribed the absence of such correlations to the fact that monitoring and blunting are limited to the information-seeking component of active coping or disengagement behaviour. In one experiment of the same study, the researchers used the COPE survey as both a dispositional and situational measure of coping by modifying the response format from a dispositional to a situational, and by asking subjects to think of the most stressful situation they had experienced during the past two months. However, Carver et al. admitted that they had no control over the variety of situations that the subjects used as a basis to describe their coping responses.

It appears that both the COPE and the WOCQ inventories share a significant limitation with the majority of the existing measures of coping. These inventories do not control for differences in the intensity, imminence, or importance of the situations about which subjects report their coping responses. Instead, respondents are asked in these scales to recall a stressful situation that they experienced between the last two or six months. As a result one person may report his or her reactions and feelings to the recent death of his or her father, whereas another may recall losing to his or her sister in tennis at the beginning of the year, and thus describe using totally different reactions and coping strategies. As mentioned earlier, the appropriateness of comparing subjects' coping responses on dissimilar stressful situations is questionable. On the other hand, situation-specific approaches to the measurement of coping responses are richer in descriptive value, even though they may have less generalisability. Because coping is dependent on the contextual characteristics, such instruments may be essential for understanding coping

in specific situations. In addition, a situational approach significantly reduces the problems created by general or inapplicable items.

The issue of inapplicable items is another limitation quite common to coping inventories. Problems generated by the use of inapplicable coping items have been examined by Stone, Greenberg, Kennedy-Moore, and Newman (1991), together with issues related to the definition of the period for which subjects report their coping responses (stage of the coping), and those related to the meaning of the key used to measure coping responses. The researchers administering the WOC survey found an average 17% rate of "non applicable" coping responses across all problems reported by subjects. Thus, results suggested that inapplicable items and non-specific instructions may lead to deceptive results and conclusions. As indicated earlier, the majority of the existing inventories have not differentiated between chronic and acute stress, thus, assuming that all situations allow time for thinking or seeking information. For example, the WOCQ includes several items (coping options) of the type "turning to religion," or "I went home to watch TV." Obviously such items refer to responses that are inapplicable in acute, time-limited stressful situations. During sport competitions, for example, there is not sufficient time for second thoughts. Especially in a fast game such as basketball, there is time only for a quick reaction before the game resumes. As Stone et al. conclude, the type of stressful encounter "could influence both coping (different numbers of coping items applicable) and outcome and could bias the relationships that are found" (p. 654).

As indicated earlier, several researchers have suggested that an instrument designed to measure the coping process should be profession-specific and refer to concrete stress-inducing situations (e.g., Folkman, Lazarus, Dunkel-Schetter et al, 1986; Krohne, 1988). Larsson et al. (1988) recommend that "a retrospective assessment strategy which takes into account the actual appraisal and coping process of a person in several stressful situations" (p. 260) is the appropriate methodological approach for the study of the coping process. According to Lazarus and Folkman (1984) a measure of coping responses must "(a) refer to specific thoughts, feelings, and acts, rather than what a person reports that he

or she might or would do; (b) be examined in a specific context; and (c) be studied in slices of time..." (p. 317).

Cohen (1987) adds that "if more investigators use more than one coping scale at a time, and evaluate their validity, we will be better able to judge in the future which measures are most useful" (p. 300). An examination of subjects responses in two coping scales will provide information both about the validity of the scales and the coping process. Moos and Billings (1982) advise that there is a need to develop an instrument that will be able to measure coping strategies across different situations. Krohne (1988) suggests the use of a multi-dimensional scale that will simultaneously measure the degree of appraised stress for each situation together with the individual's coping responses to the stressors.

The present study attempted to overcome some of these limitations in measuring coping responses. The scales developed for and used in this study to measure the acute coping responses of basketball referees and athletes were profession- and situation-specific, thus controlling for inapplicable items (see Stone et al., 1991). To control inter-individual variations in the stressful situations upon which individuals inferred their responses, subjects were presented with standard realistic scenarios of events that occur during competitions. The MBSS (Miller, 1987), a general coping style instrument, was also used to provide a basis for inter-individual comparisons of the subjects' coping styles and concurrent validity as recommended by Cohen (1987). A measure of the subjects' degree of perceived stress and controllability for each situation was used simultaneously, as suggested by Krohne (1988). A complete description of the measures that were used and their psychometric properties is located in the method section of each of the three parts of this study.

In summary, previous researchers have not systematically examined the sources of and responses to acute stress before suggesting strategies to deal with stress. Because of the diversity of situations that individuals encounter and because of individual differences in personal dispositions research should examine the coping process as a function of personal and situational characteristics. Empirical research in coping is necessary to assist

the design of cognitive-behavioural interventions for sport participants. As Wilks (1991) advises, due to the complexity of the process of coping, a multi-dimensional approach that includes cognitive and behavioural strategies may be more appropriate to address the needs of sport participants. Finally, attempts to reduce stress should also focus in designing the workplace environment and work organisation to match the physical, physiological, and behavioural limitations of the sports participants (Byers, 1987; Hawkins, 1987). Such efforts may include re-examining factors such as job demands and roles, inter-individual relationships, opportunities for development, and other structural factors.

Chapter 3

Study I

SOURCES AND INTENSITY OF ACUTE STRESS IN ADOLESCENT AND ADULT BASKETBALL REFEREES: CROSS-CULTURAL COMPARISONS

Method

The purpose of study I was to examine the intensity of several stressful situations that affect basketball referees during the game, and to study the most commonly used responses to acute stress among basketball referees in order to gain insight into their personal thoughts, feelings, and reactions to acute stressors. Another objective of this study was to compare the degrees of perceived stress between adolescent and adult Australian basketball referees, and between Australian and Greek basketball referees.

Subjects

The first group of subjects in this study consisted of 38 adult basketball referees (ages 19 to 46 yrs) and 26 adolescent basketball referees (ages 14 to 18 yrs) who were members of their respective referee organisations in New South Wales, Australia. A second pool of subjects consisted of 75 adult basketball referees (ages 29 to 49 yrs) who

were members of the referees' association in Greece. Of the 139 officials who completed the survey only five were female, which did not allow for gender comparisons.

Generation of the Basketball Officials' Sources of Stress Survey (BOSSS)

The Basketball Officials' Sources of Stress Survey (BOSSS) is a self-report inventory that was developed for this study. BOSSS assessed the perceived relative intensity of acute stress experienced by referees in different situations during a basketball game. The items included in the questionnaire were selected from a review of scientific and anecdotal literature on sports officiating and based on interviews with six current and two retired basketball referees. The final version of BOSSS consisted of 15 acute stressful situations, listed in random order (see Appendix A).

To establish content validity, a referee supervisor and two experienced referees examined the survey to confirm that each source of stress is experienced by basketball officials, and to suggest any additional stressors that should be included. The referees who completed the questionnaire were also asked if they thought any potential stressors were not included in the survey. No suggestions about any additional consistent potential stressors were made. This supported the content validity of the survey by showing that the 15-item inventory is a comprehensive list of the actual acute stress situations that referees experience on the court. A high school English teacher reviewed the survey and confirmed that it could be comprehended by persons with a minimum grade 8 reading level.

The survey was then translated into Greek by a bilingual speaker. In order to ensure that the Greek version was conceptually equivalent to the English, it was then translated back to English (see Berry, 1969). A high school Greek language teacher examined the survey for its readability and confirmed that it could be comprehended by persons with a minimum grade 8 reading level. To cross-validate the BOSSS a Greek referee supervisor and two Greek experienced referees reviewed the survey to confirm the appropriateness of the items. Only minor changes were made to the wording of a few items. The Greek version of the BOSSS appears in Appendix B.

Construct validity, a measure that provides evidence that an instrument operationally defines the construct it was designed to measure, in this study acute stress, was also

obtained. Construct validity may be ascertained by deriving hypotheses from the theory involving the construct, and testing the hypotheses empirically (Kerlinger, 1973). This was accomplished in this study with the BOSSS in two ways. First, an exploratory factor analysis indicated that certain forms of acute stress were of greater intensity than others (see results section, Table 4). Second, the hypothesis that sources of stress would differ between older and younger referees was supported in this study. Thus, the construct of acute stress was measured by the use of BOSSS.

Procedures

In Australia the BOSSS was administered by an investigator to 92 adult referees who attended a basketball referees' conference, and to 26 adolescent referees who were present at a seminar. The survey was returned by 64 (70%) of the adult referees, and all 26 (100%) of the adolescent referees in Australia. The Greek version of the BOSSS was administered to 102 Greek referees at the annual National Basketball referees' conference (Olympia, Greece). A total of 75 (74%) of the Greek referees returned the surveys.

In the survey the referees were asked to "circle the number that best describes the amount of stress you feel for each example" on a Likert scale ranging from 1 (not at all) to 10 (extremely). Past research has demonstrated that qualitative data often provide valuable insight into the subjects' thought processes (Patton, 1980; Scanlan, Ravizza, & Stein, 1989). To obtain qualitative data concerning their physical and mental responses to each source of stress, the referees were also asked to give personal examples of the stressful situations and their responses. A typological analysis of the subjects' responses was conducted using the raw data obtained in the transcripts. The referees' comments were organised into categories of similar context using an inductive content analysis technique (Cohn, 1990; Patton, 1980).

Results

Results from the analyses of the referees' responses to the BOSSS are presented in two sections. The first section discusses findings from data collected from the Australian referees, and includes comparisons between adult and adolescent subjects. Because past research findings have shown that the sources and intensity of stress vary as a function of age (Folkman et al., 1987; Kennedy, 1985; Osipow et al., 1985), further (cross-cultural) comparisons of the Australian and Greek officials only involved the adult, not adolescent, Australian referees. Thus, the second section describes the sources and intensity of stress for Greek adult referees as compared to findings reported by their Australian adult counterparts. Each of the two sections, in turn, includes a quantitative and a qualitative analysis of the referees' responses.

Mean stress scores for each group of officials were derived from the average scores on the 15 stressful situations on a 10-point scale. The overall stress level experienced by referees within the three samples was moderate (i.e., average ratings did not exceed $M = 4.55$ for any group). However, measures of variability suggested that the intensity of perceived stress differed among individuals. Descriptive statistics and ranks for the 15 sources of stress for adult and adolescent Australian referees and their Greek counterparts are presented in Table 3.

A principal components factor analysis with varimax rotation was computed on the responses of the combined sample of referees to the 15 BOSSS items. Using an eigenvalue of 1.0 as the criterion, the exploratory factor extraction resulted in a four factor model. A fifth factor was not considered in the model as it contained only one item (Working with My Partner). The four factors were labelled, for Factors I through IV, respectively, "Interpersonal Conflicts, Fear of Appearing Incompetent, Threat of Evaluation," and "Uncontrollable Situations." Table 4 contains the factor items and factor loadings.

Table 3*Mean Stress Responses for the 15 Referee Situations Comprising the BOSSS.*

Source of Stress	<u>Australians</u>						<u>Greeks</u>		
	<u>Adult</u>			<u>Adolescent</u>			<u>Adult</u>		
	M	SD	Rank	M	SD	Rank	M	SD	Rank
Threats of physical abuse	5.17	3.31	1	5.75	3.79	2	4.75	3.01	4
Verbal abuse from coaches	5.16	2.25	2	5.35	1.85	3	4.28 [†]	2.22	5
Making a "wrong" call	4.92	1.99	3	6.00*	2.00	1	5.03	2.19	1
Verbal abuse from players	4.58	2.32	4	5.23	2.30	5	3.74 [†]	2.36	9
Experiencing an injury	4.56	2.54	5	3.92	2.57	12	4.26	2.39	6
Presence of my supervisor	4.37	2.02	6	5.25	2.59	4	4.77	2.45	3
Making a controversial call	4.34	1.84	7	4.18	2.61	9	3.30 ^{††}	1.77	12
Being in the wrong location	4.26	2.24	8	4.62	2.38	7	4.08	2.22	8
Arguing with coaches	4.22	2.31	9	3.85	2.32	13	3.20 [†]	1.76	13
Arguing with players	3.94	2.28	10	4.06	2.99	11	2.55 ^{†††}	1.57	15
Working with my partner	3.82	2.00	11	4.19	2.20	8	4.92	2.85	2
Calling a technical foul	3.63	2.12	12	5.13*	2.54	6	3.05 [†]	2.09	14
Mistake in mechanics	3.24	2.02	13	3.30	1.66	15	3.60	2.23	10
Verbal abuse by spectators	3.18	2.01	14	3.42	2.32	14	3.45	2.29	11
Presence of media	2.73	2.12	15	4.18	3.07	10	4.19 ^{††}	2.43	7
Pooled Mean and <u>SD</u>	4.13	1.17		4.55	1.40		3.93	1.24	

Note. Adult versus adolescent Australian referees: * indicates level of significance $p < .05$.

Australian versus Greek referees: [†] indicates level of significance $p < .05$. ^{††} $p < .01$. ^{†††} $p < .001$.

Table 4*Factor Analysis of BOSSS.*

Items	<u>Factor Loadings</u>			
	I	II	III	IV
Interpersonal Conflicts				
1. Verbal abuse from coaches	.74			
2. Verbal abuse from players	.74			
3. Arguing with coaches	.71			
4. Arguing with players	.54			(.41)
5. Threats of physical abuse	.54			
6. Verbal abuse by spectators	.62			
9. Making a controversial call	.46	(.44)		
Fear of Appearing Incompetent				
8. Making a "wrong" call		.59		
10. Mistake in mechanics		.71		
11. Being in the wrong location		.86		
Threat of Evaluation				
12. Presence of my supervisor			.79	
13. Presence of media			.78	
Uncontrollable Situations				
14. Experiencing an injury				.78
15. Calling a technical foul				.61
Percent Variance Accounted for: 68.2% (total)				

Note. Factor loadings below .40 do not appear in table.

Age Differences Between Adolescent and Adult Australian Referees

It was predicted that the sources and the intensity of game-related acute stress would differ between adolescent Australian basketball referees and their adult counterparts, with adult referees being less stressed than adolescent.

Stressors ranked highest by both age groups were "Threats of Physical Abuse," "Verbal Abuse From Coaches," and "Making a Wrong Call." Among the sources of stress that received the lowest ranking were "Presence of Media, Making a Mistake in Mechanics," and "Verbal Abuse by Spectators."

A Spearman rank-order correlation was computed to determine the degree to which adult and younger Australian referees were similar in their respective ranking of the 15 stressors. An r of .72 indicated that groups were moderately similar in this measure. Thus, it was shown that referees of both age groups are exposed to similar types of stressors. However, this test does not measure group differences in the perceived intensity of each stressor, which was one primary purpose of this study. Although two groups may rank the sources of stress similarly they may differ in the intensity of stress they experience (Keinan & Perlberg, 1987).

To compare the responses of the adolescent referees to the adult referees' responses on the intensity of the 15 stressors, a (Group x Stressors) multivariate analysis of variance (MANOVA) was conducted on each of the four factors of the BOSSS, "Interpersonal Conflicts, Fear of Appearing Incompetent, Threat of Evaluation," and "Uncontrollable Situations." Results indicated non-significant group main effects for Factor I, $F(7, 34) = .98, p > .05$, Factor II, $F(3, 52) = 1.57, p > .05$, and Factor III, $F(2, 50) = 1.36, p > .05$. The main effect of group for Factor IV (Uncontrollable Situations) was statistically significant, $F(2, 45) = 3.50, p < .03$. To further investigate the main effect of group on the perceived intensity of stressors, post hoc univariate F -tests were employed for Factor IV. These analyses indicated significant differences between adolescent and adult referees for the stressor "Calling a Technical Foul," $F(1, 46) = 5.21, p < .02$. Investigators are frequently interested in the analysis of variance

(ANOVA) that would have been produced if each dependent variable had been investigated in isolation (Tabachnick & Fidell, 1989). These univariate analyses are produced automatically by SPSS MANOVA. In the present study, although the main effect of group for Factor II (Fear of Appearing Incompetent) was not significant, univariate F -tests indicated significant differences between adolescent and adult referees for the stressor "Making a Wrong Call," $F(1, 54) = 4.44, p < .04$. Thus, these analyses indicated that adolescent referees reported that they were more stressed than their adult counterparts when they administered a technical foul and made a wrong call (see Table 3). These results are illustrated in Figure 1.

As mentioned earlier, qualitative data were gathered using an inductive content analysis of the subjects' comments on 11 of the 15 stressors. No qualitative data were obtained in the last four stressors "Presence of My Supervisor, Presence of Media, Experiencing an Injury," and "Calling a Technical Foul" (see Appendix A). Due to the uneven sample size between groups, data are reported by percentages. These data showed that the referees in both age groups reported feeling angry, upset, annoyed, tense, worried, humiliated, and frightened when they experienced one or more of the stressors (see Table 5). More specifically, such feelings were particularly frequent in response to Verbal Abuse by Coaches (41%), Spectators (22%), and Players (20%), Threats of Physical Abuse (26%), Arguing With the Coach (35%) or Players (27%), Making a Wrong Call (28%), and Being in Wrong Location (29%). The referees' most prevalent thoughts in response to these stressors consisted of reviewing their actions and doubting their call. The type of controversial call most often cited (48%) was having to decide between a blocking as opposed to a charge. Most of the referees (64%) would try to "sell the call" (i.e., purposely describe the call louder and show confidence in their signals to convince audience they were right about the call) and continue the game, while simultaneously reviewing and doubting their actions (47%). It is not known whether cognitive processes relating to the call itself or thoughts subsequent to the call were primarily responsible for perceived stress.

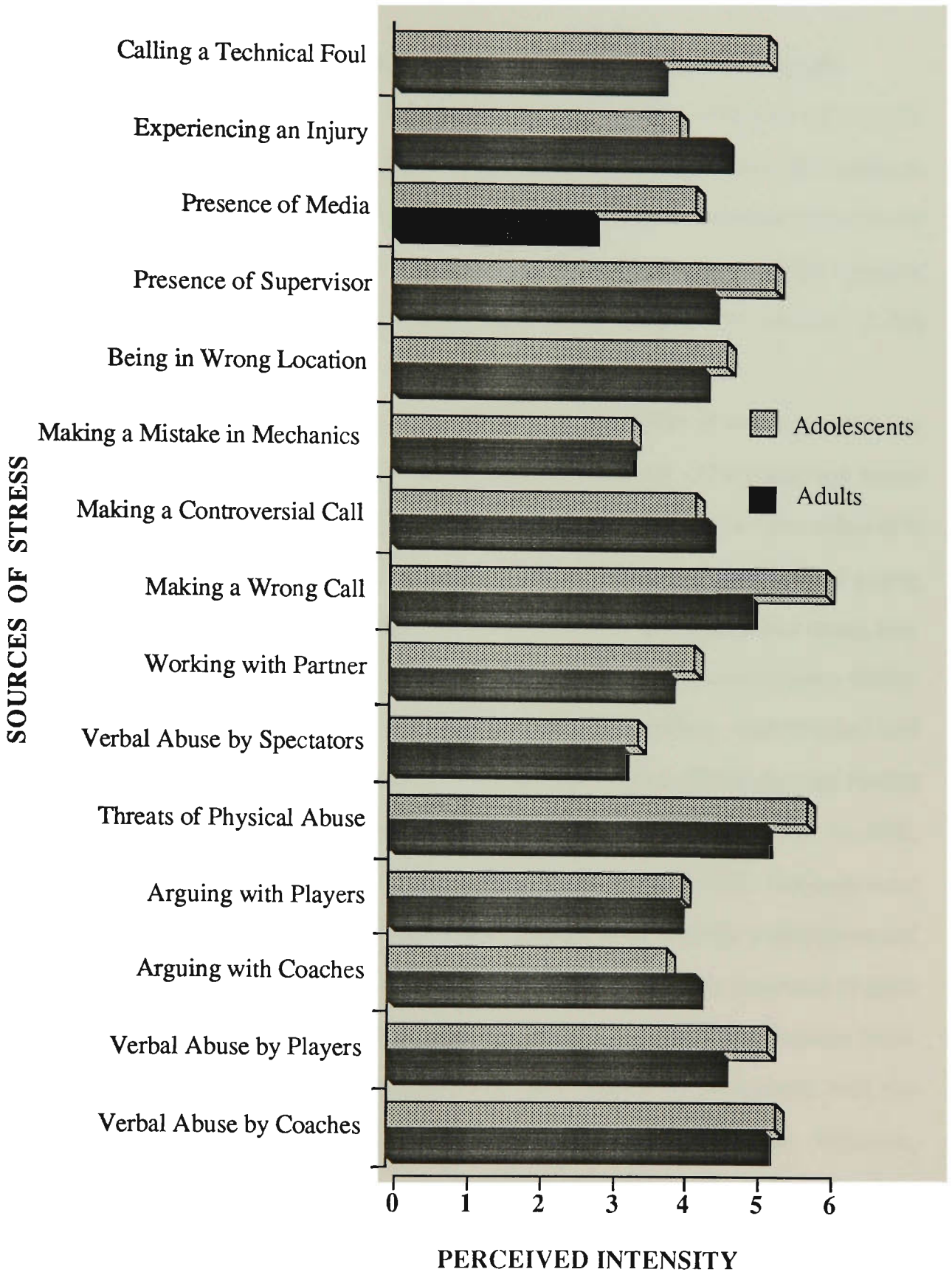


Figure 1. Sources and Intensity of Stress for Adolescent and Adult Australian Basketball Officials.

Qualitative Comparisons of Adolescent and Adult Australian Referees' Responses

As indicated earlier, referees were asked to give specific examples of stressful situations and to comment on their physical reactions and thoughts about the situations (see Appendix A). Qualitative analyses allowed for comparisons between responses of the two age groups which, although not statistically comparable, provided valuable insight into the referees' thoughts and feelings. A summary of the findings of this analysis is presented in Table 5.

Although quantitative analyses indicated similar intensities of stress between age groups, younger referees (12%) compared to older referees (27%) reported fewer experiences of insult and harassment and fewer cheating accusations from coaches (4% and 14% for young and adult referees, respectively). Although only 60% of young referees, as opposed to 90% of the adults, had experienced threats of physical abuse, they experienced a greater number of disputes (65%) than their older counterparts (26%). Even though younger referees reported less incidents of conflicts with coaches and players, a higher percentage of younger (50%) than older referees (27%) reported feeling annoyed and frustrated when arguing with coaches, arguing with players (33% vs. 24%, respectively), and when abused by players (38% vs. 8%, respectively). Not only were younger referees more annoyed and frustrated by interpersonal conflicts with players and coaches, they were also twice as upset and annoyed with themselves compared to adult referees when they made performance errors such as being in the wrong location (42% versus 20%). At first glance, the qualitative data suggest a discrepancy with the quantitative analyses, which revealed similar stress levels between age groups. However, these qualitative data indicate that younger officials are less able to react constructively to irritants described in relatively non-stressful terms (e.g., worried, upset or annoyed). Age differences in coping skills are apparent here.

In general, adults appeared more secure and less stressed after making a mistake than younger arbiters were. In particular, younger subjects (48%) were more annoyed at, and felt more responsible for making a wrong call than adults (15%). In addition, 15% of the adults and none of the younger subjects felt that "referees are allowed to make mistakes."

Table 5

Qualitative Data AnalysisSOURCES OF STRESS

<u>Examples</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>	<u>Responses</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>	<u>Thoughts</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>
1. ABUSE BY COACH											
insults/harassment	32	12	33	Tech. foul/ warning	47	46	74	anger/ upset/ tense	41	42	27
call disputes	27	65	33	ignore/ continue	24	19	10	reviewed actions/ doubted	16	31	0
cheating accusations	14	4	0	calm/ talk to coach	13	15	4	criticized coach's behaviour	19	0	7
threats of physical abuse	5	4	11	get hot/ hate/ discomfort	11	8	7	next play/ ignore/ forget	11	4	13
other	22	15	22	other/ deep breath/ calm	3	12	0	other/ relax/ stop game	14	23	53
2. ABUSE BY PLAYERS											
overall/5th foul/ qns	76	58	14	tech. foul/ warning	51	52	85	criticized player behaviour	35	4	6
player attitude/ swearing	12	27	57	calm player	20	8	7	part of job/ next play	27	17	6
other	12	15	29	tension/ withdrawal	14	12	0	reviewed actions/ doubted	22	25	19
				ignore	12	24	4	uneasy	8	38	38
				other	9	4	4	other	8	17	31
3. ARGUING WITH COACHES											
about calls/ rules	52	53	62	answer politely/ discuss	34	12	26	annoyed/ anger/ frustration	27	50	8
coach's behaviour/ argues	19	29	13	upset/ argue	25	6	17	reviewed actions	15	25	15
other	29	18	25	stay calm	20	12	17	next play/ concentrate	15	13	15
				tech. foul/ warning	3	29	17	calmed coach	15	0	8
				calm coach	9	18	0	other	27	13	54
				other	9	24	13				
4. ARGUING WITH PLAYERS											
about calls/ rules	50	47	40	answer politely/ reasons	35	19	25	annoyed/ upset	24	33	16
player behaviour	20	26	20	avoid arguing/walk away	29	32	30	concentrate/next play	28	20	26
other	30	26	20	tech. foul/ warning	10	31	10	reviewed actions	7	27	8
				argue	10	0	5	other	41	20	50
				keep calm	6	13	20				
				other	10	6	10				
5. THREATS OF PHYSICAL ABUSE											
threaten/ intimidate	32	33	33	T/ disqualify/ stop game	26	50	25	criticized player behaviour	27	50	0
meet outside	29	13	0	upset/ annoyed	23	13	4	fear/ anger/ upset	27	25	67
threat to hit	19	7	67	keep calm	19	13	50	left/ worrying for safety	10	0	0
none	10	40	0	calm player	10	0	0	disliked refereeing	7	13	0
other	10	7	9	left quickly	6	25	8	other	30	13	33
				other	16	0	13				

(Table 5 - Continued)

<u>Examples</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>	<u>Responses</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>	<u>Thoughts</u>	<u>Adults %</u>	<u>Youth %</u>	<u>Greek %</u>
6. ABUSE BY SPECTATORS											
comments/ abuse/ bias	66	36	60	ignore/ laugh/ act deaf	74	55	50	spectator ignorance	32	10	27
overcalls	6	36	0	upset	9	10	19	upset /doubt / humiliated	12	40	18
others	28	27	40	focus attention elsewhere	9	10	12	concentrate on game	12	0	9
				stop game	0	0	19	part of game	9	5	18
				other	6	25	0	other	39	45	27
7. WORKING WITH PARTNER											
inexperienced partner	31	25	6	support/ cover extra	38	17	6	worry/ embarrassment	37	22	100
uncooperative partner	28	25	65	get on with own job	19	6	12	confidence/ not happy with	23	28	0
bad call/ positioning	19	25	12	talk with partner	13	50	69	help partner learn	7	11	0
other	22	25	17	other	31	28	13	concentrate harder	7	6	0
								other	27	34	0
8. MAKING A WRONG CALL											
costs points or game	26	4	28	carried on/ sell call	37	65	59	concentrate harder	32	39	29
no foul call	13	40	29	worried/tense/ nervous	26	9	23	annoyed/ responsible	15	48	18
block vs. charge	13	12	14	reviewed actions	20	4	0	refs are allowed mistakes	15	0	24
possession/ out of bounds	13	0	0	tried to forget	9	0	18	I lost concentration	9	0	6
other	35	44	29	other	9	22	0	other	29	13	24
9. CONTROVERSIAL CALL											
charge vs. block	48	47	29	continue/ sell/ positive	62	69	67	reviewed actions/ doubted	42	58	17
out of bounds	6	5	14	nervous/ hesitant	9	19	6	keep on with game	19	21	33
other	45	4	57	other	29	13	27	can affect concentration	13	0	17
								other	28	21	33
10. MISTAKE IN MECHANICS											
wrong position	50	36	0	made correction	38	42	50	do it right next time	35	17	36
incorrect possession	13	0	0	annoyance/ embarrassed	25	17	5	continue game	10	17	12
violation/ foul error	6	14	50	concentrate/ try harder	16	8	23	make correction	6	0	6
other	31	50	50	get on with game	13	25	4	other	48	58	46
				other	9	8	18				
11. WRONG LOCATION											
blind/ too far away	62	42	20	sell call	50	38	43	try harder/ get it next time	37	11	43
anticipating play wrong	7	21	0	correct/ run closer	20	13	7	annoyed/ stressed	23	42	36
fast break	3	11	20	lack confidence/ nervous	13	13	14	low confidence-->bad call	10	26	0
other	28	26	60	other	17	38	36	other	30	21	21

This indicates that younger referees may be more self-critical than their older counterparts when making mistakes. This tendency may partially explain the higher stress experienced by younger referees compared to adults during the game. However, the data suggest that adult referees are able to cope better with acute stress than younger referees. For example, this study indicated that adult referees used self-talk and positive statements (e.g., "try harder" or "get it right next time") more often (36%) than young referees (13%) in response to selected stressors. This finding is consistent with previous investigations in the non-sport literature (e.g., Folkman et al., 1987; Osipow et al., 1985).

Responses of subjects in regard to their reactions to coaches, players, and their referee partner differed between age groups as well. Adult referees (34%), as opposed to their younger counterparts (12%), responded that they would answer politely and discuss an argument with the coach. On the other hand, younger officials (29%), as compared to adults (3%), felt more inclined to give a warning or a technical foul. Young referees (50%) reported more often than adults (13%) that they would talk to their partner. These data suggest that perhaps adult referees verbally interact with their partners to a lesser extent or communicate non-verbally and more efficiently than younger referees do.

Finally, reactions to spectators differed between age groups. For example, older referees (32%) tended to attribute abusive crowd behaviour to spectator ignorance more often than younger referees (10%). In addition, when abused by spectators, younger referees (40%) reported feeling upset and humiliated or doubting their calls more frequently than adults (12%). Adult referees (74%) reported laughing in response to abusive behaviour of the crowd more often than younger referees (55%). These differences in the responses to spectator behaviour between age groups may partially explain the fact that younger referees were more stressed than adults when calling a technical foul and making a wrong call, as found by the quantitative analyses. Results from the qualitative analyses indicate that adolescent and adult referees cope differently, both cognitively and behaviourally, in response to acute stressors during the game. Again, it appears that coping was more effective for adults than adolescents in this study.

Cross-Cultural Differences Between Australian and Greek Referees

The second aim of study I was to examine acute sources of stress for Greek basketball officials, and to investigate whether perceptions of stress differ between Greek and Australian referees. It was hypothesised that the intensity of stress would differ between the two groups. It was anticipated that Greek referees would report higher degrees of stress than Australians.

Results revealed that the intensity of sources of stress differed between the two groups in the opposite direction to that expected. Australian basketball officials reported several sources of stress more upsetting than their Greek counterparts. Stressors ranked highest by the Greek officials were "Making a Wrong Call, Working With My Partner, Presence of My Supervisor, Threats of Physical Abuse," and "Verbal Abuse From Coaches." Among the sources of stress that received the lowest ratings were "Arguing With Players, Calling a Technical Foul," and "Arguing With Coaches." These data are presented in Table 3 together with the description of data from the Australian samples. Mean ratings of each stressor for Greek and Australian officials are illustrated in Figure 2.

A Spearman rank-order correlation was computed to determine the degree to which adult Australian and Greek referees were similar in their ranked perceptions of the 15 stressors. An r of .48 indicated that the two groups were relatively dissimilar in this measure, and placed the 15 sources of stress in a different order of intensity. However, the rank-order correlation does provide information about group differences in the actual experienced intensity of each stressor. As discussed earlier, although two groups may rank their sources of stress differently, they may experience similar degrees of intensity for individual stressors (Keinan & Perlberg, 1987).

To compare the responses of the adult Australian referees to the Greek referees' responses on the intensity of the 15 stressors, MANOVA (Group x Stressors) were conducted on each of the four factors of the BOSSS, "Interpersonal Conflicts, Fear of Appearing Incompetent, Threat of Evaluation," and "Uncontrollable Situations." Results indicated non-significant group main effects for Factor II, $F(3, 103) = .43, p > .05$, and

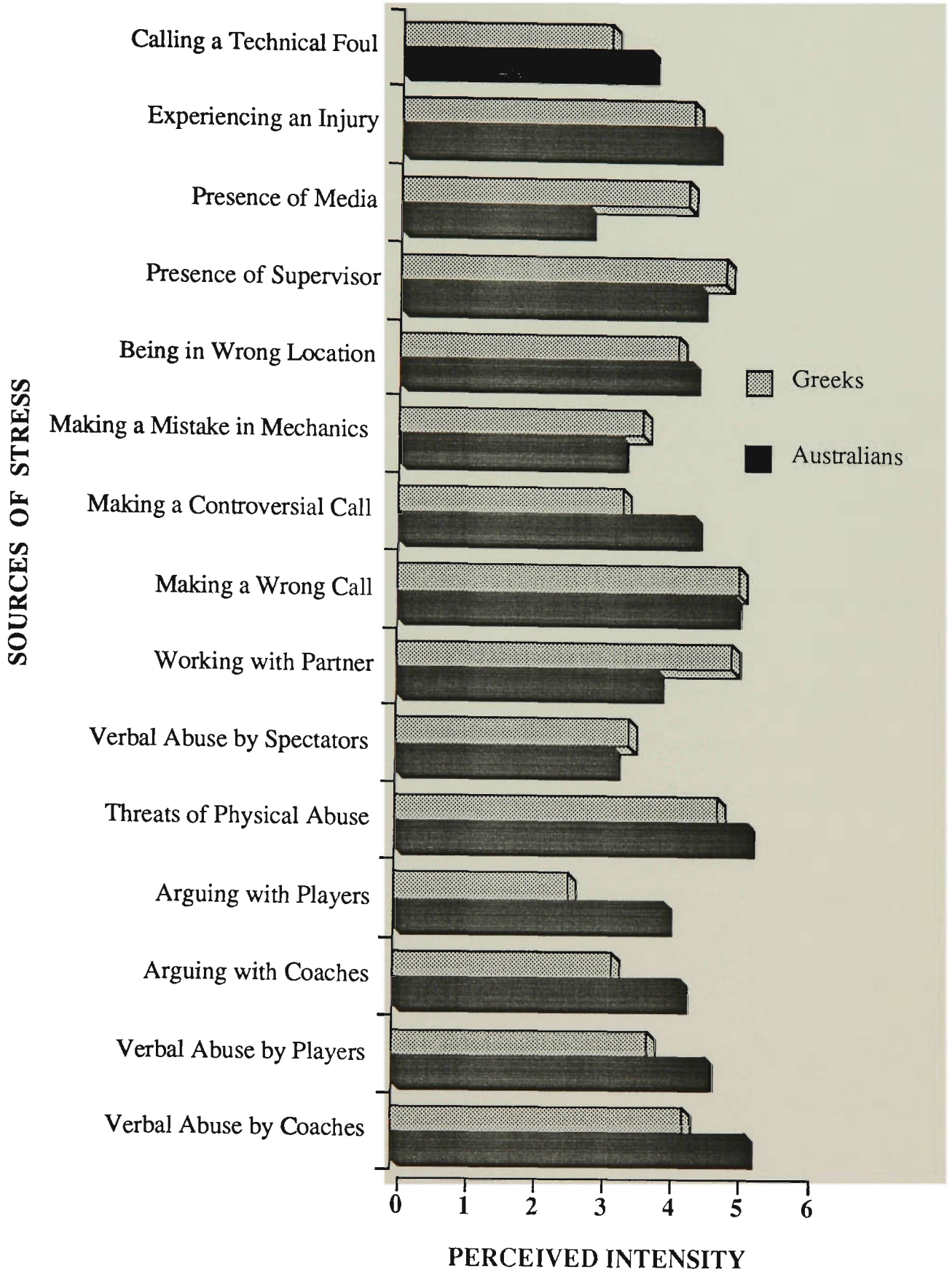


Figure 2. Sources and Intensity of Stress for Australian and Greek Basketball Officials.

Factor IV, $F(2, 105) = 1.87, p > .05$. A 2×7 (Group \times Stressors) MANOVA indicated a significant group main effect in Factor I (Interpersonal Conflicts), $F(7, 96) = 3.02, p < .006$. Also, a 2×2 (Group \times Stressors) MANOVA showed that the main effect of group for Factor III (Threat of Evaluation) was significant, $F(2, 104) = 5.22, p < .007$. To further investigate the nature of these main effects, post hoc univariate F -tests and discriminant-function analysis were employed. Univariate analyses indicated that significant differences between Australian and Greek officials existed in Factor I for the stressors "Verbal Abuse From Coaches, Verbal Abuse From Players, Arguing With Coaches, Arguing With Players, Making a Controversial Call," and for the stressor "Presence of Media" in Factor III. Although the main effect of group for Factor IV was not significant, exploratory univariate analyses indicated significant differences between Australian and Greek referees for the stressor "Calling a Technical Foul," $F(2, 105) = 3.73, p < .05$ (see Table 6). These results were supported by a discriminant function analysis, which indicated overall differences between Greek and Australian basketball referees (overall Wilks' lambda = .63, $p < .001$). Discriminant function coefficients, in support of the univariate F -tests, showed the items that discriminated most between the two cultural groups were identical to the items identified by the post hoc F -tests, as shown in Table 6. The direction of the means in Table 3 reveal that Australian referees were more stressed than their Greek counterparts for all stressors with the exception of "Presence of Media."

Qualitative Comparisons of Greek and Australian Adult Referees' Responses

Qualitative analyses of the responses of Greek referees indicated several patterns when compared to their Australian counterparts. A summary of the findings of this analysis is presented in Table 5.

Qualitative data illustrated that Greek referees felt angry, upset, annoyed, tense, worried, humiliated, and frightened when they experienced one or more of the stressors. Such emotions were more frequent in response to "Working With My Referee-Partner" (100%), "Threats of Physical Abuse" (67%), "Being in the Wrong Location" (36%),

Table 6*Differences in Perceived Stress Between Australian and Greek Basketball Officials.*

Stressors	Discriminant-function		
	Coefficients	<u>F</u>	<u>p</u>
1. Verbal Abuse from Coaches	.95	5.07	.02
2. Verbal Abuse from Players	.96	4.82	.03
3. Arguing with Coaches	.95	5.06	.03
4. Arguing with Players	.92	8.54	.001
9. Making a Controversial Call	.94	5.48	.008
13. Presence of Media	.94	5.76	.003
15. Calling a Technical Foul	.95	3.73	.05

Note. Degrees of freedom varied slightly because of missing values.

(Min n = 102, max n = 105).

"Receiving Verbal Abuse by Players" (38%), and "Receiving Verbal Abuse by the Coach" (27%).

Referees from both groups reported often having to deal with abusive behaviour by coaches, players, or spectators. In such cases, a common response was to first issue a warning and then penalise the aggressive person with a technical foul. On the other hand, in cases when referees considered themselves to be responsible for the incident, their typical reaction was to try to "sell the call" and resume the game as soon as possible. The 15 sources of stress for Australian and Greek basketball arbiters are discussed below in order of their intensity as determined by the ratings of Greeks officials.

Making a wrong call. Realising they made an error in calling a foul or a violation was considered to be the most intense stressor by Greek referees. "Making a Wrong Call" was considered most stressful when the call was crucial and may have cost points or the game (28% of Greek and 26% of Australian referees), when deciding between an offensive charge or a defensive foul (29% and 13% for Greeks and Australians, respectively), and when judging a legally blocked shot versus a defensive foul (14% and 13% for Greeks and Australians, respectively). Nonetheless, once a decision has been made it is very difficult to alter it without losing credibility and providing sport participants with an excuse for aggressive reactions to future questionable calls. To avoid such complications referees try to "sell" the call and continue the game as soon as possible (59% of Greeks and 37% of Australians).

Strom (1990), a retired and highly respected professional basketball referee, advises young referees that when they make a wrong call they should retain the decision unless they realise their mistake immediately. He believes that people respect referees more if they admit mistakes rather than trying to wrongly penalise the other team as a "make-up" call. However, it remains for the referee to judge the most appropriate response based on the characteristics of the situation. In this study, when basketball officials made wrong calls, they often reminded themselves that referees are allowed mistakes (24% and 15%), but still encouraged themselves to concentrate harder (29% of Greeks and 32% of

Australians). Greeks (18%) reported that they made a conscious effort to forget their mistake more so than Australians (9%), rather than reviewing their actions (0% vs. 20%, respectively).

Working with my partner. Greek referees rated the lack of cooperation with their fellow official as the second most important source of stress during a game, as opposed to Australians who ranked it eleventh. This finding is comparable to Veiga and Yanouzas' (1991) study, which compared Greek and American managers' attitudes, and found that Greeks were less inclined to cooperate and share the responsibility of decision-making with other colleagues.

According to the comments of a Greek referee, tension between referees starts building just before the game. A pre-game conference in the locker room can reduce their stress significantly. In this study, referees commented that problems on the court begin when their partner "calls for him/herself," that is, he or she begins to interfere with the other referee's duties and areas of responsibility (65% vs. 28% for Greeks and Australians, respectively). Australian officials described as "potentially problem-causing" cases in which their partner is relatively inexperienced, when he or she does not know the rules, or when he or she does not care about the game. Some Greek referees mentioned that working with a "big-name" partner makes them feel as if they were being judged, thus increasing their anxiety and reducing their performance.

In their reactions to this source of stress, Australians appeared to be more willing than Greeks to assist their partner by covering more ground on his or her behalf (38% vs. 6%, respectively). Greek officials would rather discuss with their partner the inconvenience caused by their partners' tendency to interfere (70% Greeks vs. 13% of Australians). Some referees indicated that if they interfered with their partner's calls (e.g., when making a call from a wrong location), they would try to apologise at the first opportunity. Lack of cooperation created tension and embarrassment, particularly for Greek referees (100%, as compared to 37% of their Australian counterparts).

Presence of my supervisor. Being aware of the presence of a supervisor or judge of the referees' performance was rated high in intensity by both Greek and Australian subjects (third and sixth, respectively). Judging from the comments of Greek officials, it appears that the role of the referee-supervisor is not well-defined. Greeks often wonder about the purpose of being supervised. In Australia, however, in a post-game conference, supervisors discuss with referees the observations they made during the game and advise them in regard to their performance. Referees expressed the desire to know beforehand whether a supervisor would attend their game, and preferred more constructive criticism. According to Rotella et al. (1985), referees who perceived their supervisor as supportive reported lower levels of stress and more job satisfaction. Perhaps referee-supervisors should be made aware of their influence on the referees' perceived stress.

Threats of physical abuse. The examination of qualitative data revealed that the Greek officials have to deal with intimidating comments from coaches, players, or spectators indicating an intention to induce physical harm to the referee more often than their Australian counterparts (67% vs. 19%, respectively). This finding supports Bell's (1992) comments regarding the sportsmanlike behaviour of Greek spectators and coaches. Bell refers to the custom of "coining," where referees and opposing teams are pelted viciously with metal coins during the game. Bell also refers to a case of a coach who enhanced his stature in Greece by attacking two referees. As a result, more Greek basketball referees (67%), as compared to Australians (27%), reported feelings of tension, anger, and fear when they experienced threats of physical abuse. Although the frequency of reported threats of physical abuse appeared to differ between the two groups, the quantitative analysis revealed that there were no significant differences between the groups in the perceived intensity of this stressor. Comments made by several Greek referees suggested two possible explanations for this finding. Firstly, the presence of the police force during every Greek basketball game may reassure officials of their safety. Secondly, it is possible that Greek referees have become habituated with such

incidents and have developed coping mechanisms and responses that help them deal with the aggressive individuals. As one Greek referee commented,

Threats of physical abuse by spectators is a very common phenomenon, it has become a part of the game. Often I will stop the game and ask the police officers to remove the aggressive individuals from the court. I report the incident on the game sheet and continue the game trying not to provoke any side, while I make louder and more decisive calls.

Verbal abuse from coaches. Greek officials, as compared to Australians, appeared to be less affected by coaches' unpleasant comments, criticisms regarding their performance, or insults to their personality or character. Referees generally agreed that insults/harassment (33%) and disputed calls (31%) were the salient sources of stress in this category. According to the quantitative analysis, verbal abuse by coaches was ranked second for Australians and fifth for Greeks. Differences were also observed in the qualitative data regarding the ways in which referees of the two groups handled abusive coaches. Greek referees (74%) appeared to penalise such behaviour more often than Australians (47%) by giving a warning followed by a technical foul, or by expelling the coach "without further discussions." On the other hand, Australians (24%) were more likely than Greek officials (10%) to try to ignore or avoid arguments with the coach by continuing the game. Based on the finding that Greek officials experienced lower degrees of stress, it may be surmised that radical, as opposed to relatively mild non-assertive, coping responses to coaches who misbehave are more appropriate in some cultures than others.

The finding that coaches constituted one of the major sources of stress for basketball referees is congruent with findings from studies with American referees. Firstly, in Rotella et al.'s (1985) study, NCAA officials reported that coaches can cause stress in several ways. Five of the top 14 ranked stressors for officials regarded coaches' behaviour (i.e., intentional baiting by coaches, dealing with coaches, coaches' influence on selection and retention of referees, rating by coaches, and coaches' criticism by the

media press). The second study was based on survey responses of 229 USA referees (Pollock & Falkowski, 1984, cited in Burke, 1991b). Referees reported that the most disturbing factor during refereeing is disruptive behaviour by coaches (44%), followed by an injured athlete (16%), disruptive behaviour by fans (15%), and arguing with athletes (14%). In addition, the referees (63%) perceived the demeanour of coaches or managers to be the greatest impediment to good sportsmanship. However, the survey used in the study did not consider important sources of stress such as making an error, or becoming aware of the presence of "important others."

Smith (1982) discusses the coach-referee relationship based on his personal experience as a wrestling referee. Smith was surprised to find out that coaches, who provided the most intense source of stress, would often interact with him outside the sport context "as if nothing had happened" (p. 36). When Smith asked one of the coaches why he had argued against a call when he knew the referee was right, the coach answered calmly: "Oh, I did that for my boys; if I ever really want to question you on anything I would not do it that way" (p. 39). On the other hand, a coach who wants rational answers to his or her questions "will approach the scorer's table and indicate that he or she would like to speak to the referee if possible" (p. 40). According to Smith, referees seem to be aware of the coaches' motives. This was confirmed in the present study. As evident in qualitative data, subjects acknowledged that coaches often dispute a call in order to make the next controversial call go their own way, to justify their salary (by showing that they care about the outcome of their job), and to influence the opinions of the spectators and the media. Most often coaches aim to influence the next calls in the following ways: (a) by showing that they will react to every controversial call with criticism and disapproval, (b) by assuming an extremely friendly attitude towards the official, and (c) by appealing to the referees' sympathy. However, as Burke (1991a) points out, the outcome of the coaches' efforts to influence the referees' decisions may be opposite to that desired. Often, the coach who "works" the officials creates additional stress and breaks their concentration. According to Burke, referees may retaliate,

consciously or unconsciously, to the coach's intimidating comments by making calls against the coach's team just to show that they are not influenced by such behaviour.

Finally, referees are aware that arguing with coaches is not always an effective coping strategy. Yet many referees become emotionally involved in the situation and experience extreme stress as a result. Thus, controlling one's emotional reactions to acute sources of stress should be a valuable psychological skill for basketball officials. This information should encourage referees to psychologically distance themselves from the coach's actions by using avoidance techniques such as discounting (i.e., reducing the importance of a stressor) and thus cope more effectively (for a review of coping strategies see Anshel, 1990a).

Experiencing an injury. The possibility of experiencing an injury during the game was ranked in the fifth and sixth place by Australian and Greek officials, respectively. Considering research findings that the susceptibility of sport participants to injuries increases with heightened stress (e.g., Kerr & Minden, 1988; Nelson et al., 1981), it may be valuable in future research to examine whether psychological stress of sports officials also leads to increased physical injuries. If so, interventional programs for referees should teach skills to overcome their fear of injury which may, in turn, prevent future injuries.

Presence of media. The only source of stress in which Greek basketball officials were significantly more stressed than their Australian counterparts was the "Presence of Media" (see Table 3). Speculations for these cross-cultural differences include possible differences in the extent of media coverage in each country, media ethics and policies, or journalist attitudes. Another possibility is that Greeks, compared to Australians, have a stronger need for social approval. Comparisons between Greek and British children (mean age 11.6 years old) have shown that the former scored significantly higher than the latter in the scale measuring the Need for Social Approval and lower in the scales for Neuroticism and Psychotism (Eysenck & Demetriou, 1984). As research comparing the

psychological dispositions of Greek and Australian adults is still lacking, the above views remain pure speculations. Nevertheless, it appears that referees perceived the role of media as a considerable source of stress. As Burke (1991a) illustrates, how many times have you read or heard that "the officiating crew did an excellent job?" (p. 46).

Being in the wrong location. Not being in the position that would optimise the probability of an accurate call was ranked eight by both Australian and Greek basketball officials. Examples of this source of stress included calling from a blind spot or far away from the incident (20% and 42% for Greek and Australian referees, respectively), and being left behind due to a "fast break" (20% and 3%, respectively). The typical response to this stressor was to try to sell the call (43% and 50% for Greek and Australian officials, respectively). Although Greeks were more embarrassed about calling from the wrong location than Australians (36% and 23%, respectively), Australians were more likely to make an effort to correct the error if possible than the Greeks (20% and 7%, respectively). Finally, after making such an error, the referees were stimulated to "try harder, get it right next time" (43% for Greeks and 37% for Australians).

Verbal abuse from players. As mentioned in the quantitative analysis of data, Australian referees, compared to Greeks, perceived players' abusive behaviour (i.e., hostile or angry remarks criticising the referee's character or personality) to be significantly more stressful (see Table 3). A commonly reported incident of this type was when the players committed their fifth foul, disputed the call, and abused the referee as they left the game (77% for Australians and 14% for Greeks).

Referees from Greece cited general abusive behaviour and sarcastic comments by players (57% vs. 12% for Australian referees). Once again, Greeks (85%), compared to Australians (51%), were more likely to respond to this source of stress by administering a warning followed by a technical foul. Australians (20%) preferred to calm the player more so than Greeks (7%). These differences in the responses of the two groups may be attributed to the fact that Australians (27%), compared to Greeks (6%), tended to view

verbal abuse by players as "part of the job" and "moved on to the next play." As evident in the referees' comments, the majority of referees in both groups appeared to believe that players are the most cooperative among other agents in sports competitions. According to one subject, the rules of conduct give basketball officials the authority and capacity to deal effectively with players who behave in an inappropriate manner. In contrast, they cannot always control the behaviour of coaches, who because of their position and knowledge enjoy the benefits of a higher status of authority.

Making a mistake in my mechanics. Errors in communicating decisions, signalling the scorers' table, and directing the game by motions were ranked relatively low in the list of stressors. Examples cited by Greeks included "incorrectly calling player violations or fouls" (50%), whereas Australians most often referred to "wrong position" (50%). Australian referees (25%) were more embarrassed about making a mistake in their mechanics than Greeks (5%). A common strategy employed by referees in both groups to cope with this stressor emotionally, is "trying harder," and concentrating on "getting it right next time" (36% of Greek and 35% of Australian referees). A Greek referee quoted that "mistakes of this type go unnoticed as the majority of spectators and competitors are absorbed with the call itself and not with the referees' signals." However, to avoid such errors he engaged in "practising mechanics in front of a mirror at home."

Greek referees were more likely to make an effort to correct their errors (50% compared to 38% for Australians), and at the same time found "Making a Mistake in Mechanics" more stressful than the Australian referees (see Table 3). Qualitative data for the stressor "Being in the Wrong Location" showed that the Greeks were less likely to make an effort to correct their errors in this case (7% versus 20%) and found this situation less stressful than the Australians (Table 3). In both these cases, attempting to correct errors appeared to cause more stress. This was also confirmed with the stressor "Making a Wrong Call." As discussed earlier, previous studies have demonstrated that being less stressed is more desirable as it leads to better performance, less injuries, and more satisfaction in the sport. Therefore, when an official makes a mistake, ignoring the error

(avoidance) may be the more effective response. These findings outline the importance of stress interventions that teach referees skills to deal with their errors without becoming emotionally involved.

Verbal abuse by spectators. This source of stress was ranked low in the list of stress. Examples included accusations of bias and overcalling (62%). Both Greek (50%) and Australian (74%) officials "acted deaf, ignore, or laugh" when they received abusive comments from spectators. This appears to be due to attributing such behaviour to the spectators' ignorance regarding the rules (27% vs. 32%, respectively). Referees perceived personal insults to be more offensive than common insults and sarcastic comments. Some referees reported that they mentally returned the abuse in order to relieve their anger. Qualitative analysis revealed that one in five Greek referees (20%) would stop the game until the abusive individuals were quiet or were removed from the area. This response was not found amongst the Australian officials' comments.

Making a controversial call. This source of stress refers to judgemental calls that can go either way. A classic example of a controversial call is the dispute between a charge and a block (cited by 48% of Australian and 29% of Greek referees). The typical response of referees was to sell the call (67% of Greek and 62% of Australian referees). As evident in the quantitative analysis, Australian referees ($M = 4.34$) reported significantly higher degrees of stress than their Greek counterparts ($M = 3.30$) when having to make subjective decisions about a call (see Table 3). One possible reason for this cross-cultural difference was that Australians (42%) more than Greeks (17%) tend to review their actions and think whether they were right or wrong on the call. At the lower rank of stressors were "Arguing With Coaches, Calling a Technical Foul," and "Arguing With Players."

Arguing with coaches. Subjects reported that arguments with coaches and players usually entailed the clarification of certain rules by referees (62% of Greeks and 52% of

Australians), and, less frequently, arguments about the coach's behaviour (13% and 19%, respectively). These arguments did not seem to bother referees in both groups who preferred to answer politely and discuss the issue (26% of Greek and 34% of Australian referees). However, Australian referees tended to engage in arguments with coaches a little more often (25%) than Greeks (17%). On the other hand, Greeks (17%) were more likely to administer a warning followed by a technical foul as opposed to Australians (3%).

Calling a technical foul. Penalising a player and/or a coach for inappropriate behaviour was ranked 12th and 14th by Australians and Greeks, respectively. Thus, it appears that adult referees from both countries did not face particular difficulties when administering a technical foul to players or coaches, possibly drawing on their experience and showing their determination not to tolerate inappropriate behaviour. Yet, quantitative comparisons revealed marginally significant differences between the two groups in the intensity of perceived stress for this stressor, indicating that Australians were more stressed than Greek referees when administering a technical foul.

Arguing with players. Similar to the "Arguing With Coaches" category, arguments with players usually entailed the clarification of certain rules by referees (40% of Greeks and 50% of Australians), and, less frequently, arguments about the player's behaviour (20% for both groups). Both Greek (25%) and Australian referees (35%) tended to "answer politely and discuss the issue." Another common response was to "avoid arguing" and "walk away" (30% for Greeks and 29% for Australians). Engaging in arguments with players was an infrequent response for both groups of referees (5% of Greeks and 10% of Australians). Data from this and the previous category of stressors indicated that basketball officials tended to avoid "Arguing With Players" more than "Arguing With Coaches." Perhaps this is the reason why "Arguing With Players" was ranked by referees from both groups lower than the stressor "Arguing With Coaches" (see Table 3).

Selective comments of Australian and Greek referees are presented in Appendix C. These statements illustrate different modes of thoughts in which officials engage during the onset of certain stressors.

Discussion

The purpose of this study was to identify the sources and intensity of acute stress as perceived by basketball referees, with particular reference to age- and cross-cultural comparisons between adolescent and adult Australian referees, and between Australian and Greek adult referees. It was hypothesised that the intensity of 15 potentially stressful situations would differ as a function of age and culture. These hypotheses were partially supported. In terms of age differences, results indicated that, as hypothesised, adolescent referees were significantly more stressed than their adult counterparts when they administered a technical foul and when they made a wrong call.

Cross-cultural comparisons of the perceived intensity of 15 common sources of acute stress for basketball officials revealed several differences between the two groups. Contrary to predictions, Australian referees were significantly more stressed than their Greek counterparts by several stressors such as "Arguing With Players, Making a Controversial Call, Verbal Abuse From Coaches," and "Verbal Abuse From Players." Greek referees were more stressed than Australians by the stressor "Presence of Media." The results of this study suggest that sports officiating is a moderately stressful vocation.

Primary Sources of Stress

Among the highest ranked stressors for the three groups were "Making a Wrong Call, Threats of Physical Abuse, Verbal Abuse From Coaches, Verbal Abuse From Players," and "Presence of My Supervisor." The finding that "Making a Wrong Call" was ranked among the top three sources of stress for all referees is congruent with studies in sports, which have indicated that making a mistake was one of the highest concerns

among athletes (e.g., Gould et al., 1983; Pierce & Stratton, 1981). Strom (1990) offers advice to younger referees from his experience: "If you kick a play, you just have to swallow it, or change it if you discover your mistake right away...you'll get a lot more respect if you admit you blew one than if you try to even things out by making up a call the other way" (p. 130). Weinberg and Richardson (1990) suggest that referees should focus their attention on the next play, thus avoiding the distraction and future mistakes caused by worrying. Qualitative data indicated that "trying to sell the call" and "carrying on" was the most popular coping response among subjects in the present study.

Interpersonal conflicts such as "Verbal Abuse From Coaches" and "Verbal Abuse From Players" were highly ranked sources of stress for basketball referees. This is comparable to Taylor et al. (1990) who found that conflicts with coaches and players are a major source of stress for soccer officials. Basketball is considered to be a semi-contact game, during which referees have to work closely with players, coaches, and spectators. Due to its speed and complexity, basketball is also considered to be one of the most difficult sports to officiate (Clegg & Thompson, 1979; Fucini, 1979; Zoller, 1984). Such a fast and dynamic sport places additional physiological stress on the referees (e.g., in fast break plays). In some cases basketball referees are expected to make instantaneous decisions on incidents that occur faster than the human eye can perceive. One would often be unable to decipher with certainty the nature and causality of some ambiguous game situations even after having carefully viewed the videotape of the play in slow motion. Sports officials are, instead, expected to make the correct decision split seconds after the incident occurs. A factor that may add to the difficulty of officiating basketball is that basketball players believe, more than athletes in other sports (e.g., baseball and softball), that it is acceptable to dispute the referees' decisions during the game (Nelson, 1979; cited in Philips, 1985). Thus, often putting maximum effort and calling a "perfect game" is still insufficient for some spectators and sport participants; someone will always be angry or at least disappointed with the official's performance. As evident in the results of the present study, incidents in which basketball referees are abused, or at least criticised, by coaches, players, or spectators are quite often.

"Presence of My Supervisor" was ranked as highly stressful by subjects from all three samples in the present study. Comparable to these results, Rotella et al. (1985) also found that dealing with coaches, working with incompetent partners, travelling, family obligations, assessing technical fouls, and the presence of a supervisor were ranked among the top stressors for American basketball officials. Finally, threat of physical abuse was ranked in the present study as the most stressful situation by some subjects, (possibly by those referees who have already been victims of such assaults), and as the least stressful situations by others.

Somewhat surprising results concerned the lower ranked sources of stress of "Presence of Media, Making a Mistake in Mechanics," and "Verbal Abuse by Spectators." It appears that skilled referees consider media presence, in the terms of Lazarus and Folkman (1984), more as a challenge than a threat. This reaction is not unlike skilled athletes who often perceive an evaluative audience, in this case the media, as a source of incentive (Cottrell, 1972). According to McCrae (1984), subjects' coping strategies depend largely on their perceptions of the stressful situation. McCrae's results indicated that threat appraisals were related to the use of strategies such as faith, fatalism, and wishful thinking, whereas challenging appraisals were associated with strategies such as rational action, positive thinking, and self-restraint. Larsson and Anderzen (1987) found that subjects performed better on a psychomotor task when they appraised the situation as challenging as opposed to when they appraised the situation as threatening. This suggests that the reported low degrees of stress in response to the stressor "Presence of Media" are due to its appraisal by referees as challenging. Younger referees, on the other hand, would not receive media scrutiny because they typically officiate less skilled athletes who receive minimal media coverage.

"Abuse by Spectators" was apparently not a major source of stress in this study. Anecdotal evidence suggests that, compared to Greek, crowds at non-professional Australian basketball games are relatively rare and tend to be non-aggressive (Bell, 1992, 1993). In fact, Bell (1992) argues that "Greek teams have set standards of abuse which are startling even for Europe" (p. 23). Hence, one may surmise that spectators impose

less stress on Australian referees than on Greek referees. However, cross-cultural comparisons concerning the intensity of this source of stress for referees did not validate this supposition. Findings with Greek referees showed that they too are relatively uninfluenced by spectators during basketball competitions. The current findings, in combination with the referees' comments, suggest that a different approach is needed to explain why referees are not highly affected by the abusive comments of fans. Qualitative data indicated that basketball officials consider spectators to be "ignorant" and "biased." This may make it easier for the referees to ignore the spectators negative comments and thus be less affected by this stressor. This interpretation is supported by the results of Philips' (1985) study with basketball officials. Philips found that basketball officials do not base their self-evaluations on the reactions of spectators, players, or coaches. To do so would have a significantly negative effect on their morale and satisfaction. Instead, referees appeared to have "a preconceived notion as to how crowds, coaches, and players would behave toward them and evaluate their officiating ability" (p. 8). Officials appeared to understand that spectators' negative reactions are "part of the game" and not actual evaluations of their ability. Moreover, Philips argues that "it may be that officials who perceive negative reactions as personal evaluation have been selected out of officiating because of the stress created by personalizing these negative reactions" (p. 7).

It is also surmised that the need for referees to maintain concentration on the game itself does not allow time for the referees to be distracted by actions of individuals in the crowd. This may explain the relatively low stress reported by some referees on this stressor. This attentional skill is similar to that of skilled athletes who focus their attention on specific, relevant cues during competition, while ignoring irrelevant, distracting input (Abernethy, 1987).

Perhaps the concentration on the game acts as a distraction from other stressors, including off-court stressors such as family, work, and finances. Purdy and Snyder (1985) found that officiating helps individuals forget everyday problems and escape from their daily routine. Similarly, Morgan (1985) suggests that a psychological advantage for sport participants is that exercise itself is a means of distraction from other life problems.

He found that physical activity was associated with reduced trait and state anxiety. According to Morgan, the benefits of exercise in the reduction of stress include physiological changes such as the metabolism of monoamines and the release of endorphin. Thus, the positive effects of exercise in reducing sport participants' stress may partially explain the overall relatively low to moderate stress levels reported in this sample. Other studies have also found that sport participants are only moderately stressed. For example, Gould and Weinberg (1985) found that no single source of stress or combination of stressors was experienced frequently by all the athletes, with just over half the athletes (53%) experiencing only minimal stress. However, the relatively high level of variability in subjects' responses in the present study suggests that substantial individual differences exist in the frequency and intensity of experiencing stress. Thus, not surprisingly, the role of a basketball official is more stressful for some than others.

Age Differences in Sources of Stress

The present study revealed that "Making a Wrong Call, Receiving Verbal Abuse From Coaches, Receiving Verbal Abuse From Players," and "Threats of Physical Abuse" were ranked as the highest sources of acute stress by the combined sample of adult and adolescent Australian referees. "Presence of My Supervisor" was also ranked as relatively stressful, though less so than any form of unpleasant interactions with others.

It was predicted that older referees cope better than their younger counterparts and, therefore, would report lower levels of acute stress. Results confirmed this prediction, and revealed that adolescent referees were significantly more stressed than their adult counterparts when they "Administered a Technical Foul" and when they "Made a Wrong Call." One situation in which older referees reported slightly higher levels of stress than their younger counterparts was worrying about being injured (ranked 5 and 12, respectively), a finding comparable to Taylor et al.'s (1990) findings that fitness concerns of soccer officials increased by age. These findings have implications for maintaining

appropriate levels of fitness for aging referees in order to reduce the frequency of injuries and the level of stress that results from fear of injuries.

Quantitative analyses indicated that referees of both age groups were relatively similar on the intensity level of most stressors. However, giving a technical foul, and making a wrong call were significantly more stressful for adolescent than adult basketball referees. Similarly, interpersonal conflicts including verbal abuse by coaches, players, and spectators, were generally more stressful for adolescents than adults. Age differences can be attributed to several factors. According to Billings and Moos (1981), older individuals have the advantage of experience, a broader repertoire of coping strategies, and more social resources with which to cope in stressful situations.

Results from the present study are comparable to Philips (1985) who found that inexperienced referees perceived the behaviour of crowds, coaches, and players as more negative than did experienced referees. Previous experience with a stressful situation may be an important component of successful coping (Lazarus & Folkman, 1984). As Frydenberg and Lewis (1991) state, adolescence is a period in which "the young person has particular stresses and for the first time must deal with them as a responsive autonomous individual" (p. 120). Data from this study indicated that young referees often encountered situations such as dealing with an angry player, or having to endure abuse from upset coaches or spectators. As some of these referees were as young as 14 years old, it is likely that these were novel situations of stress. Smith (1982), a wrestling referee reports that:

I had always been willing to accept that people may get upset with me if I had made a decision which they thought was wrong, especially if it went against their team, I was not, however, ready for the abusive form in which such criticism was expressed. (p. 36)

In addition, despite an absence of published research in this area, it is surmised that younger, less experienced and less confident officials would be perceived by participants as less threatening and knowledgeable than older, more experienced officials. Anecdotal evidence indicates that coaches and players are more likely to argue with a referee who

appears to lack self confidence, is inconsistent in making calls (i.e., bending some rules but not others or reacting unevenly to different players), makes mistakes in mechanics or floor positioning, and shows a lack of concentration, than with officials who do not exhibit these characteristics (Strom, 1990). According to Strom, the ability to demonstrate competence is often an intangible quality. He asserts that "...you have to take charge. If you're nonchalant and unemotional in your call, guys on the floor and the folks in the stands are going to think you're not really working at it, not really in control. You have to jump in there and show 'em you've got it totally in command" (p. 135).

Another possible reason for the relatively higher levels of stress reported by younger referees could be their lack of coping skills. Previous research has shown that coping strategies vary as a function of age (e.g., Folkman et al., 1987; Labouvie-Vief et al., 1987; Larsson et al, 1988). The qualitative data in the present study confirmed that young referees use coping strategies to different degrees than their adult counterparts. For example, older referees used humour more often than their younger counterparts in dealing with an angry player or attributing verbal abuse to the ignorance of spectators. These avoidance coping strategies assist individuals in reducing the negative emotions associated with the particular sources of stress. It is also surmised that veteran referees know when to approach and when to avoid a stressor. Folkman et al. (1987), for instance, suggest, that experienced individuals may "short-circuit the stress process, so that the incidents that might otherwise have been hassles are neutralised" (p. 182). Smith (1982) argues that older or more experienced officials tend to "adopt a distanced way of approaching reality" (p. 271), thus avoiding emotional involvement.

According to the interactional theory of stress (Lazarus & Folkman, 1984), the processes of appraisal and coping are interdependent. A stressor that elicits a challenge or benign appraisal will result in a different type of coping response than another stressor that elicits a threat appraisal. Thus, age differences in coping with stress may be a function of differences in appraisal. Researchers have argued that individuals who are older and more experienced with potentially stressful situations also tend to differ from their younger, less seasoned counterparts in their appraisal of the stressor (Lazarus &

Folkman, 1984). For example, Larsson, et al. (1988) found that older subjects appraised their stress as more benign-positive and challenging, whereas younger officers perceived stressors as more threatening and used more wishful thinking and anger control as coping techniques.

Another possible explanation of differences in perceived stress between older and younger individuals is that stress may vary as a function of coping resources (Osipow et al., 1985). Younger persons usually have relatively undeveloped resources such as financial means and social support compared to adults. Further research is warranted to examine the reasons for age differences in appraisals of acute stress situations in sport.

In summary, comparisons between adult and adolescent Australian basketball officials revealed significant differences in the intensity of the stressors "Giving a Technical Foul" and "Making a Wrong Call." Qualitative data indicated that adult and adolescent referees often used different coping responses to acute stress situations in sports.

Cross-Cultural Differences in Sources of Stress

It was expected that the intensity of perceived stress would differ between Greek and Australian adult referees as a result of cross-cultural differences (see Duda & Allison, 1990). Based on empirical observations, personal interviews with international basketball officials (e.g., S. Douvis, personal communication, 10 June, 1990), and anecdotal evidence regarding the difficulties that the vocation entails in each country (e.g., Bell, 1992, 1993), it was anticipated that Greek referees would report higher degrees of stress than Australians. Contrary to expectations, results revealed that Australian officials, compared to their Greek counterparts, perceived "Arguing With Players, Arguing With Coaches, Making a Controversial Call, Verbal Abuse From Coaches, Verbal Abuse From Players" and "Calling a Technical Foul" to be significantly more stressful. The only source of stress that Greek referees perceived to be significantly more stressful than Australians was "Presence of Media" (ranked 7th and 15th, respectively).

Results from the Greek sample revealed that "Making a Wrong Call, Working with My Partner, Presence of My Supervisor, Threats of Physical Abuse," and "Receiving Verbal Abuse From Coaches" were ranked as the highest sources of acute stress by the Greek basketball referees. The lowest ranked stressors were "Arguing With Players" "Arguing With Coaches," and "Calling a Technical Foul."

Qualitative data suggested that the frequency of using certain coping strategies in response to each source of stress differed between Greek and Australian referees. Greek referees were less stressed than their Australian counterparts in this study. Although the underlying reasons for these differences are speculative, possible factors include characteristics of the vocation, sociological factors, and psychological differences.

Characteristics of the vocation refers to the demands, the importance, the popularity, the meaning, and the purpose of the activity (e.g., Pierce, Stillner, & Popkin, 1982). For example, basketball competitions in the two countries may differ in terms of the participants' skill level, the demands of officiating, and the popularity of the sport (see Bell, 1992, 1993). According to Bell (1993), "the Greek league is possibly the toughest in Europe ... and ... the Greek fans ... are surely the most ardent in the world..." (p. 23). However, given the extent of similarities in the conduct and officiating of the game between countries, reinforced by international rules, it is possible that the differences found between Greek and Australian referees in perceived intensity of stress are due to factors that go beyond the characteristics of the vocation. This might include sociological and psychological factors.

Sociological factors refer to the structure of the community and the values held by its members. These factors may influence the ways members of different cultures interact and resolve interpersonal problems. For example, the society's beliefs, attitudes, and approach to solving life's problems may influence the manner in which a referee deals with an upset coach or player. In addition, Feinstein and Wilcox (1992) argue that studies examining stress in sports should consider the influence of life stress because it is possible that stress outside athletics influences sport participants. In this way, cultural differences in non-sport specific environmental stressors may be responsible for

differences in stress in sports. For example, stressors such as traffic, pollution, inflation, and overpopulation may have additive effects on the perceived intensity of stress in basketball officiating. Perhaps living in Greece may be more stressful than living in Australia. In the absence of research studies comparing the intensity of stress outside the sporting context across cultures, these theories remain tenable and warrant further examination.

A third factor that may be partially responsible for differences in perceived stress intensity for referees from the two groups is psychological differences. This includes differences in personal dispositions such as self-esteem, optimism, preferences for using coping strategies, and Type-A behaviour of individuals from the two countries. As Bell (1992) comments about Greece,

This is a nation where the citizenry manages to work itself into a frenzy over the slightest reason for excitement, be it an election for dog catcher or a debate over the style of team uniforms. Since ancient times the Greeks have been known for their excitability and passion. Today, the Greeks are passionate beyond belief about their basketball. (p. 23)

Experimental studies comparing Greek with British, Anglo-Australian, and American individuals, showed differences in certain personality dimensions. For instance, Kyrios, Prior, Oberklaid, and Demetriou (1989) found differences between Greek and Anglo-Australian infants in the dimensions of Approach, Adaptability, Mood, and Distractability in the Infant Temperament Questionnaire. Comparisons between Greek and British children ($M = 11.6$ yrs of age) showed that Greeks scored lower on the scales of neuroticism and psychoticism, and significantly higher than the British on need for social reinforcement (Eysenck & Demetriou, 1984). One study has indicated that Greek students, compared to Americans, are less instrumental and expressive, and scored higher in Type A behaviour (Yarnold, Bryant, & Litsas, 1989). Thus, Greeks may have a different set of personality traits than Australians, which may influence perceived stress.

It is also possible that the degree to which subjects are willing to admit their stress and their faults may vary between individuals from different countries (for a discussion

on this topic, see Keinan & Perlberg, 1987). It is not known whether Australians are less inhibited than Greeks in admitting their problems in self-report surveys.

Finally, as indicated earlier, another variable that may be partially responsible for the differences found between countries in the degree of stress experienced between subjects is their respective coping resources (Billings & Moos, 1981; Osipow et al., 1985). Lazarus and Folkman (1984) refer to problem solving ability, social skills, social support, health and energy, positive attitude, and financial resources as potential mediators of stress. The qualitative data in the present study confirmed that Greek referees use coping strategies to different degrees than their Australian counterparts. For example, Greek referees reported that they would penalise an abusive coach by giving a technical foul or by expelling the coach more often than Australians. These findings are comparable to previous research in which coping strategies have varied as a function of culture. Seiffge-Krenke and Shulman (1990), for example, compared German and Israeli subjects and found that coping responses of Germans were more influenced by situational demands, with pronounced approach-avoidance behavior, as opposed to Israelis whose coping responses were more stable across situations and dependent on cognitive factors. Thus, it appears that the use of coping strategies may be culturally determined.

In summary, study I examined the sources of acute stress for referees and their relative degrees of perceived intensity as a function of age and culture. It was found that particular situations during the game contributed markedly to increased acute stress in basketball officiating. It was also evident that the intensity of sources of stress varied between age groups and between referees from different countries. The implication from these findings is that identifying sources of stress for specific populations allows for the development of stress management programs that are sensitive to individual needs. This is especially relevant for younger, less experienced referees who have more difficulty coping than adults.

Findings from the present study suggest that individual and group differences exist in the referees' cognitive and behavioural responses to acute competition stress. It appears that further research is warranted regarding the factors that are responsible for

these differences. As indicated earlier, situational appraisals, coping styles, and other selected personal dispositions are believed to affect the individual's coping responses. Thus, there is a need to examine the relationships between these factors and their effects on the referees' responses to specific acutely stressful situations in basketball.

Summary of Findings

This study examined the intensity of several acute stressful situations that affect basketball referees during the game, and the referees' responses to these situations. The degrees of perceived stress between adolescent and adult Australian basketball referees, and between Australian and Greek basketball referees were compared. Results indicated that:

1. The highest sources of acute stress for adult and adolescent Australian basketball referees were "Making a Wrong Call, Verbal Abuse From Coaches, Verbal Abuse From Players, Threats of Physical Abuse," and "Presence of My Supervisor."
2. Australian adolescent referees perceived the situations "Administering a Technical Foul" and "Making a Wrong Call" to be more stressful than their adult counterparts.
3. The highest sources of acute stress for Greek basketball referees were "Making a Wrong Call, Working With My Partner, Presence of My Supervisor, Threats of Physical Abuse," and "Verbal Abuse From Coaches."
4. Australian referees, compared to their Greek counterparts, perceived "Arguing With Players, Arguing With Coaches, Making a Controversial Call, Verbal Abuse From Coaches, Verbal Abuse From Players" and "Calling a Technical Foul" to be significantly more stressful. Greeks, compared to Australians, rated "Presence of Media" higher in stress intensity.
5. Qualitative data indicated age and cultural differences in the referees' thoughts and coping responses to these sources of stress.

Chapter 4

Study II

EXAMINATION OF SITUATIONAL APPRAISALS AND SELECTED PERSONAL
DISPOSITIONS AS PREDICTORS OF COPING RESPONSES TO ACUTE STRESS
AMONG ADULT BASKETBALL REFEREES:
CROSS-CULTURAL COMPARISONS

The purpose of study II was to examine the effects of situational appraisals and personal dispositions on coping responses of basketball referees, and to evaluate the extent to which referees exhibit consistent (preferred) coping responses across a range of acute stress situations. Another objective of this study was to examine differences between Australian and Greek basketball referees in personal dispositions, situational appraisals, and coping responses. It was predicted that situational appraisals would be stronger predictors of referees' coping responses than personal dispositions, and that referees would vary their coping responses across situations. It was also expected that subjects' personal dispositions and appraisals of situations would be highly correlated with their approach and avoidance coping responses. Finally, differences were anticipated between Australian and Greek referees in their personal dispositions, situational appraisals, and coping responses.

Method

Subjects

Psychological inventories were sent to basketball referees' associations in all Australian states, with a letter of support from the National Australian Basketball League, asking each association to administer the surveys to its members. The surveys included a face sheet instructing referees on how to complete them. Follow-up telephone calls were made to each organisation as a reminder to return the surveys. Survey forms were collected from 133 of the 350 (38%) Australian basketball officials (aged 18 to 53 yrs) who were sent the surveys. These rates compare favourably with those found in mail surveys using follow-ups (10% to 50%; Selltiz, Wrightsman, & Cook, 1976).

To obtain data from basketball referees in Greece, a survey with identical content was translated into Greek by a bilingual speaker. This procedure was identical to that used in study I in the development of the BOSSS. Therefore, to ensure that the Greek version was conceptually equivalent to the English version, the inventory was translated back to English, following the procedure suggested by Berry (1969). All basic principles of linguistic differences, similarity of content, and functionality of the surveys were followed. The translated surveys were administered by the Greek referees' basketball association to 241 certified sports officials at their annual national referee conference in Greece. A total of 163 (68%) referees (aged 19 to 47 yrs) returned the surveys. Characteristics of the Australian and Greek referee samples are presented in Table 7. Table 8 describes the distribution of referees from both groups according to their level of skill.

In the survey, subjects were instructed to "tell us how you respond to certain stressful events." To promote candour and validity of the subjects' responses, all surveys were completed anonymously. A sample survey appears in Appendix D. Its Greek equivalent appears in Appendix E, and a sample answer sheet is included in Appendix F.

Table 7*Profile of Australian and Greek Referees.*

	<u>n</u>	<u>Male</u>		<u>Female</u>		<u>Age</u>		<u>Experience</u>		<u>Return</u>
		<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>Rate</u>
GREEK	163	159	(97.5)	4	(2.5)	33.9	(5.2)	8.9	(3.8)	68.0
AUSTRALIAN	133	85	(80.2)	21	(19.8)	29.2	(10.0)	8.5	(7.4)	38.0
Total	296	244	(90.7)	25	(9.3)	32.1	(7.7)	8.8	(5.4)	50.0

Table 8*Distribution of Australian and Greek Referees According to Rank Level.*

<u>LEVEL</u>	<u>GREEK</u>		<u>AUSTRALIAN</u>		<u>Total</u>	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
1 (a, b, c)*	83	(51.6)	56	(55.4)	139	(53.1)
2	39	(24.2)	20	(19.8)	59	(22.5)
3	18	(11.2)	14	(13.9)	32	(12.2)
4	9	(5.6)	6	(5.9)	15	(5.7)
FIBA	12	(7.5)	5	(5.0)	17	(6.5)

Note. * Level 1 referees are divided in subcategories a, b, and c.

Materials

The inventories that were administered to referees consisted of the Rosenberg Self-Esteem Scale (Rosenberg, 1965), the Life Orientation Test (Scheier et al., 1986), and the Miller Behavioral Style Inventory (Miller, 1987), measuring self-esteem, optimism, and coping style (monitoring-blunting), respectively. To measure the referees' coping responses in acute stress situations, a new survey, the Coping Style Inventory (CSI) for acute stressors was developed.

Generation of the Coping Style Inventory (CSI)

Following Krohne's (1988) recommendations regarding the need for a multi-dimensional scale for the study of coping, the CSI was developed for this study to assess simultaneously the individuals' appraisals and their coping responses to three acute stress game-related situations, selected from study I. These stressful situations included "Making a Mistake, Aggressive Reactions by Coaches or Players," and "Presence of Important Others."

The first scale of the CSI measures the degree of perceived control and intensity of the selected situations. Subjects were asked to indicate the intensity of each of the three situations on a scale of 1 (not stressful) to 5 (very stressful) (see Appendix D, items 23 to 25). To measure perceived control over a situation, subjects were asked to rate on a scale of 1 (not at all true) to 5 (very true) the degree to which "I feel that usually I can do something about it" (Appendix D, items 26, 35, 44).

The second scale of the CSI was designed to assess the coping strategies that referees used during the three stressful game-related situations. This scale in its initial form consisted of 19 theoretically-based strategies. To provide empirical support, a second list of 14 items was generated from the qualitative analysis of the referees' physical and mental responses to stress, based on the data that were collected in study I. After comparing the two lists, items were modified, added, or deleted, using as a criterion the reported frequency of each strategy's actual use in study I. This procedure resulted in

a 16-item version of the CSI. The CSI was then pilot-tested with a group of 27 basketball officials. Items that were not applicable in all three situations and those that were rarely endorsed by subjects were modified or deleted. The final version of the CSI included eight items, equally divided into approach and avoidance strategies (e.g., items 27 to 34, see Appendix D). Subjects were asked to recall each of three stressful situations and then indicate on a scale of 1 (not at all true) to 5 (very true) the number that best described the extent to which each comment was true.

Methodological problems that were noticeable in the measurement of coping with previous instruments were addressed in developing the CSI (see section "The Need for a New Measure of Coping"). First, three stressful situations (as opposed to one) were included in the CSI to trigger the subjects' coping responses. According to Krohne (1988), "coping tendencies can best be assessed by analysing the coping activities employed by a person across a series of situations that differ with respect to central coping-relevant variables (e.g., predictability, controllability)" (p. 12). A person cannot be classified as an avoider (or an approacher) by using avoidance (or approach) strategies on one occasion or in a type of situation. Instead, it is necessary that an individual's consistent use of coping strategies across situations of varying degree of controllability and predictability be ascertained (Krohne, 1989). Miller (1992) suggests that individual differences in coping are best identified under demanding and high threat situations. Findings from study I indicated that "Making a Mistake, Aggressive Reactions by Coaches or Players," and "Presence of Important Others" were highly stressful for both Australian and Greek sports officials. Thus, to trigger subjects' coping responses the CSI used these three acute stress situations, listed in no particular order of frequency or intensity. Using these three standard stressful situations, as opposed to asking subjects to recall and report their coping responses on personal past stressful experiences, allowed for legitimate between-subjects comparisons of coping responses, as well as for within-subjects comparisons across the three stressful situations.

Secondly, the CSI was developed both on a theoretical and empirical basis. A central issue of conflict in personality assessment is whether to construct scales

empirically or theoretically (Carver et al., 1989). The theoretical model that served as the basis for the CSI was that of approach-avoidance (Roth & Cohen, 1986). Several of the CSI's initial items were adapted from Roth and Cohen's approach-avoidance scale, whereas others were generated from the avoidance and escape scales of the Ways of Coping Questionnaire (Folkman, Lazarus, Dunkel-Schetter et al., 1986), and from other pre-existing validated inventories (Carver et al., 1989; Endler & Parker, 1990; McCrae, 1984). Only items (coping responses) applicable to the specific acute stress situations were included in the CSI. Although one may argue that the use of the CSI is limited to specific people in specific contexts, it is richer in descriptive power.

Another common methodological problem in generating coping surveys is the difficulty in distinguishing between persons who report few symptoms because they actually have few symptoms versus those who report few symptoms because they deny their existing symptoms. As Cook (1985) pointed out, an instrument that "requires subjects to report the use of coping strategies rather than the presence of specific symptoms ... addresses directly and overcomes some of the problems of the R-S scale" (p. 760). Thus, the format of the CSI ascertained the referees' actual use of coping strategies. Finally, unlike other scales, the CSI assesses approach and avoidance coping styles separately, rather than as opposite ends of the same dimension. Thus, an individual with high approach coping for a given stressor may not necessarily have low avoidance coping for the same stressor.

Validation of the CSI. Content validity was ensured by selecting items referring to coping responses that are actually used by the referees as indicated in study I. To further establish content validity, one Australian and one Greek referee supervisor examined the appropriateness of the items and confirmed that all coping responses are actually employed by basketball officials. A high school English and a Greek teacher reviewed the survey and confirmed that it could be comprehended by persons with a minimum grade 10 reading level.

The concurrent validity of the CSI was partially supported by its association with the MBSS measure of dispositional coping. Approach was found to be modestly correlated with monitoring. However, the correlation between avoidance coping and blunting was not significant. This was not surprising given that the avoidance and the blunting concepts are not identical. In fact, previous research has also found that the construct of blunting is unrelated to most personality scales and coping modes (e.g., Carver et al., 1989; Miller et al., 1988).

As mentioned in study I, construct validity may be ascertained by deriving hypotheses from the theory involving the construct, and testing the hypotheses empirically (Kerlinger, 1973). The construct validity of the CSI was established in two ways. First, an exploratory factor analysis with principal components and varimax solution was carried out on the coping responses of basketball referees to the three acute stress situations (see Table 9). Results indicated that items constituted two distinct factors, approach and avoidance. The two-factor model used a criterion of .45, accounting for 35% of the total variance. All items loaded positively, and all possible extractions and rotations produced similar solutions. Items in the first factor represented avoidance strategies used by subjects to cope with the acute stressors or their emotional manifestations, whereas items in the second factor referred to approach coping tendencies. One strategy, "I try to concentrate on what I have to do next" (items 28, 37, and 46), which Roth and Cohen (1986) categorised as approach coping, loaded on the avoidance factor. Results from this study suggest that focusing on the next task is a form of avoidance from confronting or dealing emotionally with the stressor. On the other hand, the cognitive response "I think about quitting" (items 34, 43, and 52), contrary to what was expected, loaded on approach rather than avoidance. Although considering quitting refers to abandoning all efforts to deal with the stressor and its emotional manifestations (i.e., avoidance coping), it actually requires considerable cognitive effort for examining the situation and its severity, and considering the consequences of quitting the activity (i.e., approach coping). Often it takes more emotional effort to quit than to

continue playing the game. Table 9 is a description of the approach and avoidance scale of the CSI for basketball referees.

The second factor supporting the construct validity of the CSI was its confirmation of several research hypotheses predicting relationships between certain sets of variables. For example, analysis of data showed that high degrees of perceived control and stress were positively related to the use of approach coping strategies (see Results section). Thus, it was apparent that the CSI measured the constructs of approach and avoidance coping.

To examine the internal consistency of coping responses to the items of the CSI, Cronbach's alpha were computed. Coefficients of $\alpha = .80$ and $.82$ for the scales of approach and avoidance, respectively, indicated that responses were reliable and thus considered satisfactory for experimental purposes (Cronbach, 1951).

Life Orientation Test (LOT)

The LOT is a 12-item measure of optimism. Examples of items include "I always look at the bright side of things" and "If something can go wrong for me, it will." Scheier et al. (1986) report that the scale's convergent and discriminant validity has been compiled with respect to a number of other personality variables (for a complete description of the inventory and its psychometric qualities see Scheier & Carver, 1985). Internal consistency (Cronbach's alpha) of the LOT is $.76$ while the test-retest reliability coefficient over a 4-week interval is $.79$. Data from Greek and Australian samples in the present study included an alpha level of $.55$ and $.60$, respectively. The LOT appears in Appendix D (items 1 to 12).

Rosenberg's Self-Esteem Scale (RSE)

Rosenberg's (1965) scale is a 10-item measure of self-esteem that has been validated and used extensively by researchers. Items contain statements such as: "I feel that I have a number of good qualities," and "I wish I could have more respect for myself" (see Appendix D, items 13 to 22). Scoring options are strongly agree, agree, disagree, and

Table 9

Approach and Avoidance Coping Items in the CSI for Basketball Officials: Factor Loadings.

	<u>Factor I</u>			<u>Factor II</u>		
	Situations			Situations		
	<u>I</u>	<u>II</u>	<u>III</u>	<u>I</u>	<u>II</u>	<u>III</u>
(Avoidance Items)						
I try to concentrate on what I have to do next.	.53	.62	.54	.25	-.27	-.18
I try to get on with the game as quickly as possible.	.47	.62	.59	.11	.01	.00
I make an effort to relax and calm down.	.66	.70	.69	.15	.05	.21
I try not to think about it.	.47	.51	.49	-.24	-.23	-.04
(Approach Items)						
I tend to review my actions, thinking about whether I was right or wrong on the call.	.12	.22	.16	.44	.55	.66
I tend to think about it and get distracted or upset.	-.15	-.19	-.13	.64	.61	.58
I tend to explain my actions to the coach(es) or the player(s).	.02	.00	.01	.48	.59	.59
I think about quitting.	-.22	-.22	-.18	.50	.52	.50
Percent Variance Accounted for: 35.1% (total)						

strongly disagree. Cronbach's alpha, as calculated in the present study, was .76 for the Australian subjects and .45 for the Greeks.

Miller Behavioral Style Scale (MBSS)

The Miller Behavioral Style Scale is a self-report paper and pencil inventory that categorises two coping style groups, monitors and blunterners. These coping styles reflect the person's preferences for seeking information or distracting themselves from information about the nature and the potential impact of the threat (Miller, 1987). The MBSS is relatively stable with a test-retest reliability of approximately .80 over a three month period. According to Miller (1990), the instrument has been found to be unrelated to demographic variables such as sex, race, age, educational status, and marital status. It has also been found to be unrelated to trait measures such as anxiety, depression, repression-sensitisation, optimism, attributional style, and Type A. The MBSS is further described in the section The Need for a New Measure of Coping. In the present study, Cronbach's alpha for the monitoring scale was .56 for the Australian sample and .65 for the Greeks, whereas for the blunting scale alphas were .52 and .59, respectively. The MBSS appears in Appendix D, items 53 to 84. Table 10 presents the internal coefficient alphas for each of the scales used in studies II and III as calculated from data collected from the respective samples of each study (i.e., referees and players).

Table 10

Internal Consistency (Cronbach's alphas) of the Inventories for Australian and Greek Basketball Referees and Athletes.

Scale	<u>Referees</u>		<u>Athletes</u>
	Australian	Greek	Australian
Approach	.71	.83	.72
Avoidance	.79	.84	.75
Optimism	.60	.55	.77
Self-Esteem	.76	.45	.78
Monitoring	.56	.65	.61
Blunting	.52	.59	.52

Note. Ns varied for each group due to missing values

Referees: Australian (n = 122 to 133), Greek (n = 162)

Athletes: (n = 171 to 190).

Results

The analyses of data are based on two sets of independent variables: (a) personal dispositions, which include measures of optimism, self-esteem, and general coping style (obtained from the monitoring and blunting scales), and (b) situational appraisals, which included perceived control and perceived acute stress. These analyses aimed to examine the effects of personal dispositions and situational appraisals on approach and avoidance coping, measured with the eight coping items, across the three selected acute sources of stress. Because approach and avoidance were considered as distinct dimensions, separate tests on each dimension were used to examine the related hypotheses. The alpha level for all statistical comparisons was .05.

The examination of data on situational appraisal variables and approach and avoidance coping responses utilised both inter-individual (between-subjects) and intra-individual (within-subjects) comparisons. Inter-individual comparisons investigated differences between Australian and Greek referees, whereas intra-individual comparisons examined whether situational appraisals and coping responses varied across the three stressful situations. Results indicating significant group by situation interactions were followed by separate analyses to examine the responses of each group.

Multivariate analyses of variance (MANOVAs) were performed to compare subjects' situational appraisals and personal dispositions. The assumptions underlying the MANOVA statistics include that the variances of the groups that are compared are homogeneous. As a preliminary test of robustness, sample variances for each dependent variable were compared across segments. For this purpose, each MANOVA included a test for homogeneity of variance-covariance matrices (Box's \underline{M} -test). Box's \underline{M} test is "notoriously sensitive" to variance deviations from the normal distribution (Tabachnick & Fidell, 1989, p. 379). According to Tabachnick and Fidell, the hypothesis of homogeneity should only be rejected at highly significant levels ($p < .001$) and only when sample sizes are notably discrepant and cells with smaller samples produce larger variances and covariances than cells with larger samples. Howell (1987) argues that "if

largest variance is no more than four or five times the smallest, the analysis of variance is more likely to be valid" (p. 287). In the MANOVAs conducted in the present study Box's M tests for homogeneity of dispersion matrices met these criteria, confirming homogeneity of variance-covariance matrices.

Results are presented in three sections. The first section includes relationships between situational appraisals, personal dispositions, and coping responses scores. In the second section, differences between Australian and Greek referees are examined for profile characteristics, situational appraisals, personal dispositions, and coping responses. Intra-individual analyses compare the subjects' situational appraisals and coping responses across the three stressful situations. Finally, the third section includes regression analyses of situational appraisals and personal dispositions on approach and avoidance coping responses to examine situational and personal factors as predictors of coping responses.

The means and standard deviations of subjects' scores on optimism, self-esteem, monitoring and blunting, perceived stress and control, and approach and avoidance coping during the three stressful situations are shown in Table 11. A perusal of the combined group mean scores shows that the most controllable situation, "Aggressive Reactions by Coaches or Players," was also rated as the most stressful situation, followed closely by the stressor "Making a Mistake." Ratings for approach and avoidance coping varied between Australian and Greek sports officials for the three stressful situations. Finally, in terms of average coping scores for both groups, it appears that referees used more avoidance than approach coping during officiating.

Relationships Between Personal Dispositions, Situational Appraisals, and Coping Responses

Correlations between personal dispositions, situational appraisals, and approach and avoidance coping responses are presented in Table 12. The first set of these findings indicated several relationships between personal dispositions and coping responses.

Table 11

Means and Standard Deviations (Un-ranked) of Situational Appraisals, Personal Dispositions, and Coping Responses of Australian and Greek Basketball Officials.

<u>Variable</u>	<u>Australian</u>		<u>Greek</u>		<u>Combined</u>	
	Mean	S D	Mean	S D	Mean	S D
Personal Dispositions						
Optimism	29.63	3.82	30.06	4.33	29.86	4.10
Self-esteem	8.38	1.98	8.71	1.26	8.56	1.63
Monitoring	10.50	2.54	11.58**	2.72	11.11	2.69
Blunting	7.01*	2.52	6.21	2.61	6.55	2.60
SITUATION I (Making a Mistake)						
Perceived Control	2.98	1.17	2.48	1.33	2.70	1.28
Perceived Stress	2.80	1.00	2.69	.91	2.74	.95
Avoidance	3.83	.66	4.10	.74	3.98	.72
Approach	2.45***	.56	2.20	.74	2.31	.67
SITUATION II (Aggression by Coaches or Players)						
Perceived Control	3.68	1.07	3.62	1.23	3.65	1.16
Perceived Stress	2.93	1.15	2.63	1.05	2.76	1.10
Avoidance	3.79	.69	4.07	.76	3.95	.74
Approach	2.45***	.62	2.15	.75	2.28	.71

(Table 11: Continued)

<u>Variable</u>	<u>Australian</u>		<u>Greek</u>		<u>Combined</u>	
	Mean	SD	Mean	SD	Mean	SD
SITUATION III (Presence of Important Others)						
Perceived Control	2.84	1.30	3.06	1.32	2.96	1.31
Perceived Stress	2.45	1.10	2.58	1.09	2.52	1.09
Avoidance	3.81	.84	3.90	.78	3.86	.81
Approach	2.27**	.70	2.05	.74	2.15	.73
AVERAGE SCORES OVER THREE SITUATIONS						
Perceived Control	3.16	.76	3.05	.93	3.10	.86
Perceived Stress	2.74	.80	2.63	.74	2.68	.77
Avoidance	3.81	.62	4.01	.71	3.92	.67
Approach	2.39	.51	2.13	.67	2.25	.62

Note. *ns* varied slightly because of missing data.

Combined sample: Max $n = 295$, min $n = 285$.

Australian referees: Max $n = 133$, min $n = 100$; Greek: Max $n = 163$, min $n = 161$.

Differences between Australian and Greek referees: * $p < .05$, ** $p < .01$, *** $p < .001$.

Specifically, optimism and self-esteem were both positively correlated with avoidance ($r = .14$, and $r = .12$, respectively), and negatively related to approach coping (both $r = -.30$). Thus, individuals with higher optimism and self-esteem were likely to use more avoidance coping strategies and less approach coping than individuals with lower optimism and self-esteem. Monitoring was moderately related to approach coping ($r = .19$) as anticipated. However, avoidance coping was not related to the dimension of blunting ($r = .11$). Unexpectedly, a significant but weak correlation was observed between approach and blunting ($r = .19$), an ambiguous finding that is not easily interpreted. Finally, a highly significant positive correlation was observed between optimism and self-esteem ($r = .41$), whereas optimism was negatively, and only weakly, correlated with monitoring ($r = -.17$).

The second set of findings indicated several relationships between situational appraisals and coping responses. More specifically, perceived stress was moderately correlated with approach coping ($r = .38$), and negatively correlated with avoidance ($r = -.16$). Thus, high stress was related to greater use of approach coping strategies and lesser use of avoidance coping. Likewise, high perceived control was moderately correlated with approach coping ($r = .26$). However, an enigmatic low correlation was also found between perceived control and avoidance coping ($r = .14$). In terms of correlations between situational appraisals, perceived controllability was unrelated to perceived stress ($r = .05$).

Thirdly, regarding the relationships between personal dispositions and situational appraisals, several findings emerged. Specifically, as indicated in Table 12, perceived stress was negatively related to both optimism ($r = -.32$) and self-esteem ($r = -.20$). Thus, high optimism and high self-esteem were related to low stress. On the other hand, the correlations of perceived control with self-esteem and optimism were not significant in the present study ($-.04$ and $.03$, respectively). Instead, perceived control was related to the dimension of monitoring ($r = .20$), suggesting that high monitors (i.e., individuals who tend to seek information about the source of stress) are more likely to perceive situations as highly controllable compared to low monitors. High monitors, in

Table 12

Correlations Between Situational Appraisals, Personal Dispositions, and Coping Responses for All Basketball Officials.

Variables	1	2	3	4	5	6	7	8
Personal Dispositions								
1. Self-esteem	-							
2. Optimism	.41***	-						
3. Monitoring	.02	-.17**	-					
4. Blunting	-.13*	-.05	-.08	-				
Situational Appraisals								
5. Perceived stress	-.20**	-.32***	.25***	-.02	-			
6. Perceived control	-.04	.03	.20***	.04	.05	-		
Coping Responses								
7. Avoidance	.12*	.14**	.02	.11	-.16**	.14*	-	
8. Approach	-.30***	-.30***	.19**	.19***	.38***	.26***	-.14*	-

Note. Maximum $n = 296$, min $n = 257$; ns varied slightly because of missing data.

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed tests).

turn, reported higher degrees of stress, as shown by the moderate correlation found between monitoring and perceived stress ($r = .25$). Thus, correlations from data in the present study suggest that personal dispositions, situational appraisals, and coping response variables are moderately related, rather than independent.

Differences Between Australian and Greek Basketball Referees

Personal Characteristics

Data on several socio-biological variables (i.e., age, gender, years of experience, and level of officiating) for Australian and Greek basketball officials were considered potential moderator variables in the process of coping. To examine the possibility that Australian and Greek samples of subjects in the present study differed in terms of their age and years of experience, a MANOVA with age and years of experience as the dependent variables and with group serving as the independent variable was conducted. Results indicated that the two groups were significantly different, $F(2, 260) = 14.47$, $p < .001$. Univariate F -tests showed that Greek sports officials in the sample of this study were significantly older than their Australian counterparts, $F(1, 261) = 25.33$, $p < .001$ (see Table 7). Although the two groups differed in age, there were no significant differences in years of experience, which suggests that Australian referees begin officiating at an earlier age. To examine whether the Australian and Greek samples differed with respect to gender and officiating level, chi-square tests were conducted. Results revealed that although all levels of referees were equally represented in the two groups, $\chi^2(4, N = 262) = 1.69$, $p > .05$, the male to female ratio was significantly different for Greek and Australian sports officials, $\chi^2(1, N = 269) = 22.95$, $p < .001$. Specifically, females were under-represented in the Greek sample ($N = 4$) compared to the Australian sample ($N = 21$) of referees. To counterbalance age and gender, all subsequent analyses either controlled for, or examined separately their effects on personal, situational, and coping variables. This was particularly important because Australian and Greek referees were found to differ in gender and age characteristics.

Personal Dispositions

Prior to the examination of situational appraisals and coping responses, groups were compared on the personal variables of optimism, self-esteem, and coping style (monitoring and blunting). A 2 x 2 x 4 (Group x Gender x Personal Dispositions) multivariate analysis of covariance (MANCOVA) with age serving as a covariate was carried out. The main effect of personal dispositions was significant, indicating significant differences between Australian and Greek basketball officials, $F(4, 255) = 3.51, p < .008$. Although the main effect of gender on personal dispositions was not significant, the effect of age on personal dispositions was significant, $F(4, 255) = 2.53, p < .04$. Univariate regression analyses revealed that age affected self-esteem, $F(1, 258) = 4.96, p < .02$. The standardised regression coefficient of $\beta = .14$ indicated that older referees reported higher self-esteem than their younger counterparts. With the effects of age controlled, univariate F -tests revealed that groups differed in the dimensions of monitoring, $F(1, 258) = 8.22, p < .004$, and blunting, $F(1, 258) = 4.16, p < .04$. As shown in Table 11, Greek sports officials, as compared to their Australian counterparts, reported a greater tendency towards monitoring and relatively reduced preference for blunting.

Situational Appraisals

Situational appraisals included measures of perceived controllability and perceived intensity of stress on each of the three acute sources of stress for basketball officials.

Perceived control. To examine whether male and female subjects of the two groups differed in their appraisals of control, a 2 x 2 x 3 (Group x Gender x Situation) MANCOVA with age serving as a covariate and with situation serving as a repeated measure was carried out. The regression of age on perceived controllability was non-significant, $F(3, 259) = .70, p > .05$. Thus, age was removed from the analysis. The main effect of situation reached statistical significance. There were no significant three- or

two-way interactions. More specifically, within-subjects comparisons on the repeated measure of situation indicated that perceived controllability varied across situations, $F(2, 262) = 14.71, p < .001$. Paired t-tests were used to investigate differences between the three situations to show which situation referees perceived as most controllable. Because three contrasts were being undertaken for subjects' scores on perceived control in each situation, a Bonferroni adjustment at the .05 level of significance yielded a more stringent .0167 level of significance for these contrasts. Results revealed that referees considered "Aggressive Reactions by Coaches or Players" to be significantly more controllable than both "Making a Mistake," $t(292) = 10.23, p < .001$, and than "Presence of Important Others," $t(292) = 7.54, p < .001$. Also, perceived controllability in the situation "Presence of Important Others" was higher than "Making a Mistake," $t(292) = 2.75, p < .006$. Figure 3 graphically illustrates these findings (Table 11 includes the referees' mean scores on perceived control).

Perceived stress. To examine whether male and female subjects of the two groups differed in their appraisals of stress, a $2 \times 2 \times 3$ (Group \times Gender \times Situation) MANCOVA with age serving as a covariate and with situation serving as a repeated measure was carried out. The regression of age on perceived stress was insignificant, $F(1, 262) = .15, p > .05$. Thus, age was removed from the analysis. The main effect of group was not significant, indicating that stress appraisals did not differ between Australian and Greek subjects. More important, the two-way (Gender \times Situation) interaction yielded significance, $F(2, 263) = 3.61, p < .02$, indicating that stress appraisals in the three situations differed between male and female sports officials. As the main effect of group was not significant, subsequent univariate F-tests on perceived stress of males and females were conducted on combined Australian and Greek data. These analyses revealed that the situation "Aggressive Reactions by Coaches or Players" was significantly more stressful, $F(1, 262) = 5.68, p < .01$, for females ($M = 3.44, SD = 1.04$) than for males ($M = 2.69, SD = 1.09$). There were no statistically significant differences between male and female subjects in their appraisals of stress on the remaining

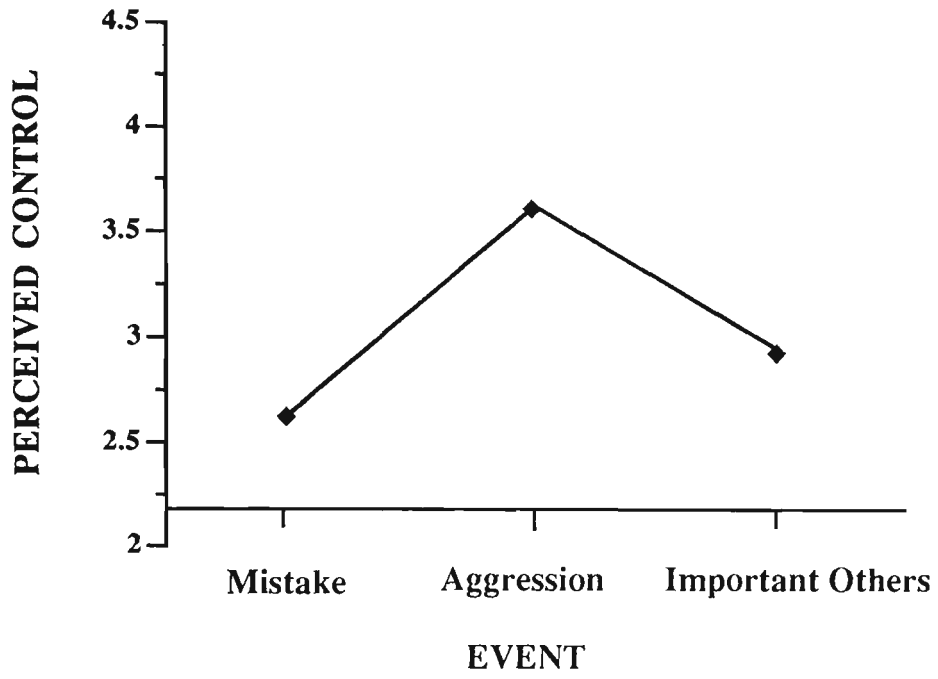


Figure 3. Degree of Perceived Control Across Situations for All Subjects.

two situations, "Making a Mistake" ($M = 2.84$, $SD = .99$ for females, and $M = 2.74$, $SD = .91$ for males) and "Presence of Important Others" ($M = 2.52$, $SD = 1.3$, and $M = 2.56$, $SD = 1.1$, respectively). Mean perceived stress scores for female and male referees are graphically illustrated in Figure 4.

Due to the significant gender by situation interaction, a MANOVA with within-subject comparisons and with situation serving as a repeated measure was carried out to examine if male subjects' stress appraisals were different across the three situations. Results revealed no significant variations in the intensity of male referees' perceived stress across the three stressors, $F(2, 241) = 2.79$, $p > .05$. An identical analysis was performed on data from female referees. Results from this analysis indicated significant differences on female referees' stress appraisals across the three situations, $F(2, 23) = 6.84$, $p < .005$. To examine which situations female referees perceived as most stressful, paired t-tests were computed comparing the reported stress means for each situation. A Bonferroni adjustment at the .05 level of significance yielded a more stringent .0167 level of significance for these contrasts. Results revealed that women referees perceived "Aggressive Reactions by Coaches or Players" to be significantly more stressful than both "Making a Mistake," $t(24) = 2.78$, $p < .01$, and becoming aware of the "Presence of Important Others," $t(24) = 3.48$, $p < .002$ (see Figure 4). Means and standard deviations for these respective situations were: $M = 3.44$, $SD = 1.04$; $M = 2.84$, $SD = .99$; and $M = 2.52$, $SD = 1.29$.

Coping Responses

Coping responses of basketball officials to the three stressful situations were measured using the CSI's approach and avoidance scales. Two separate analyses were performed on these data, one analysis with the referees' approach scores on the three events as the dependent variables and the other analysis with their avoidance coping scores on the three events as the dependent variables. Age was entered in each analysis as a covariate. As the regression of age on each approach and avoidance coping scores failed to reach significance, $F(1, 261) = .01$, and $F(1, 260) = .50$, respectively,

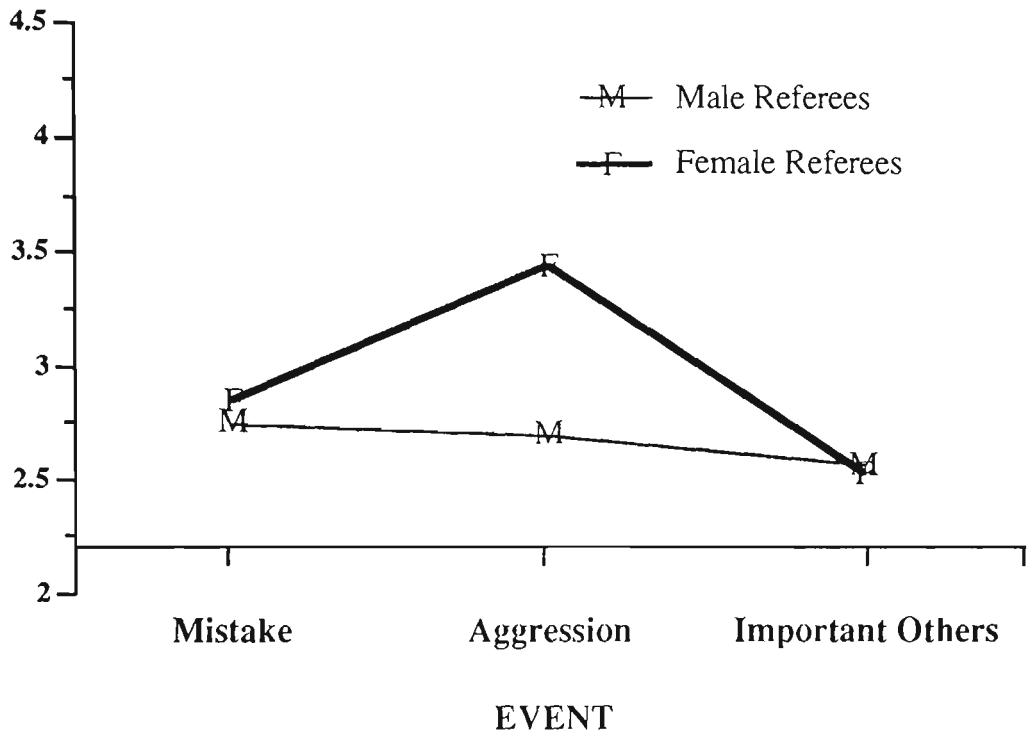


Figure 4. Degree of Perceived Stress Across Situations for Male and Female Basketball Referees.

($p > .05$), age was removed from subsequent analyses.

Approach coping. To examine whether male and female subjects of the two groups differed in their approach coping responses, a $2 \times 2 \times 3$ (Group \times Gender \times Situation) MANOVA with situation serving as a repeated measure was conducted. The main effect of group reached statistical significance, $F(1, 263) = 4.76$, $p < .03$, while there were no significant three- or two-way interactions. Subsequent univariate analyses revealed that Australian and Greek referees' approach coping scores were significantly different for the three situations, "Making a Mistake," $F(1, 291) = 4.61$, $p < .001$, "Aggressive Reactions by Coaches or Players," $F(1, 291) = 6.48$, $p < .001$, and "Presence of Important Others," $F(1, 291) = 3.53$, $p < .01$. As seen in Table 11, mean scores of the two groups indicate that Australian referees used more approach strategies than Greeks in the three situations. Subjects' mean approach (and avoidance) scores on the three situations are illustrated in Figure 5.

Examination of the within-subject comparisons on the repeated measures of approach for the three stressful situations showed no significant differences across situations, $F(2, 262) = .19$, $p > .05$, suggesting that basketball officials were fairly consistent in using approach coping responses across situations (see Figure 5).

Avoidance coping. To examine whether male and female subjects of the two groups differed in their avoidance coping responses, a $2 \times 2 \times 3$ (Group \times Gender \times Situation) MANOVA with situation serving as a repeated measure was conducted. This time, gender had a significant main effect on avoidance coping, $F(1, 262) = 4.21$, $p < .04$. There were no significant three- or two-way interactions. Subsequent univariate analyses indicated that male and female referees used significantly different degrees of avoidance in the stressors "Making a Mistake," $F(1, 264) = 4.17$, $p < .003$, and "Aggressive Reactions by Coaches or Players," $F(1, 264) = 5.25$, $p < .001$, but not in the stressor "Presence of Important Others," $F(1, 264) = 1.21$, $p > .05$. An inspection of the subjects' mean avoidance scores revealed that male basketball referees used more

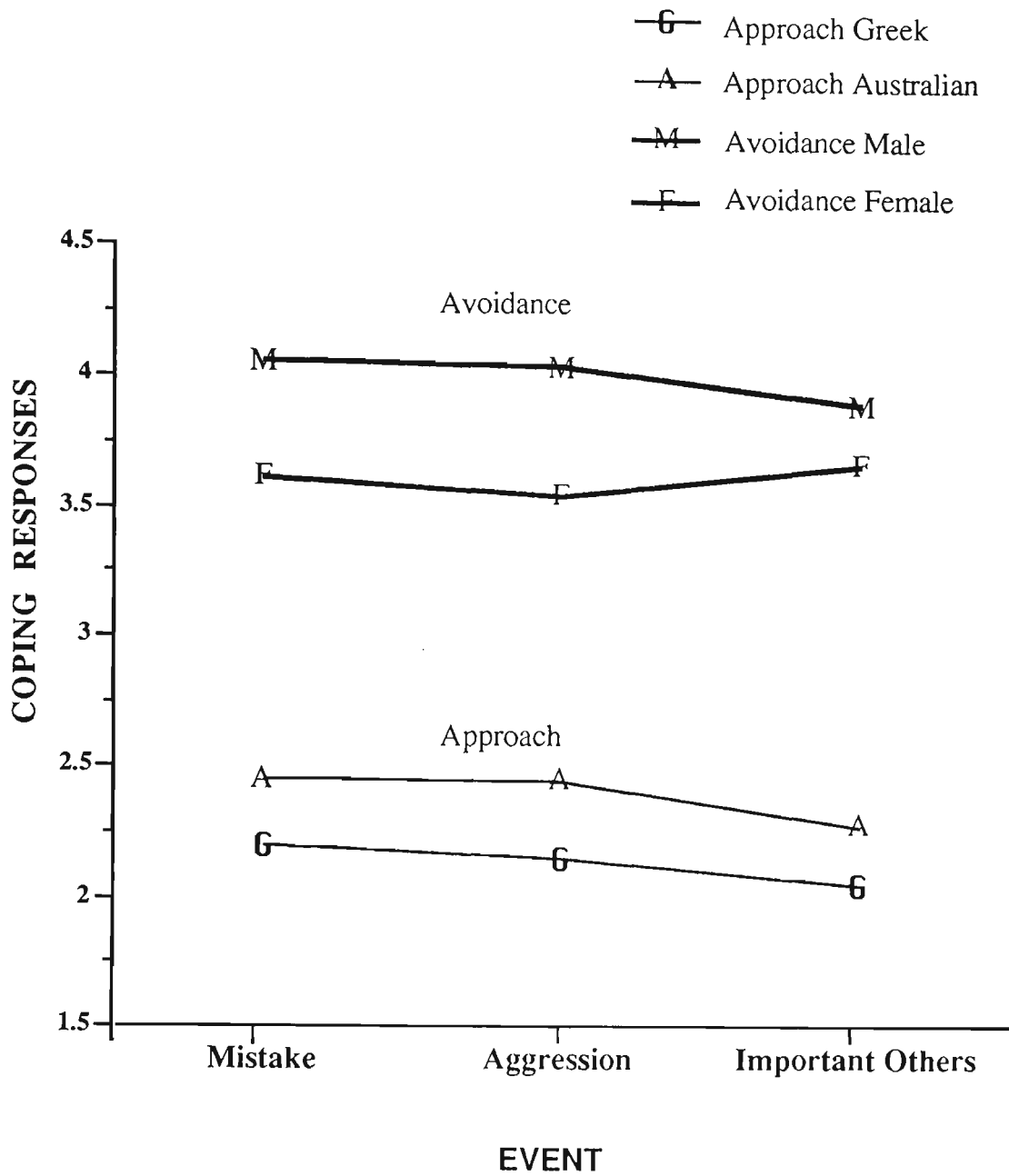


Figure 5. Approach and Avoidance Coping Across Situations for Male and Female Greek and Australian Basketball Referees.

avoidance strategies ($M = 4.05$, $SD = .66$) than their female counterparts ($M = 3.61$, $SD = .89$) when experiencing the stressor "Making a Mistake." Males also used more avoidance strategies ($M = 4.03$, $SD = .69$) than their female counterparts ($M = 3.54$, $SD = .90$) when experiencing "Aggressive Reactions by Coaches or Players" (see Figure 5). Finally, as there were no significant gender by group interactions, within-subject comparisons on the repeated measures for the three situations showed no significant differences on the referees' avoidance coping responses across the three stressful situations, $F(2, 261) = .12$, $p > .05$.

A synopsis of the differences found in personal dispositions, situational appraisals, and coping responses of basketball officials as a function of age, gender, and group is presented in Table 13. Figure 6 graphically illustrates the relative positions of the referees' overall mean scores (combined data) on perceived control, perceived appraisal, and approach and avoidance coping responses.

Regression Analyses

To examine the effects of personal dispositions and situational appraisals on the referees' coping responses, two separate regressions with forced entry of variables, referred to as hierarchical regression analyses, were carried out, one on approach and one on avoidance coping. Personal variables were initially entered first as, based on Lazarus and Folkman's (1984) theoretical framework, they are antecedents of appraisal and coping processes. Situational appraisals for controllability and intensity of stress were entered in the second step. Because both avoidance and approach coping responses appeared to be consistent across situations, regressions of personal and situational variables were performed on combined approach and avoidance scores across the three situations, rather than on each situation separately. Due to the small number of female subjects ($n = 27$ or 9.3% of all subjects) data from female referees were excluded from the regression analysis. Finally, in view of the cross-cultural differences found in personal dispositions and avoidance coping, separate regressions were computed for

Table 13

The Effects of Age, Gender, and Nationality on Coping, Personal Dispositions, and Situational Appraisals of Basketball Referees.

	PERSONAL DISPOSITIONS				SITUATIONAL APPRAISALS		COPING	
	Self-Esteem	Optimism	Monitoring	Blunting	Perceived Control	Perceived Stress	Approach	Avoidance
Within-SS (Across Situations)	N.A.	N.A.	N.A.	N.A.	$p < .001$ 2>3>1	Female: $p < .005$ 2>1, 2>3	-	-
Between SS (Australian-Greek)	-	-	$p < .004$ GR > AUS	$p < .04$ GR < AUS	-	-	$p < .03$ AUS>GR Situations 1, 2, 3	-
Age	$p < .05$ ↑age- ↑s.esteem	-	-	-	-	-	-	-
Between SS (Gender)	-	-	-	-	-	$p < .01$ F > M Aggression	-	$p < .04$ M > F Situations 1,2

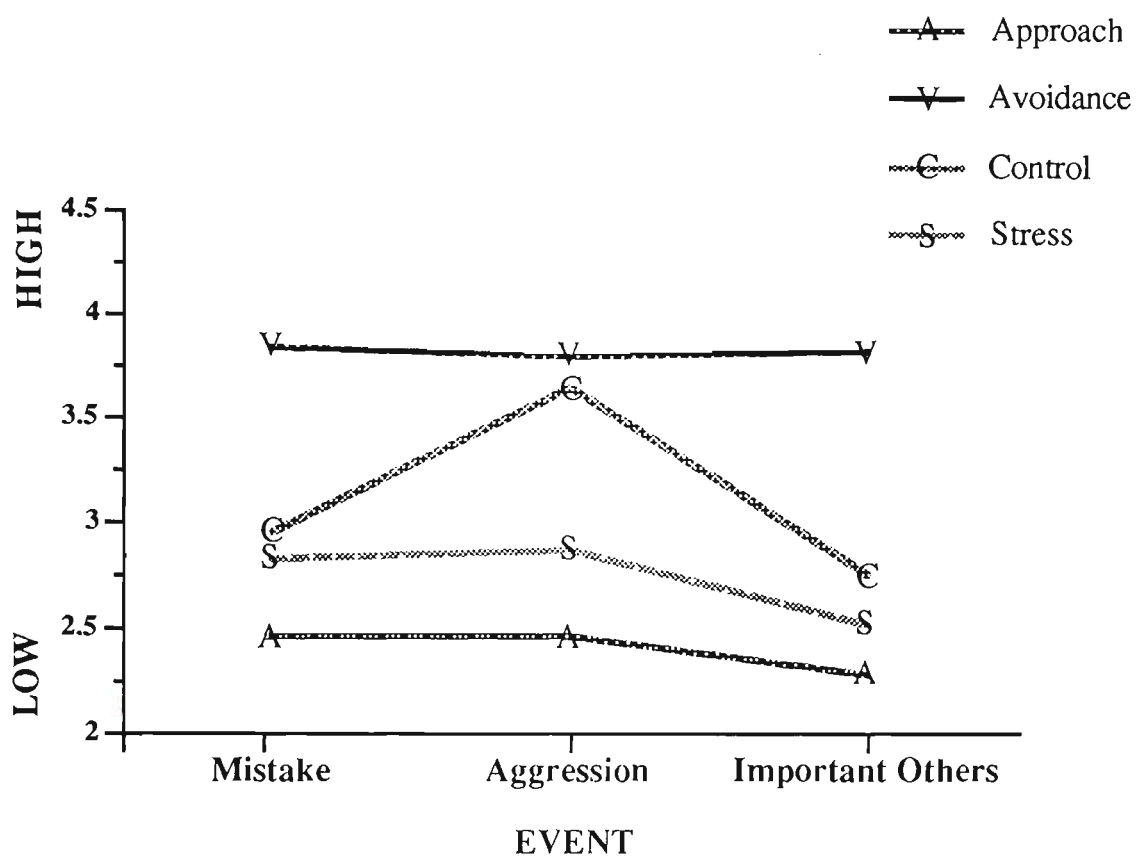


Figure 6. Perceived Control, Stress, and Coping Across Situations for Basketball Referees.

Australian and Greek referees. Residual analysis was carried out to evaluate the assumptions underlying regression analysis. These assumptions were not violated in any analysis. Results from the regressions of personal dispositions and situational appraisals on approach and avoidance coping are presented in Table 14.

Regression of Personal and Situational Variables on Approach Coping

As Table 14 indicates, each set of predictors significantly contributed to predicting approach coping strategies in both groups. For the Australian sample, personal factors predicted 14% of the variance in approach coping ($p < .01$), while situational appraisals added 8% unique variance ($p < .01$). For the Greek sample, personal dispositions predicted 23% of the variance in approach coping ($p < .001$), while situational appraisals added 12% unique variance in the prediction of approach coping ($p < .001$). For the Australian sample, perceived stress was the only significant predictor of approach coping ($p < .01$), whereas for Greek referees, all variables made a significant contribution to the prediction of approach coping strategies (see β coefficients in Table 14).

Personal dispositions accounted for 63% and 66% of total explained variance for Australian and Greek referees, respectively, and situational appraisals for the remaining 37% and 34% for Australians and Greeks. To examine whether personal dispositions, as compared to situational appraisals, were stronger predictors of approach coping, or if this finding was an artifact due to the order in which each set of variables was entered (Jobson, 1991), another regression analysis was performed with situational appraisals entered first, and personal dispositions entered second (Table 15). Results indicated that although the overall and predictive values of each of the situational and personal variables were similar to these in the first regression, in which personal dispositions were entered first and situational appraisals second, situational appraisals were better predictors of approach coping (66% of total explained variance for Australians and 64% for Greeks) than personal dispositions (34% for Australians and 36% for Greeks). These findings suggest that the order in which each set of variables was entered in the regression

Table 14

Hierarchical Regression Analysis Predicting Approach and Avoidance Coping for Greek versus Australian Basketball Referees: Dispositions Entered First.

Predictor	Approach				Avoidance			
	Australian		Greek		Australian		Greek	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Personal Dispositions								
Blunting	.05	.07	.20**	.20**	.25*	.23*	.18*	.16*
Monitoring	.23*	.19	.28***	.15*	.10	.02	-.10	-.10
Self-esteem	-.05	-.01	-.20**	-.18**	-.05	-.05	.03	.01
Optimism	-.25*	-.20	-.16*	-.12	.21	.13	.04	-.02
Situational Appraisals								
Perceived control		.06		.23***		.30**		.17*
Perceived stress		.30**		.29***		-.18		-.16
R	.38	.48	.48	.60	.33	.47	.21	.31
R²	.14**	.22**	.23***	.35***	.11	.22**	.05	.09*
R² increment after step 2		.08††		.12†††		.11††		.04†
% of explained variance	63.21	36.79	65.71	34.29	48.00	52.00	48.31	51.69

Note. All entries are standardised regression (β) coefficients.

Max. n = 133 Australian, 163 Greek; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

Table 15

Hierarchical Regression Analysis Predicting Approach and Avoidance Coping for Greek versus Australian Basketball Referees: Appraisals Entered First.

Predictor	<u>Approach</u>				<u>Avoidance</u>			
	<u>Australian</u>		<u>Greek</u>		<u>Australian</u>		<u>Greek</u>	
	<u>Step 1</u>	<u>Step 2</u>	<u>Step 1</u>	<u>Step 2</u>	<u>Step 1</u>	<u>Step 2</u>	<u>Step 1</u>	<u>Step 2</u>
Situational Appraisals								
Perceived control	.11	.06	.25***	.23***	.32**	.30**	.16*	.17*
Perceived stress	.37***	.30**	.39***	.29***	-.22*	-.18	-.19**	-.16
Personal Dispositions								
Blunting		.07		.20**		.23*		.16*
Monitoring		.19		.15*		.02		-.10
Self-esteem		-.01		-.18**		-.05		.01
Optimism		-.20		-.12		.13		-.02
R	.39	.48	.48	.60	.39	.47	.25	.31
R²	.15***	.23**	.23***	.36***	.15***	.22**	.06**	.09*
R² increment		.08††		.13†††		.07		.04†
after step 2								
% of explained variance	66.19	33.81	64.06	35.94	68.53	31.47	63.93	36.07

Note. All entries are standardised regression (β) coefficients.

Max. n = 133 Australian, 163 Greek; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

determined their predictive value. Thus, there is no clear evidence as to which set of variables is more predictive of approach coping for basketball referees of both groups.

Regression of Personal and Situational Variables on Avoidance Coping

The contribution of personal dispositions, when entered first, was not significant as a predictor of avoidance coping. On the other hand, after entering personal dispositions, situational appraisals still accounted for a significant portion of avoidance coping variability. Specifically, for Australian basketball referees, personal factors predicted 11% of the variance in avoidance coping ($p > .05$), while situational appraisals added 11% unique variance ($p < .01$). For the Greek sample, personal dispositions predicted an insignificant 5% of the variance in avoidance coping ($p > .05$), while situational appraisals added 4% unique variance in the prediction of avoidance coping ($p < .05$). Blunting and perceived control were the only significant predictors of avoidance coping for both groups (see β coefficients in Table 14).

Situational appraisals accounted for 52% of total explained variance for both groups and personal dispositions for the remaining 48%. To examine the extent to which situational appraisals, as compared to personal dispositions, predicted avoidance coping, another regression analysis was performed; situational appraisals were entered first followed by personal dispositions. Results indicated that situational appraisals accounted for a higher portion of the total variability explained, 69% for Australians and 64% for Greeks. Personal dispositions, when entered second, accounted for the remaining 31% and 36% of the total variability explained for Australian and Greek referees' avoidance coping responses, respectively (see Table 15). Thus, situational appraisals, compared to personal dispositions, were better predictors of avoidance coping strategies for both groups of basketball officials, particularly when appraisals were entered in the first step of the regression.

Discussion

The present study examined the extent to which basketball referees exhibited consistent (preferred) coping responses across a range of acute stressful situations, identified as highly stressful in study I. Another objective of this study was to investigate the effects of situational appraisals and personal dispositions on coping responses of basketball referees. A final objective of the study was to investigate differences between Australian and Greek basketball referees in personal dispositions, situational appraisals, and coping responses. Several hypotheses were generated in which coping responses, as a function of personal and situational factors, were predicted. Specifically, it was hypothesised that subjects would exhibit low consistency in their coping responses across situations, and that their approach and avoidance coping responses would depend more on situational than on personal variables. It was also hypothesised that personal, situational, and coping variables would differ between Australian and Greek basketball officials. Several of these hypotheses were confirmed. Prior to their discussion, a perusal of the subjects' mean scores in personal, situational, and coping variables shows several patterns (Table 11).

First, both the mean monitoring and blunting scores for the combined sample of Australian and Greek basketball referees were higher than the norms of Miller's MBSS (Miller, personal communication, 19 April, 1991; see Appendix G). Similarly, pooled mean optimism scores (combined groups) were higher than the norms reported for male and female USA university undergraduate students (Scheier & Carver, 1985). These findings suggest that referees possess certain exceptionally high psychological qualities (e.g., optimists, high monitors/high blunters). Past research on the qualities and psychological characteristics of sports officials has also found that, compared to the established norms of the general population, officials possess stronger qualities such as self-confidence, leadership, initiative, and achievement (Ittenback & Eller, 1989), rapport, decisiveness, poise, integrity, judgment, and enjoyment/motivation (Weinberg & Richardson, 1990). However, the psychological inventories that were used in the present

study to measure personal dispositions (e.g., self-esteem, optimism, monitoring-blunting) were developed and validated with data from USA subjects. Considering the low internal consistency that the inventories showed in this study, it is recommended that these data are interpreted with caution. Further validation of the scales when testing in other countries is needed.

In terms of situational appraisals, "Aggressive Reactions by Coaches or Players" was rated by both groups as the most controllable situation. This finding is supported by the qualitative data in study I where referees commented on their administrative power to take action and penalise players or coaches who exceed the limits of acceptable behaviour. Although "Aggressive Reactions by Coaches or Players" was perceived as highly controllable, it was also rated by subjects as the most stressful, followed closely by the stressor "Making a Mistake." Finally, the pooled mean approach and avoidance scores (combined groups) indicate that referees use more avoidance than approach coping during officiating. This finding is supported by the results in study I, in which qualitative data showed that avoidance responses such as "ignore, avoid arguing, sell the call," and "get on with the game" were frequently used by referees during the 15 selected sources of stress. Examples of avoidance coping strategies used in the present study include "I try to get on with the game as quickly as possible" and "I try not to think about it," while approach strategies include "I tend to review my actions, thinking whether I was right or wrong on the call" and "I tend to explain my actions to the coach(es) or the player(s)" (see Table 9).

Consistency of Coping Responses Across Situations

It was hypothesised that subjects would exhibit low stability in their coping responses across situations. It was also hypothesised that approach and avoidance coping would depend more on situational appraisals than on personal dispositions. To examine these predictions, three stressful game-related situations were used to trigger the subjects' responses. These included "Making a Mistake," "Experiencing Aggressive Reactions by

Coaches or Players," and "Becoming Aware of the Presence of Important Others Such as Supervisors, Media, Parents, or Friends."

Results provided only partial support for the initial predictions. Contrary to the first hypothesis, referees from both countries employed statistically similar degrees of approach and avoidance coping responses across situations. Thus, subjects appeared to exhibit stable (preferred) coping styles in the stressful situations depicted in this study. These results are supportive of studies that found consistent coping patterns across situations (e.g., Fleishman, 1984; Miller et al., 1988). However, the results of this study also contradict other studies that found variability in individuals' coping responses across different events (Folkman & Lazarus, 1980; Menaghan, 1982).

Nevertheless, as mentioned earlier in the review of literature, past studies share the common methodological limitation of subjects reporting their experiences based on dissimilar situations. Thus, these possible inaccuracies compromise any attempt to compare coping responses between subjects. The present study addressed this limitation by using three standard situations that were rated as highly stressful by referees in study I. However, as evident from the examination of data on the referees' situational appraisals in the present study, the three situations varied in terms of controllability, but not in terms of perceived intensity. Considering that perceived stress was found to be a significant predictor of subjects' approach coping responses, it is possible that the consistency in subjects' coping responses was due to the similarity of the three situations in intensity. It appears that situations varying in controllability and intensity are more likely to elicit different coping responses. Thus, in future experiments, it would be desirable to examine coping style and select situations that differ in both controllability and intensity.

The consistency found in referees' coping responses across the acute stress situations depicted in the present study is analogous to a study by Larsson et al. (1988) who examined the appraisals of police officers across a variety of situations. To explain the consistency found in their subjects' appraisals across situations, Larsson et al. suggested that selection, uniform training, and work socialisation among police officers

may be responsible for the high stability of the subjects' appraisals. Applying the researchers' suggestions to findings from the present study, the high consistency of the referees' coping responses across situations may be attributed to selection, uniform training, and work socialisation among referees.

The second hypothesis, an extension of the first hypothesis, anticipated that situational appraisals, compared to personal dispositions, would be better predictors of subjects' coping responses. This hypothesis was tested by examining the regressions of personal dispositions and situational appraisals on approach and on avoidance coping responses. Findings supported the hypothesis in the case of avoidance. However, for the dimension of approach, findings were ambiguous.

Specifically, both personal and situational factors made a significant contribution as predictors of Australian and Greek referees' approach coping responses. All personal variables emerged as significant predictors of approach coping responses for Greek referees, whereas only monitoring and optimism approached but did not reach significance in the prediction of approach coping for Australian referees. From the situational variables, perceived stress made a significant contribution in the prediction of approach coping for both groups, whereas perceived control was significant only for Greek subjects.

The order in which variables are entered in hierarchical regression analysis can influence the amount of explained variance by each variable, because "the value of an added variable in a regression is measured by its contribution after taking into account the contribution of the other variables present" (Jobson, 1991, p. 259). Thus, it is important to examine whether the result of the regression is an artifact due to the order in which variables are entered. For the approach dimension in the present study, the predictive value of personal and situational variables varied depending on the order in which they were entered in the regression analysis. For example, when personal dispositions were entered prior to situational appraisals, they accounted for approximately 64% of the total variation in the subjects' approach coping responses. However, situational appraisals, when entered first, accounted for approximately 65% of the total variation. This is

probably because the two sets of predictors were not independent. This explanation is substantiated statistically by the significant, although weak, correlations found between personal dispositions and situational appraisals, and is supported conceptually by Lazarus and Folkman's (1984) transactional theory of coping that suggests interactions between personal and situational factors in the process of coping. These results lend further evidence to the need for including both personal and situational factors when examining the coping process.

The prediction of avoidance coping from the respective sets of variables was significant for both Australian and Greek referees. Although the amount of variance explained by personal dispositions approached significance, only situational factors made a significant contribution to the prediction of avoidance coping. In terms of single variables, blunting and perceived control were the only significant predictors of avoidance coping responses for both groups of referees. When the order in which each set of variables was entered in the regression analysis was reversed, situational factors accounted for a greater portion of explained variance than personal dispositions. Specifically, when situational appraisals were entered second they accounted for approximately 52% of total variance for each group, whereas when they were entered first they accounted for 68% and 64% of total variance for Australian and Greek referees, respectively. Thus, the predictive value of situational appraisals on avoidance coping was found to be higher than personal dispositions, irrespective of the order of entry in the regression. The predictive value of single variables as well as the total variance explained for avoidance coping was similar when the reverse order of entry was employed. The low predictive value of personality traits on coping responses in past studies (e.g., Cohen & Lazarus, 1973; Lazarus & Folkman, 1984; Parkes, 1986) supports these findings.

The finding that situational appraisals, compared to personal dispositions, were better predictors of avoidance coping responses but not necessarily of avoidance coping is comparable to previous research. For example, Aldwin and Revenson (1987) and Parkes (1986) found that the patterns of relationships between predictor variables and coping responses differed depending on which mode of coping they examined (e.g., problem-

versus emotion-focused coping; direct-coping, general-coping, and suppression, respectively). Aldwin and Revenson suggest that perhaps problem-focused strategies are a function of the situation, whereas emotion-strategies are more dependent on the individual's personality. By contrast, results in the present study suggest that avoidance coping is a function of situational appraisals, whereas approach coping is influenced by both personal and situational factors.

In summary, basketball officials reported stable approach and avoidance coping styles across three highly stressful situations. In terms of the predictive value of personal and situational factors, both personal dispositions and situational appraisals were found to be significant predictors of approach coping style. Examining whether personal or situational variables best predicted approach coping yielded mixed evidence. On the other hand, for avoidance coping, only situational appraisals accounted for a significant variation of the avoidance coping strategies employed by referees during the three stressful situations. Comparisons examining whether situational or personal variables best predicted avoidance coping favoured situational appraisals, thus supporting previous studies that have demonstrated the importance of situational factors in the process of coping (e.g., McCrae, 1984; Terry, 1991). The contribution of personal dispositions and situational appraisals in the prediction of approach and avoidance coping styles shows that personal and situational variables can help identify and perhaps predict the tendencies of people to use certain coping styles under certain stressful conditions.

Relationships Between Personal Dispositions, Situational Appraisals, and Coping Responses

Several hypotheses were generated in which relationships between personal dispositions, situational appraisals, and individual coping responses were predicted. Results provided support for the majority of these hypotheses. With regard to relationships between personal dispositions and coping responses, it was hypothesised that high self-esteem and optimism would be positively and moderately related to

approach, and negatively related to avoidance coping responses. Results indicated that self-esteem and optimism were negatively correlated with approach coping and positively correlated with avoidance. These findings seem to contradict previous research (Carver et al., 1989, Scheier et al., 1986) that individuals with greater psychological resources use more active coping and less denial and behavioural disengagement. Instead, they suggest that individuals who score high in optimism and self-esteem tend to use avoidance coping, perhaps due to their confidence that things will eventually work out. It is important to note that the findings of the present study regard coping responses to acute sources of stress as opposed to past studies that examined chronic stressors or failed to differentiate between chronic and acute stress. This may be partially responsible for the inconsistency in findings between the present and past studies. For instance, it is possible that individuals who score high in optimism and self-esteem report using avoidance coping in response to acute stress, and approach coping in response to chronic stress.

It was also hypothesised that monitoring and blunting would be moderately correlated with approach and avoidance coping, respectively. Results confirmed this hypothesis by showing a weak but significant correlation between monitoring and the dimension of approach coping. However, the correlation between blunting and avoidance coping was low. Instead, blunting showed an unexpected weak positive correlation with approach coping, a finding that is not easily interpretable. It is possible that avoidance coping is more determined by situational than personal variables. This interpretation is statistically supported by the low predictive value of personal dispositions on avoidance coping. In addition, as mentioned earlier, the two constructs, blunting and avoidance, are ostensibly similar but not identical. The low correlations of blunting with avoidance, perceived control, and perceived stress, are consistent with previous research by Miller et al. (1988) and Carver et al. (1989). These results are also comparable to results from Krohne and Hindel's (1988) study with table tennis players in which only the coping mode of sensitisation was related to attention focusing (approach) coping techniques used

in actual competition. Repression, the other dimension of dispositional coping, was not related to avoidance.

Correlations between personal dispositions indicated that optimism and self-esteem were related at a moderately strong level. This result is consistent to Scheier and Carver (1985) who also found high correlations between optimism and self-esteem for male and female undergraduate students. As the researchers suggest, optimism is derived "from a history of successes, in which they have demonstrated their own personal mastery over difficult situations" (pp. 229, 231). To justify the usefulness of their scale, Scheier and Carver argue that the LOT can correctly classify those individuals for whom a tendency for optimism derives from external, rather than internal, causes such as "a belief in a benign provider" (p. 231).

Optimism was negatively correlated with monitoring, suggesting that optimists display a low tendency to seek information relevant to sources of stress. That is, optimists tend not to use a monitoring coping style. Again, this characteristic may be partially attributed to their attitude that things will eventually work out, even if they do not take any action or obtain more information about the problem. However, this finding is contrary to Miller's (1990) claim that the survey's monitoring and blunting scales have been found to be unrelated to trait measures such as repression-sensitization, depression, anxiety, optimism, attributional style, and Type A.

With respect to relationships between situational appraisals and coping responses, it was hypothesised that high perceived stress would be positively related to approach coping and negatively related to avoidance coping. Results of this study confirmed this prediction in that approach was moderately related to perceived stress, while avoidance coping was negatively related to perceived stress. These results support Miller's (1980, 1989) findings that vigilant individuals report higher degrees of stress than avoiders. Madden et al. (1990) also found that highly stressed basketball athletes often utilise more approach strategies than avoidance. The results from the present study are also consistent with Krohne and Hindel's (1988) finding that table-tennis players who employed more avoidance and less approach coping strategies exhibited less anxiety than players who

used relatively few avoidance coping strategies. Although a causal relationship between stress and approach or avoidance cannot be established based on correlations, these findings suggest that avoidance is a more adaptive style than approach in reducing stress when officiating basketball.

It was also hypothesised that high perceived controllability would be positively related to approach coping and negatively related to avoidance coping. Previous research utilising the dimensions of problem- and emotion-focused coping (Carver et al., 1989; Folkman & Lazarus, 1980; Folkman et al., 1987; Scheier et al., 1986) has linked high controllability to problem- or active-focused coping, and low controllability to emotion-focused coping. The present results provided partial support to this hypothesis by revealing that perceived control was moderately correlated with approach coping. However, a low positive correlation was also found between perceived control and avoidance coping. This finding should be interpreted with caution, and is indicative of the complexity of the issue of controllability and its effects on individual coping responses (also see Folkman, 1984).

In terms of relationships between situational variables, it was predicted that perceived stress would be correlated with perceived control. This hypothesis was not confirmed as the results indicated that perceived controllability was unrelated to perceived stress. Past research regarding the issue has been equivocal. The lack of coherent results in literature may be attributed to the complexity of the issue of controllability (see Folkman, 1984). Although it is generally acceptable that most individuals desire to control their environment (Adler, 1924) or at least to create a sense of control (Fleming et al., 1984), other studies suggest that having control over a situation can also be stress-inducing (e.g., Averill, 1973; Thompson, 1981). To explain the finding that high controllability can generate stress, Folkman (1984) suggests that control over a situation may generate loss in other areas or conflict with the individual's values and commitments. Other researchers argue that control may increase distress when it conflicts with a person's preferred style (e.g., Averill et al., 1977; Miller et al., 1989; Mills & Krantz, 1979; Shipley et al., 1979). In addition, Ludwick-Rosenthal and Neufeld (1988) propose

that the increased sense of responsibility surrounding the outcome in a controllable situation, and the self-imposed expectations to make the best choice contribute to increased stress. In view of the lack of consistent results in previous findings it appears that further research is warranted to investigate the relationship between controllability and stress, and the reasons underlying this relationship.

With respect to relationships between personal dispositions and situational appraisals, it was hypothesised that high self-esteem and optimism would be correlated to low perceived stress. The results confirmed these hypotheses in that both self-esteem and optimism were negatively correlated with perceived stress. These findings are comparable with results in studies by Brustad and Weiss (1987) and Pearlin and Schooler (1978) who found that psychological resources such as self-denigration, mastery, and self-esteem reduced individuals' perceptions of stress. To interpret their findings, Pearlin and Schooler suggest that "the psychological resources embodied in self-attitudes can help blunt the emotional impact of persistent problems" (p. 12). These findings have implications for the selection, training, and retention of sports officials. If certain psychological resources (e.g., self-esteem, optimism) have beneficial effects on the referees' levels of stress, interventions reinforcing these resources may be valuable for referees.

Perceived stress was also found to be weakly but significantly related to monitoring. This result is comparable to Miller's (1980, 1989) findings that monitors experience more stress than blunders. Carver et al. (1989) found similar relationships between monitoring and stress and suggested that "perhaps monitors, as part of their vigilance, are especially alert to any distress emotions they are experiencing" (p. 276). This finding reinforces previous suggestions that approach coping may not be as adaptive as avoidance coping.

The significant correlation between monitoring and perceived control suggests that high monitors are more likely to perceive situations as controllable than low monitors. Perhaps, at least for these subjects, gathering information about the source of stress is linked with feelings of reassurance and control over the situation.

The results of the present study did not support the hypothesis that self-esteem and optimism would be moderately related to control appraisals. The low correlations between perceived control and both self-esteem and optimism are non-supportive of the notion that these psychological dispositions are linked with controllability. Nevertheless, findings from previous studies that have examined the relationship between perceived control and optimism report only a weak correlation (e.g., Carver et al., 1989; Scheier et al., 1986).

In summary, the relationships between personal dispositions, situational appraisals, and coping responses indicate that these variables are interdependent. Thus, findings of the present study are supportive of the interactional theory of coping (Lazarus & Folkman, 1984), which posits that personal and situational factors shape the process of coping jointly rather than independently.

Coping as a Function of Cultural Differences

One objective of this study was to investigate the extent to which coping patterns are similar for Australian and Greek referees. Based on past research on the influence of culture on stress and coping (e.g., Evans et al., 1987; Seiffge-Krenke & Shulman, 1990), differences between Australian and Greek basketball officials in personal dispositions, situational appraisals, and coping responses were anticipated.

The results of this study indicated significant cross-cultural differences in the referees' personal dispositions and coping responses. However, differences between Australian and Greek referees in their situational appraisals were not significant. More specifically, Greek referees, compared to Australian, showed a higher tendency for a monitoring coping style and a lower tendency for a blunting coping style. No differences were found between the two groups in self-esteem and optimism. Past research has also indicated that differences exist in personal characteristics of various cultural groups. For instance, Ben-Zur and Zeidner (1988) found differences between Israeli and American students in the traits of anxiety, curiosity, and anger, whereas Learner et al. (1980) found

differences between Japanese and American adolescents in self-esteem, bodily physical attractiveness, and physical effectiveness.

Results from study I (sources of stress in referees) indicated several differences between Australian and Greek referees in the perceived intensity of several sources of stress. However, the findings of the present study showed that the two groups did not differ in perceived intensity of the three selected stressful situations. It appears, though, that the lack of significant differences between Australian and Greek basketball referees is specific to the selected situations. In fact, these situations were selected as being highly stressful for both groups of referees, as evident in study I, in which only the intensity of the stressor "Aggressive Reactions by Coaches or by Players" differed between groups. Likewise, no differences were observed between groups in terms of perceived controllability for the three stressors. Previous studies have often found differences across cultures in terms of the level and the intensity of perceived stress (e.g., Israeli and American academics, Keinan & Perlberg, 1987; British and American teachers, Tokar & Feitler, 1986), while other studies have found no differences (e.g., American and Japanese school children, Yamamoto & Davis, 1982), and others have found differences in their sources of stress, but not in quantity (e.g., New York and Stockholm residents, Orth-Gomer, 1979). It appears that these differences in situational appraisals are specific to the samples and the domain examined.

Analyses also revealed significant differences between Australian and Greek referees in their tendencies to use approach coping responses during the three stressful situations. Australian basketball officials employed significantly more approach coping than Greeks in all three situations. Past studies have also reported cross-cultural differences in the coping responses of subjects from other countries (e.g., between German and Israeli adolescents, Seiffge-Krenke & Shulman, 1990). Taken together, the correlation between stress and approach coping and the finding that Australian, compared to Greek, referees used more approach coping may partially explain the results in study I, which indicated that Australian referees were more stressed than their Greek counterparts in several sources of stress. Once again, it appears that avoidance coping may be a more beneficial

coping style for reducing officiating stress. Finally, the prediction of approach coping responses from personal and situational factors was stronger for Greek than for Australian referees, whereas the reverse was true in the case of avoidance coping.

The reasons for the differences found between Australian and Greek basketball officials in their coping responses are still unclear. It appears, however, that personal dispositions are more likely to be responsible for these differences, as situational appraisals did not differ between Australians and Greeks in the specific stressful situation.

Finally, a methodological consideration inherent in cross-cultural research is that the psychological inventories that were used in the present study may have different meaning for different cultural groups or that certain groups may be more willing to admit their problems in self-report measures than others (for a review of methodological problems in cross-cultural research see Brislin, Lonner, & Thorndike, 1973). Although all basic principles of linguistic differences, similarity of content, and functionality of the surveys were followed (see Berry, 1969), some of the inventories showed low internal consistency (see Table 10). Thus, it is recommended that further validation of the scales is needed when testing in other countries.

Coping as a Function of Age and Gender

As indicated earlier, researchers have often outlined the importance of considering the effects of subject characteristics such as age and gender experience in experimental studies (e.g., Endler & Parker, 1990). Schultheis et al. (1987) argue that in order to integrate research findings investigators need to be aware of such characteristics. Thus, the present study examined the influence of age and gender on coping responses.

Age Differences

Previous investigations exploring the process of coping have indicated that age affects both the individuals' perceptions of stress as well as their coping responses (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987; Kennedy, 1985; Larsson et

al., 1988; Laughlin, 1984; McCrae, 1982; Osipow et al., 1985; Taylor et al., 1990). In these studies, older subjects generally experience less stress than younger subjects. Findings from study I also illustrated that adult sports officials, as compared to their younger counterparts, perceived some sources of stress to be less stressful (i.e., "Making a Wrong Call" and "Calling a Technical Foul"). Therefore, it was predicted in the present study that older referees would perceive stressful situations in basketball to be less stressful than their younger counterparts. The results did not support this hypothesis, indicating that age did not influence the referees' stress appraisals. It was also hypothesised that age would affect subjects' perceived controllability. The results of this study showed that perceived controllability did not vary as a function of age.

Although several previous studies have shown coping responses to vary as a function of age (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987; Larsson et al., 1988), the results of the present study indicated that the referees' approach and avoidance coping responses were not influenced by age.

Age did significantly affect self-esteem, however. Results indicated that older referees scored higher in self-esteem than their younger counterparts. This result is consistent to previous research findings with young baseball players that self-esteem increases with age and experience (Kalliopuska, 1987). It also suggests that self-esteem, compared to perceived stress and perceived control, may be more susceptible to changes due to slight variations in age than perceived stress or perceived control. It is possible that certain stages in life (e.g., work, family) and the changes associated with these stages affect individuals' image more than their perceptions of stress or control in stressful situations.

The lack of significant differences in perceived stress, perceived control, and coping responses between older and younger referees may be due the type of the selected situations. As shown in study I (sources of stress for referees), age differences in perceived stress were evident in only two of the 15 sources of stress. Another possible reason for the absence of significant differences in the present study may be the homogeneity of the referees in the selected sample in terms of their age. Indeed, only

adult referees were examined in this study. It is possible that differences in situational appraisals and coping responses are only evident between adult and adolescent referees. Nevertheless, the present results indicate that age does not influence the degree of perceived stress and perceived control, and the coping responses of adult basketball referees in three game-related acute stressful situations.

In summary, the findings indicate that age does not affect the referees' stress and control appraisals nor their approach and avoidance coping strategies. As this study was among the first studies that investigated the effects of age on situational appraisals and on approach and avoidance coping, further research is warranted to examine the validity of these findings.

Gender Differences

Although the examination of differences between genders was not a primary objective of this study, such differences were expected based on gender differences of a more general type (see Abra & Valentine-French, 1991; Greenglass, 1991; Smallman et al., 1991; Yamamoto & Davis, 1982). Analyses revealed differences between male and female referees in their perceptions of stress and in their tendencies to use avoidance coping. Specifically, findings showed that female referees were significantly more stressed than males when experiencing "Aggressive Reactions by Coaches or Players." In addition, within-subject comparisons for female referees on perceived stress indicated that this particular source of stress was significantly more intense than both "Presence of Important Others," and "Making a Mistake." According to the qualitative responses of referees in study I, such incidents (i.e., "Aggressive Reactions by Coaches or Players") are quite common during basketball games. This finding has implications for training female referees on ways to cope with the particular source of stress in order to reduce excessive stress.

The examination of coping responses showed that male referees, compared to females, used more avoidance during the situations "Making a Mistake," and "Aggressive Reactions by Coaches or Players." These results appear to contradict previous findings in

several studies which reported that women, compared to men, used more avoidance coping and less approach coping strategies (e.g., Billings & Moos, 1981; Endler & Parker, 1990; Folkman & Lazarus, 1980, 1982; Frydenberg & Lewis, 1991; Labouvie-Vief et al., 1987; Pearlin & Schooler, 1978; Stone & Neale, 1984). However, as indicated earlier, the context of these past investigations differs from the present study. Differences between the present and previous studies include sample and contextual characteristics (e.g., medical patients versus sports participants), the conceptualisation and measurement of coping (e.g., problem- and emotion-focused coping versus approach and avoidance coping), and the examination of subjects' coping responses to acute versus chronic stressors (e.g., experiencing aggressive reactions by a coach versus financial problems).

Nevertheless, taken together, the weak but significant negative correlation between perceived stress and avoidance coping, and the finding that female referees used less avoidance and were more stressed than males, enhance the notion that avoidance is a more adaptive coping style for the reduction of stress. These data suggest that female referees should use avoidance coping more than approach coping, particularly in the stressful situation "Aggressive Reactions by Coaches or Players."

Summary of Findings

Personal dispositions, situational appraisals, and coping responses of Australian and Greek basketball referees were measured to examine the process of coping. Results indicated that:

1. Referees exhibited consistent approach and avoidance coping responses across three sport-related stressful situations.

2. Both personal and situational factors accounted for significant variation in referees' approach coping responses. Evidence regarding which set of variables has the most predictive value for approach is unclear. Perceived stress was the strongest and the most consistent significant predictor of approach coping. The prediction of approach coping was stronger for Greek than for Australian referees.

3. Situational appraisals were better predictors of avoidance coping responses than personal dispositions. In fact, only situational factors were significant predictors of avoidance coping. For single variables, blunting and perceived control were the only single significant predictors of avoidance coping responses for both groups of referees. The prediction of avoidance coping was stronger for Australian than for Greek referees.

4. Approach coping was positively correlated with monitoring, blunting, perceived stress, perceived control, and negatively correlated with self-esteem and optimism.

5. Avoidance coping was positively correlated with self-esteem, optimism, perceived control, and negatively correlated with perceived stress.

6. Perceived stress was positively correlated with monitoring, and negatively related to optimism, and self-esteem. Also, perceived control was correlated with monitoring.

7. The correlation between self-esteem and optimism was moderately strong. Optimism was negatively related to monitoring.

8. Greek basketball officials, compared to Australians, scored higher in monitoring and lower in blunting.

9. Australian referees employed significantly more approach strategies than Greeks in all three situations.

10. Older referees reported higher self-esteem than their younger counterparts.

11. Female referees were more stressed than males when experiencing "Aggressive Reactions by Coaches or Players." For female referees, this situation was significantly more stressful than both "Presence of Important Others and Making a Mistake."

12. Male referees, compared to females, used more avoidance coping both when "Making a Mistake" and when experiencing "Aggressive Reactions by Coaches or Players."

Chapter 5

Study III

EXAMINATION OF SITUATIONAL APPRAISALS AND SELECTED PERSONAL DISPOSITIONS AS PREDICTORS OF COPING RESPONSES TO ACUTE STRESS AMONG BASKETBALL ATHLETES: GENDER COMPARISONS

Method

The purpose of study III was to examine the effects of situational appraisals and personal dispositions on coping responses of basketball players, and to evaluate the extent to which players exhibit consistent (preferred) coping responses across a range of acute stress situations. Another objective of this study was to examine differences between male and female basketball players in personal dispositions, situational appraisals, and coping responses. It was predicted that situational appraisals would be stronger predictors of athletes' coping responses than personal dispositions, and that athletes would vary their coping responses across situations. It was also expected that subjects' personal dispositions and appraisals of situations would be correlated with their approach and avoidance coping responses. Specifically, it was hypothesised that high self-esteem, optimism, and monitoring would be positively and moderately related to approach, and negatively related to avoidance coping responses, and that blunting would be related to avoidance coping. It was also hypothesised that high perceived stress and controllability would be positively related to approach coping and negatively related to avoidance

coping. Finally, differences were anticipated between male and female basketball players in their personal dispositions, situational appraisals, and coping responses.

Subjects

The methodology used in this study was comparable to study II. Psychological inventories, similar to those used in study II, were sent to basketball players ($N = 400$; ages 18 to 44 yrs) of all skill levels in South East Australia. A part of these ($N = 200$) were mailed to basketball clubs competing in the South-East Australia Basketball League (SEABL), with a face sheet instructing subjects on how to complete the survey and a letter of support from the National Australian Basketball League asking each delegate to administer the surveys to the players of the club. Follow-up telephone calls were made to each club as a reminder to return the surveys. A total of 54 (27%) players returned the completed surveys. Other surveys ($N = 200$) were administered by the researcher to players competing during basketball carnivals in South-East Australia. From this second pool of subjects, a total of 136 (68%) basketball players returned the surveys. Basketball athletes who competed at national or state level were considered elite players, whereas those participating in local competitions (i.e., grades A, B, C, and championship) were considered non-elite players. Characteristics of the sample are presented in Table 16.

Table 16

Profile of Male and Female Basketball Players Who Participated In the Study.

	<u>n</u>	<u>Elite</u>		<u>Non-elite</u>		<u>Age</u>		<u>Experience</u>		<u>Return rate</u>
		<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>	<u>%</u>
MALE	82	43	(52.4)	39	(47.6)	22.4	(5.6)	7.7	(5.2)	45.8
FEMALE	97	47	(48.5)	50	(51.5)	21.8	(4.4)	8.3	(5.0)	54.2
Total	179	90	(50.3)	89	(49.7)	22.0	(5.0)	8.1	(5.0)	47.5

Note. Numbers of subjects do not total 190 because of missing values.

Subjects were instructed to "tell us how you respond to certain stressful events." To promote candour and validity of the subjects' responses, all surveys were completed

anonymously. A sample survey appears in Appendix H, and a sample answer sheet is included in Appendix F.

Materials

The inventories that were administered to basketball athletes consisted of the Rosenberg Self-Esteem scale (Rosenberg, 1965), the Life Orientation Test (Scheier et al., 1986), and the Miller Behavioral Style Inventory (Miller, 1987), measuring self-esteem, optimism, and coping style (monitoring-blunting), respectively. These inventories and their psychometric qualities, including their internal consistency alphas as calculated from the players' data (see Table 10), are presented in the second study. To measure the players' coping responses in acute stress situations, a new survey, the Coping Style Inventory for Athletes (CSIA) was developed.

Generation of the Coping Style Inventory for Athletes (CSIA)

Krohne's (1988) and Miller's (1992) recommendations to analyse subjects' coping responses across a series of highly stressful situations were followed. A multi-dimensional scale for the study of coping, the CSIA was developed for this study to assess simultaneously the individuals' appraisals and their coping responses to selected acute stress game-related situations. Four highly stressful situations were depicted from Madden et al.'s (1990) study of the sources of stress for Australian basketball players. These situations included "Having the Ball Stolen From Me, Receiving a 'Bad' Call or Penalty From the Referee, Missing a Lay-Up or an Easy Jump-Shot," and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us." According to Madden et al., these incidents were rated by Australian basketball players as four of the top five sources of stress.

The first scale of the CSIA measures the degree of perceived control and intensity of the selected situations. Subjects were asked to indicate the intensity of each of the four situations on a scale of 1 (not stressful) to 5 (very stressful) (see Appendix H, items 23 to

26). To measure perceived control, subjects were asked to rate on a scale of 1 (not at all true) to 5 (very true) the degree to which "I feel that typically I can do something about it" (Appendix H, items 27, 34, 41, 48).

The second scale of the CSIA was designed to assess the coping strategies that players used during the four game-related stressful situations. Similar to the second study, Roth and Cohen's (1986) approach-avoidance concept was the theoretical model that served as the basis for the CSIA. Once again, only items applicable to acute stress basketball-related situations were selected from the original scale. For example, responses such as "I tried to find people who would understand," and "When someone brought it up, I usually tried to change the subject" were omitted as non-applicable items. The CSIA in its initial form consisted of eight items. The survey was pilot-tested with a group of 22 university basketball players. Items that were not applicable in all four situations and those that were rarely endorsed by subjects were modified or deleted. The final version of the CSIA included five items, reflecting three avoidance and two approach strategies (e.g., items 28 to 33, see Appendix H). Subjects were asked to recall each of four stressful situations and then indicate on a scale of 1 (not at all true) to 5 (very true) the number that best described the extent to which each comment was true. Methodological problems in developing the CSIA to measure coping (e.g., inapplicable items, the use of standardised situations) were addressed (see study II, section Generation of the Coping Style Inventory).

Validation of the CSIA. Content validity was ensured by selecting items referring to coping responses that are actually used by players as indicated in the pilot study. To further establish content validity, two experienced basketball coaches who were ex-basketball players examined the appropriateness of the items and confirmed that basketball athletes actually employ each of the coping strategies during competition. A high school English teacher reviewed the survey and confirmed that it could be comprehended by persons with a minimum grade 10 reading level. The concurrent validity of the CSIA was supported by its correlation with Miller's Behavioral Style Scale. Specifically, both

approach and avoidance were found to be weakly but significantly correlated with their similar constructs monitoring and blunting, respectively.

In addition to the fact that the items used in the CSIA were adapted from the previously validated scale of approach and avoidance (Roth & Cohen, 1986), the construct validity of the CSIA was further established in two ways. First, a factor analysis indicated that items constituted two distinct factors, approach and avoidance. Specifically, a principal components confirmatory factor analysis with a varimax rotation was carried out on the coping responses of basketball players to the four acute stress situations (see Appendix I). The two-factor model used a criterion of .40, accounting for 29% of the total variance. All items, except the item "I kept thinking about it although it upset me," loaded positively, and all possible extractions and rotations produced similar solutions. Items in the first factor represented approach strategies that individuals use to cope with the acute stressors or their emotional manifestations, whereas items in the second factor referred to avoidance coping tendencies. Although most items loaded clearly in the first three situations, the factor loadings of items 49, 51, 53 in the fourth situation ("My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us") were lower than .40. The strategy "I kept thinking about it although it upset me" (items 33, 40, 47, and 54), which Roth and Cohen (1986) categorised as approach coping, loaded negatively on the avoidance scale. To include this item in the avoidance scale would result in an overwhelming number of avoidance items compared to the approach scale. On the other hand, shifting this strategy (in view of its negative loading on avoidance coping) to the approach scale reduced the scale's internal consistency (Cronbach's alpha) from .75 to .57. Most important, according to Gorsuch (1974), "the lack of a theoretical approach which integrates the data collection, factor analysis and interpretation, and which leads to future use of the results..." (p. 330) is the major culprit of factor-analytic practices. Considering the strategy "I kept thinking about it although it upset me" as avoidance coping would be theoretically inconsistent. Thus, in order to retain face validity, it was decided to remove the item from the CSIA. Table 17 is a description of the approach and avoidance coping items that were included in the CSIA.

The second factor supporting the construct validity of the CSIA was its confirmation of several research hypotheses predicting relationships between certain sets of variables. For example, analyses showed that high degrees of perceived control and stress were positively related to approach coping strategies and negatively related to avoidance coping. Thus, it was apparent that the CSIA measured the constructs of approach and avoidance coping.

To examine the internal consistency of coping responses to the items of the CSIA, Cronbach's alpha were computed. Coefficients of $\alpha = .72$ and $.75$ for the scales of approach and avoidance, respectively, indicated that responses were reliable and thus considered satisfactory for experimental purposes (Cronbach, 1951).

Table 17

Approach and Avoidance Coping Items of the CSIA.

Approach	Avoidance
I tried to understand exactly what happened.	I tried to keep it out of my mind.
I tried to think about what I should do next.	I tried not to think about it.
I tried to accept it as part of the game.	

Results

Similarly to the second study, the analyses of data are based on two sets of independent variables: (a) personal dispositions, which included measures of optimism, self-esteem, and general coping style (obtained from the monitoring and blunting scales across four general life situations), and (b) situational appraisals, which include perceived control and perceived acute stress. These analyses aimed to examine the effects of personal dispositions and situational appraisals on approach and avoidance coping, measured with the CSIA, across the four selected acute sources of stress. Because approach and avoidance were considered as distinct dimensions, separate tests on each dimension were used to examine the related hypotheses. The alpha level for all statistical comparisons was .05.

The examination of data on situational appraisal variables and approach and avoidance coping responses utilised both inter-individual (between-subjects) and intra-individual (within-subjects) comparisons. Inter-individual comparisons investigated differences between male and female players, as well as differences between skill levels (elite and non-elite), whereas intra-individual comparisons examined whether situational appraisals and coping responses varied across the four stressful situations. Results indicating significant interactions among gender, level, and situations were followed by separate analyses to examine the responses of each subgroup.

Results are presented in three sections. The first section includes relationships between situational appraisals, personal dispositions, and coping responses scores. In the second section, differences between male and female elite and non-elite basketball players are examined for profile characteristics, situational appraisals, personal dispositions, and coping responses. Intra-individual analyses compare the subjects' situational appraisals and coping responses across the four stressful situations. Finally, the third section includes regression analyses of situational appraisals and personal dispositions on approach and avoidance coping responses to examine situational and personal factors as predictors of coping responses.

The means and standard deviations of subjects' scores on optimism, self-esteem, monitoring and blunting, perceived stress and control, and approach and avoidance during the four stressful situations are shown in Table 18. A perusal of the combined group mean scores shows that the least controllable situation, "Receiving a 'Bad' Call From the Referee," was also rated as the least stressful situation. The situation "Missing a Lay-Up or an Easy Jump-Shot" was rated as the most stressful, followed by the situations "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," and "Having the Ball Stolen From Me." Ratings for approach and avoidance coping varied between male and female players across situations. Both males and females reported the use of relatively less avoidance coping in the stressful situation "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," than in the other stressful situations. Players reported using more avoidance coping after "Receiving a 'Bad' Call From the Referee," than in any of the other situations. Finally, in terms of average coping scores for both genders, players used more approach coping than avoidance coping during games.

Relationships Between Personal Dispositions, Situational Appraisals, and Coping Responses

Correlations between the players' personal dispositions, situational appraisals, and approach and avoidance coping responses are presented in Table 19. The first set of these findings indicate several relationships between personal dispositions and coping responses. Specifically, monitoring was significantly but weakly correlated with approach coping ($r = .17$), and blunting was significantly and weakly correlated with avoidance coping ($r = .15$). This finding provides support for the concurrent validity of the CSIA. Optimism was weakly correlated with both approach ($r = .17$) and avoidance coping ($r = .18$). Somewhat conspicuous were the low correlations between self-esteem and any of the dimensions of approach and avoidance coping. Finally, a moderately strong correlation was observed between optimism and self-esteem ($r = .60$). The second

Table 18

Means and Standard Deviations (Un-ranked) of Situational Appraisals, Personal Dispositions, and Coping Responses of Australian Basketball Athletes.

<u>Variable</u>	<u>Male</u>		<u>Female</u>		<u>Combined</u>	
	Mean	SD	Mean	SD	Mean	SD
Personal Dispositions						
Optimism	29.27	4.84	27.95	4.99	28.43	4.90
Self-esteem	8.37**	1.82	7.32	2.32	7.73	2.21
Monitoring	10.65	2.58	10.92	2.67	10.84	2.63
Blunting	5.90	2.55	6.17	2.41	6.03	2.46
SITUATION 1 (Having the Ball Stolen From Me)						
Perceived Control	3.60	1.04	3.54	.98	3.56	1.00
Perceived Stress	3.56	1.04	3.28	.89	3.39	.98
Avoidance	2.81	.87	3.02	.83	2.92	.86
Approach	3.48	.93	3.30	.76	3.36	.84
SITUATION 2 (Receiving a 'Bad' Call From the Referee)						
Perceived Control	2.01	1.11	1.63	.99	1.78	1.04
Perceived Stress	3.24	1.04	3.06	1.01	3.13	1.03
Avoidance	3.25	1.01	3.38	.79	3.28	.91
Approach	3.30	.89	3.13	.80	3.18	.85

(Table 18: Continued)

<u>Variable</u>	<u>Male</u>		<u>Female</u>		<u>Combined</u>	
	Mean	S D	Mean	S D	Mean	S D
SITUATION 3 (Missing a Lay-Up or an Easy Jump-Shot)						
Perceived Control	3.47	1.30	3.25	1.21	3.32	1.28
Perceived Stress	3.67	1.04	3.71	.87	3.70	.95
Avoidance	3.01	.88	3.12	.77	3.05	.83
Approach	3.66***	.82	3.21	.82	3.39	.85
SITUATION 4 (My Team is Losing)						
Perceived Control	3.68	1.10	3.62	1.07	3.60	1.12
Perceived Stress	3.44	1.25	3.55	1.15	3.49	1.19
Avoidance	2.44	.79	2.29	.82	2.35	.80
Approach	3.49	.91	3.25	.81	3.33	.86
AVERAGE SCORES OVER FOUR SITUATIONS						
Perceived Control	3.19	.72	3.01	.65	3.06	.70
Perceived Stress	3.48	.79	3.40	.69	3.43	.72
Avoidance	2.88	.63	2.95	.53	2.90	.58
Approach	3.48	.64	3.22	.58	3.31	.63

Note. *n*s varied slightly because of missing data.

Combined sample: Max *n* = 190, min *n* = 164.

Male players: Max *n* = 82, min *n* = 75; Females: Max *n* = 99, min *n* = 89.

Differences between male and female players: * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 19

Correlations Between Situational Appraisals, Personal Dispositions, and Coping Responses for Basketball Athletes.

Variables	1	2	3	4	5	6	7	8
Personal Dispositions								
1. Self-esteem	-							
2. Optimism	.60***	-						
3. Monitoring	.03	-.03	-					
4. Blunting	-.03	-.01	-.17*	-				
Situational Appraisals								
5. Perceived stress	-.14	-.14	.13	.04	-			
6. Perceived control	.07	.03	.00	-.01	.12	-		
Coping Responses								
7. Avoidance	.10	.18**	.02	.15*	-.21**	-.16*	-	
8. Approach	.04	.17*	.17*	-.01	.38***	.41***	.03	-

Note. Maximum $n = 190$; n s varied slightly because of missing data.

Monitoring and Blunting $n = 117$ to 170 .

* $p < .05$, ** $p < .01$, *** $p < .001$, (two-tailed test).

set of findings indicated several relationships between situational appraisals and coping responses. More specifically, perceived stress was positively and highly significantly correlated with approach coping ($r = .38$), and, negatively, with avoidance coping at a moderate level of significance ($r = -.21$). Thus, greater use of approach coping strategies was related to high perceived stress, and greater use of avoidance coping strategies was related to low perceived stress. Perceived control was moderately correlated with approach coping ($r = .41$), and weakly and negatively related to avoidance ($r = -.16$). Thus, high perceived controllability was related to the use of approach coping strategies, while low perceived controllability was related to the use of avoidance coping strategies. For situational appraisals, the correlation between perceived controllability and perceived stress was not significant ($r = .12$).

Thirdly, correlations between personal dispositions and situational appraisals were low. Specifically, as indicated in Table 19, the correlations of both self-esteem and optimism with perceived control and perceived stress were not significant in the present study (both $r = -.14$). Thus, the modest to low correlations found between variables in this study suggest that personal and situational factors may be independent.

Differences Between Male and Female, Elite and Non-Elite Basketball Athletes

To examine whether male and female, elite and non-elite players differed in their personal dispositions, situational appraisals, and coping responses several MANOVAs were performed. As a preliminary test of robustness, sample variances for each dependent variable were compared across segments. For this purpose, each MANOVA included a test for homogeneity of variance-covariance matrices (Box's M-test). In the MANOVAs conducted in the present study Box's M tests for homogeneity of dispersion matrices met the assumptions, confirming homogeneity of variance-covariance matrices.

Personal Characteristics

Data on several socio-biological variables (i.e., age, experience, and level of competition) for male and female basketball players were considered potential moderator variables in the process of coping. To examine the possibility that the male and female samples in the present study differed in terms of their age and years of experience, a MANOVA with age and years of experience as dependent variables and with gender serving as the independent variable was conducted. Results showed no significant differences between male and female basketball players in age and years of experience, $F(2, 161) = 1.62, p > .05$. To examine whether male and female players differed with respect to skill level, chi-square tests were conducted. Results showed no significant skill level differences, $\chi^2(1, N = 178) = .28, p > .05$, thus indicating that the male and female samples consisted of similar numbers of elite and non-elite players (see Table 16). Finally, a MANOVA with skill level serving as the dependent variable and with age and years of experience as the independent variables was conducted to examine whether elite and non-elite players differed in age and years of experience. Results from this analysis were also insignificant, $F(2, 160) = 1.49, p > .05$, thus indicating that the skill level of the subjects in the present study did not vary as a function of their age and years of experience.

Personal Dispositions

Prior to the examination of situational appraisals and coping responses, male and female players were compared on the personal variables of optimism, self-esteem, and coping style (monitoring and blunting). A $2 \times 2 \times 4$ (Gender x Skill Level x Personal Dispositions) MANOVA indicated a nearly significant main effect for gender, $F(4, 160) = 2.31, p < .06$. This prompted additional investigation between male and female scores on measures of personal dispositions. No significant interactions were obtained. To investigate further gender differences in personal dispositions, univariate F -tests were performed. These analyses revealed that male and female players differed significantly in self-esteem, $F(1, 163) = 7.96, p < .005$. As shown in Table 18, male basketball players,

compared to their female counterparts, reported higher self-esteem. There were no other significant differences between male and female basketball players in their personal dispositions, optimism, monitoring, and blunting.

Situational Appraisals

Situational appraisals included measures of perceived controllability and intensity of stress on each of the four acute sources of stress for basketball players.

Perceived control. To examine whether male and female, elite and non-elite basketball players differed in their appraisals of control, a 2 x 2 x 4 (Gender x Skill Level x Situation) MANOVA with situation serving as a repeated measure was conducted. The main effect of situation reached statistical significance, while there were no significant three- or two-way interactions. Within-subjects comparisons on the repeated measures of control for the four situations indicated that perceived controllability varied across situations, $F(3, 172) = 124.10, p < .001$. Paired t-tests were used to examine differences between the four situations to show which situation players perceived as most controllable. Because six contrasts were being undertaken for subjects' scores on perceived control, a Bonferroni adjustment at the .05 level of significance yielded a more stringent .008 level of significance for these contrasts. Results revealed that players considered "Receiving a 'Bad' Call From the Referee" ($M = 1.77, SD = 1.04$), to be significantly less controllable than the other situations, "Having the Ball Stolen From Me," $t(188) = 17.71, p < .001$, "Missing a Lay-Up or an Easy Jump-Shot," $t(188) = 13.81, p < .001$, and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," $t(187) = 17.19, p < .001$. Figure 7 graphically illustrates these findings (Table 18 includes the players' mean scores on perceived control).

Perceived stress. To examine whether male and female elite and non-elite subjects differed in their appraisals of stress, a 2 x 2 x 4 (Gender x Skill Level x Situation)

MANOVA with situation serving as a repeated measure was performed. The main effect of situation reached statistical significance, $F(3, 173) = 16.35, p < .001$. However, more important, a two-way (Gender x Level) interaction was obtained, $F(1, 175) = 4.34, p < .04$, indicating that stress appraisals differed between male and female players as a function of skill level. Due to the interaction between gender and skill level, separate within-subjects comparisons were carried out for male and female and for elite and non-elite basketball players to examine whether their stress appraisals differed across the four situations. Specifically, post hoc analyses included comparisons within each gender group (i.e., between elite and non-elite male players, and between elite and non-elite female players), as well as within each skill level (i.e., between male and female elite basketball players, and between male and female non-elite basketball players). Differences between subjects were evident only between male and female players at the non-elite level. Means and standard deviations of these subgroups are included in Table 20 (also see Figure 8). More specifically, in the first set of findings with male subjects only, a 2 x 4 (Skill Level x Situation) MANOVA with situation serving as a repeated measure showed that, for males, stress appraisals did not differ between elite and non-elite players, $F(1, 80) = 1.15, p > .05$. Subsequent within-subjects comparisons on the repeated measures of perceived stress for the four situations revealed that male basketball players' perceived stress varied across situations, $F(3, 78) = 4.11, p < .009$. To examine which situation male basketball players perceived as most stressful, paired t-tests were computed, comparing the reported stress means for each event. Because six contrasts were being undertaken, a Bonferroni adjustment at the .05 level of significance yielded a more stringent .008 level of significance for these contrasts. Results revealed that "Receiving a 'Bad' Call From the Referee" and "Missing a Lay-Up or an Easy Jump-Shot" differed in stress intensity, $t(81) = 3.55, p < .001$. Mean scores indicated that male basketball players considered "Receiving a 'Bad' Call From the Referee" to be significantly less stressful than "Missing a Lay-Up or an Easy Jump-Shot" (see Table 20).

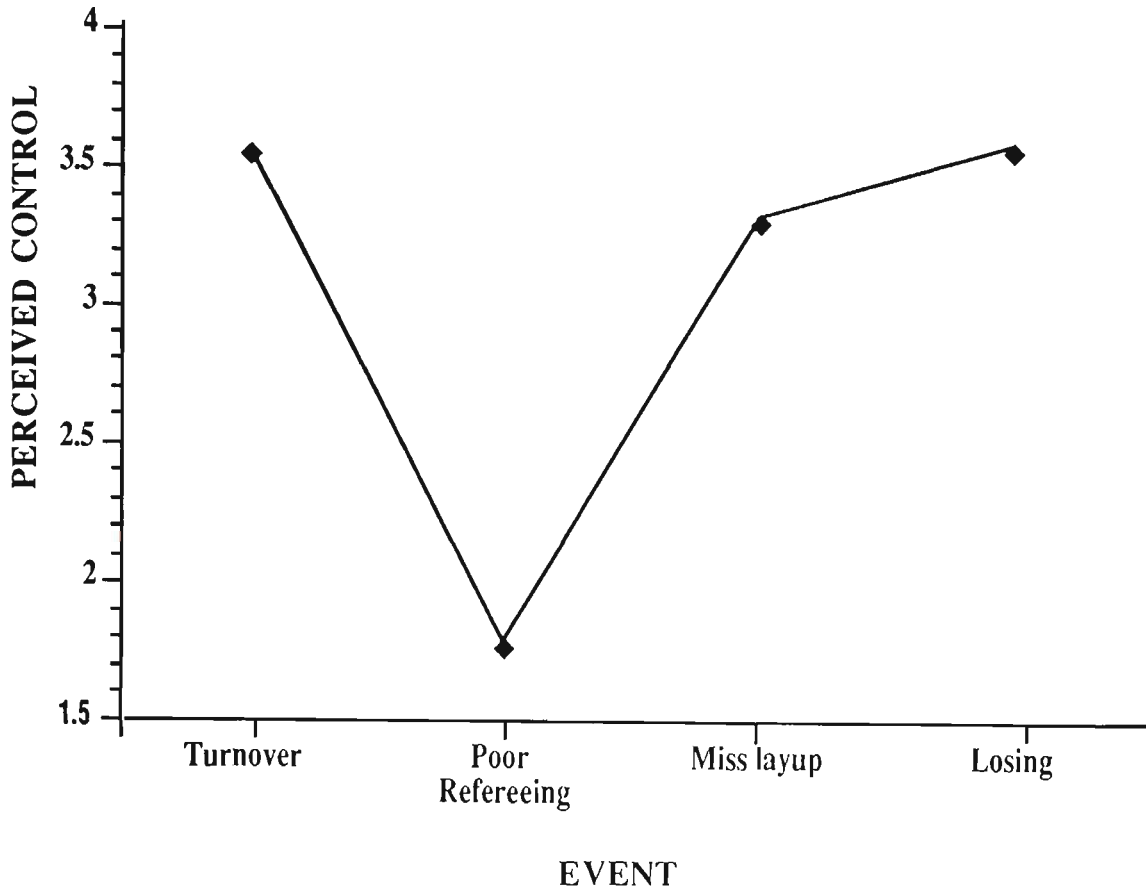


Figure 7. Degree of Perceived Control Across Situations for All Subjects.

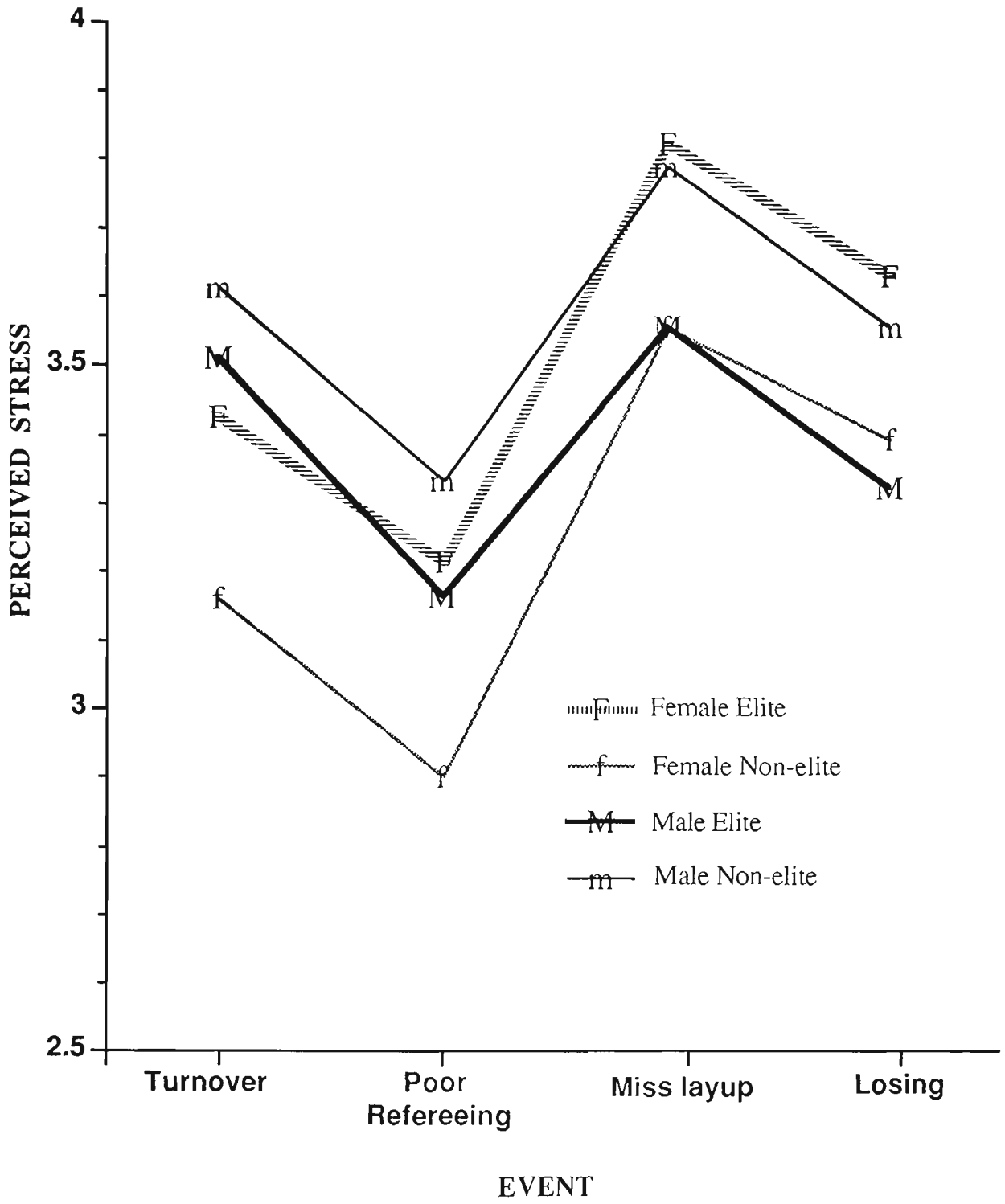


Figure 8. Degree of Perceived Stress Across Situations for Male and Female Elite and Non-elite Basketball Players.

Table 20

Means and Standard Deviations of Perceived Stress for Male and Female Elite and Non-Elite Australian Basketball Athletes.

Group	Situation 1		Situation 2		Situation 3		Situation 4	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Male Elite	3.51	1.12	3.16	1.07	3.56	1.05	3.37	1.27
Male Non-Elite	3.61*	.96	3.33*	1.01	3.79	1.03	3.56	1.23
All MALE	3.56	1.04	3.24	1.04	3.67 ⁽²⁾	1.04	3.44	1.25
Female Elite	3.43	.83	3.21	1.02	3.83	.87	3.64	1.22
Female Non-Elite	3.16	.93	2.90	.99	3.56	.86	3.40	1.05
All FEMALE	3.28	.88	3.05	1.01	3.69 ^(2,1)	.87	3.51 ⁽²⁾	1.14
All ELITE	3.47	.97	3.19	1.04	3.70 ⁽²⁾	.96	3.49	1.25
All NON-ELITE	3.36	.97	3.09	1.02	3.66	.94	3.47	1.13
COMBINED	3.41	.97	3.14	1.03	3.68	.95	3.48	1.19

Note. ns varied slightly because of missing data. Combined sample: Max $n = 190$, min $n = 164$.

Male players: Max $n = 82$, min $n = 75$; Females: Max $n = 99$, min $n = 89$.

* Indicates differences between male and female Non-Elite players at the $p < .05$.

^(2, 1) Indicates significantly more stress for this situation than situations 2 and 1 (within the same group).

For female subjects, a 2 x 4 (Skill Level x Situation) MANOVA with situation serving as a repeated measure showed significant differences between elite and non-elite female players in perceived stress, $F(1, 95) = 3.85, p < .05$. However, subsequent univariate F -tests did not indicate significant differences between the stress appraisals of elite and non-elite females for any of the four situations. Within-subjects comparisons on the repeated measures of perceived stress for the four situations revealed that female basketball players' perceived stress varied across situations, $F(3, 93) = 17.93, p < .001$. To examine which situations female players perceived as most stressful, paired t-tests were computed comparing the reported stress means for each situation. A Bonferroni adjustment at the .05 level of significance yielded a .008 level of significance for these contrasts. Results indicated several significant differences among the four stressful situations. Specifically, female basketball players perceived "Receiving a 'Bad' Call From the Referee" to be less stressful than both "Missing a Lay-Up or an Easy Jump-Shot," $t(98) = 6.17, p < .001$, and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," $t(98) = 3.81, p < .001$. Also, "Having the Ball Stolen From Me" was perceived to be less stressful than "Missing a Lay-Up or an Easy Jump-Shot," $t(98) = 5.14, p < .001$ (see Table 20).

In another analysis, elite athletes' perceptions of stress were compared as a function of gender. A 2 x 4 (Gender x Situation) MANOVA with situation serving as a repeated measure showed no significant differences between elite male and elite female athletes' perceptions of stress, $F(1, 88) = .72, p > .05$. Within-subjects comparisons on the repeated measure of situation revealed that these differed in perceived intensity, $F(3, 86) = 7.51, p < .001$. To examine which situations elite players perceived as most stressful, paired t-tests were computed comparing the reported stress means for each situation. A Bonferroni adjustment at the .05 level of significance yielded a more stringent .008 level of significance for these contrasts. Results showed significant differences between the stressful situations "Missing a Lay-Up or an Easy Jump-Shot" and "Receiving a 'Bad' Call From the Referee," $t(89) = 4.66, p < .001$. Mean scores showed that "Receiving a

'Bad' Call From the Referee" was once again perceived to be significantly less stressful than "Missing a Lay-Up or an Easy Jump-Shot" (Table 20).

Finally, non-elite basketball players' perceptions of stress were compared as a function of gender. A 2 x 4 (Gender x Situation) MANOVA with situation serving as a repeated measure showed that non-elite male and non-elite female players differed significantly in their perceptions of stress, $F(1, 87) = 4.65, p < .03$. Subsequent univariate F -tests revealed male and female non-elite players differed in their perceptions of stress for the situations "Having the Ball Stolen From Me," $F(1, 87) = 5.07, p < .02$, and "Receiving a 'Bad' Call From the Referee," $F(1, 87) = 4.11, p < .04$. An inspection of the respective means indicated that, at the non-elite level, female basketball players perceived "Having the Ball Stolen From Me" and "Receiving a 'Bad' Call From the Referee" to be less stressful than their male counterparts (Table 20). In addition, within-subjects comparisons indicated that non-elite basketball players perceived the four stressful situations as differing in intensity, $F(3, 85) = 8.79, p < .001$. To examine which situations non-elite players perceived as most stressful, paired t-tests were computed, comparing the reported stress means for each situation. A Bonferroni adjustment at the .05 level of significance yielded a .008 level of significance for these contrasts. Results indicated several significant differences in non-elite players' perceptions of stress for the four situations.

Specifically, non-elite basketball players perceived "Receiving a 'Bad' Call From the Referee" to be less stressful than both "Missing a Lay-Up or an Easy Jump-Shot," $t(88) = 4.93, p < .001$, and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," $t(88) = 2.70, p < .008$. Also, "Having the Ball Stolen From Me" was rated less stressful than "Missing a Lay-Up or an Easy Jump-Shot," $t(88) = 3.24, p < .002$ (Table 20).

Coping Responses

Coping responses of basketball athletes to the four stressful situations were measured using the CSIA's approach and avoidance scales. Two separate analyses were

performed on these data, one analysis with approach as the dependent variable and the other analysis with avoidance coping.

Approach coping. To examine whether male and female elite and non-elite players differed in their approach coping responses, a 2 x 2 x 4 (Gender x Skill Level x Situation) MANOVA with situation serving as a repeated measure was conducted. The main effect of gender reached statistical significance, $F(1, 174) = 8.39, p < .004$. There were no significant three- or two-way interactions. Subsequent univariate F -tests indicated that male and female basketball players' scores for approach coping were significantly different for the stressful situation, "Missing a Lay-Up or an Easy Jump-Shot," $F(1, 178) = 13.18, p < .001$. As seen in Table 18, mean scores of the two genders indicate that male players used more approach strategies than females in the stressful situation "Missing a Lay-Up or an Easy Jump-Shot" ($M = 3.21, SD = .82$ and $M = 3.66, SD = .82$, respectively).

Examination of the within-subject comparisons on the repeated measure of situation showed significant differences in approach coping, $F(3, 172) = 3.37, p < .02$. To further examine these differences paired t-tests were computed comparing the reported approach means for each situation. A Bonferroni adjustment at the .05 level of significance was employed, yielding a new .008 level of significance for these comparisons. Results from this analysis, and an inspection of the athletes' respective mean scores on approach coping (see Table 18), indicated that basketball players used significantly less approach strategies in the stressor "Receiving a 'Bad' Call From the Referee" as compared to the stressors "Having the Ball Stolen From Me," $t(188) = 2.69, p < .008$, and "Missing a Lay-Up or an Easy Jump-Shot," $t(188) = 2.88, p < .004$. Male and female basketball athletes' mean scores for approach and avoidance coping on the four stressful situations are illustrated in Figure 9.

Avoidance coping. To examine whether male and female elite and non-elite players differed in their avoidance coping responses, a 2 x 2 x 4 (Gender x Skill Level x

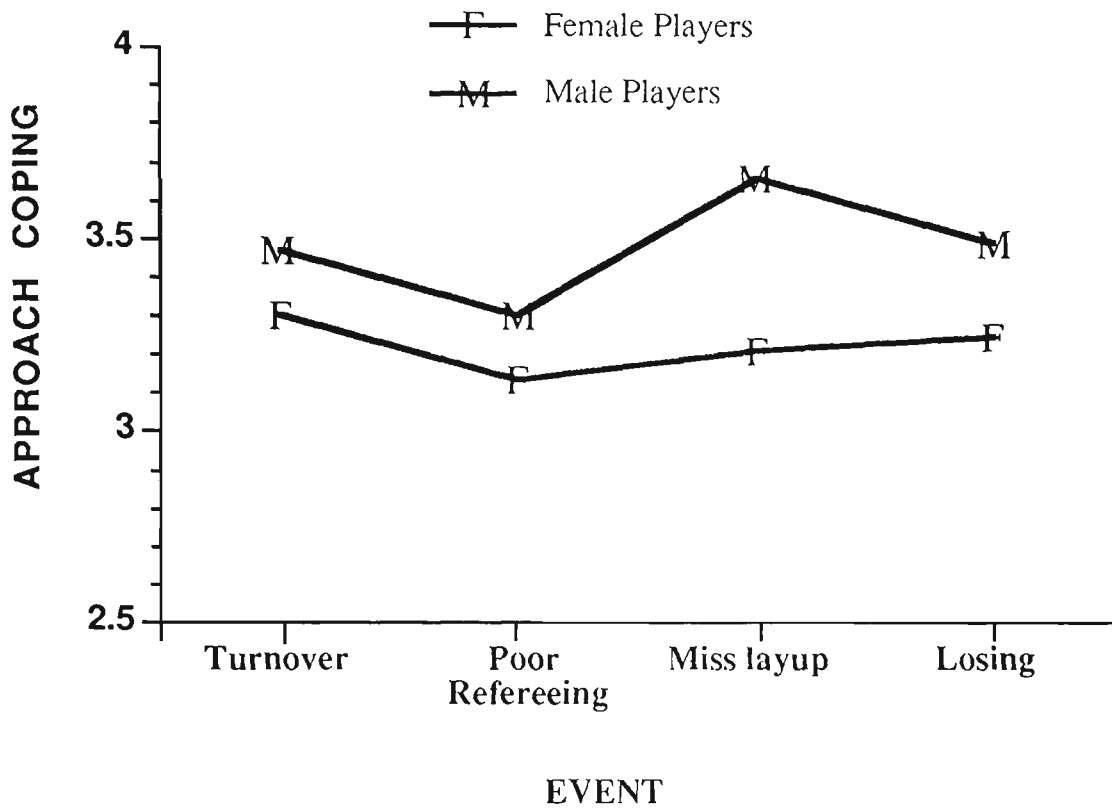


Figure 9. Approach Coping Across Situations for Male and Female Basketball Athletes.

Situation) MANOVA with situation serving as a repeated measure was conducted. The main effect of situation reached statistical significance, $F(3, 172) = 42.58, p < .001$. There were no significant three- or two-way interactions. To investigate the situations in which basketball players used more avoidance coping, paired t-tests were computed, comparing the reported avoidance means for each situation. A Bonferroni adjustment at the .05 level of significance was employed, yielding a more stringent .008 level of significance for these comparisons.

Results from this analysis and an inspection of the athletes' respective mean scores on avoidance coping (see Table 18), indicated that, compared to the three other situations, basketball players used the least amount of avoidance coping strategies in the stressful situation "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us." Specifically, findings indicated that in this particular stressful situation basketball players used significantly less avoidance than in the situations "Receiving a 'Bad' Call From the Referee," $t(187) = 11.11, p < .001$, "Missing a Lay-Up or an Easy Jump-Shot," $t(187) = 9.36, p < .001$, and "Having the Ball Stolen From Me," $t(187) = 7.31, p < .001$. Findings also revealed that players used significantly more avoidance coping following the situation "Receiving a 'Bad' Call from the Referee" than after "Missing a Lay-Up or an Easy Jump-Shot," $t(188) = 3.53, p < .001$, and "Having the Ball Stolen From Me," $t(188) = 4.47, p < .001$. Table 18 includes subjects' mean scores and standard deviations on the respective situations. Figure 10 graphically illustrates these findings.

A synopsis of the differences found in personal dispositions, situational appraisals, and coping responses of basketball players as a function of gender and level is presented in Table 21. Figure 11 graphically illustrates the relative positions of the players' overall mean scores (combined data) on perceived control, perceived appraisal, and approach and avoidance coping responses.

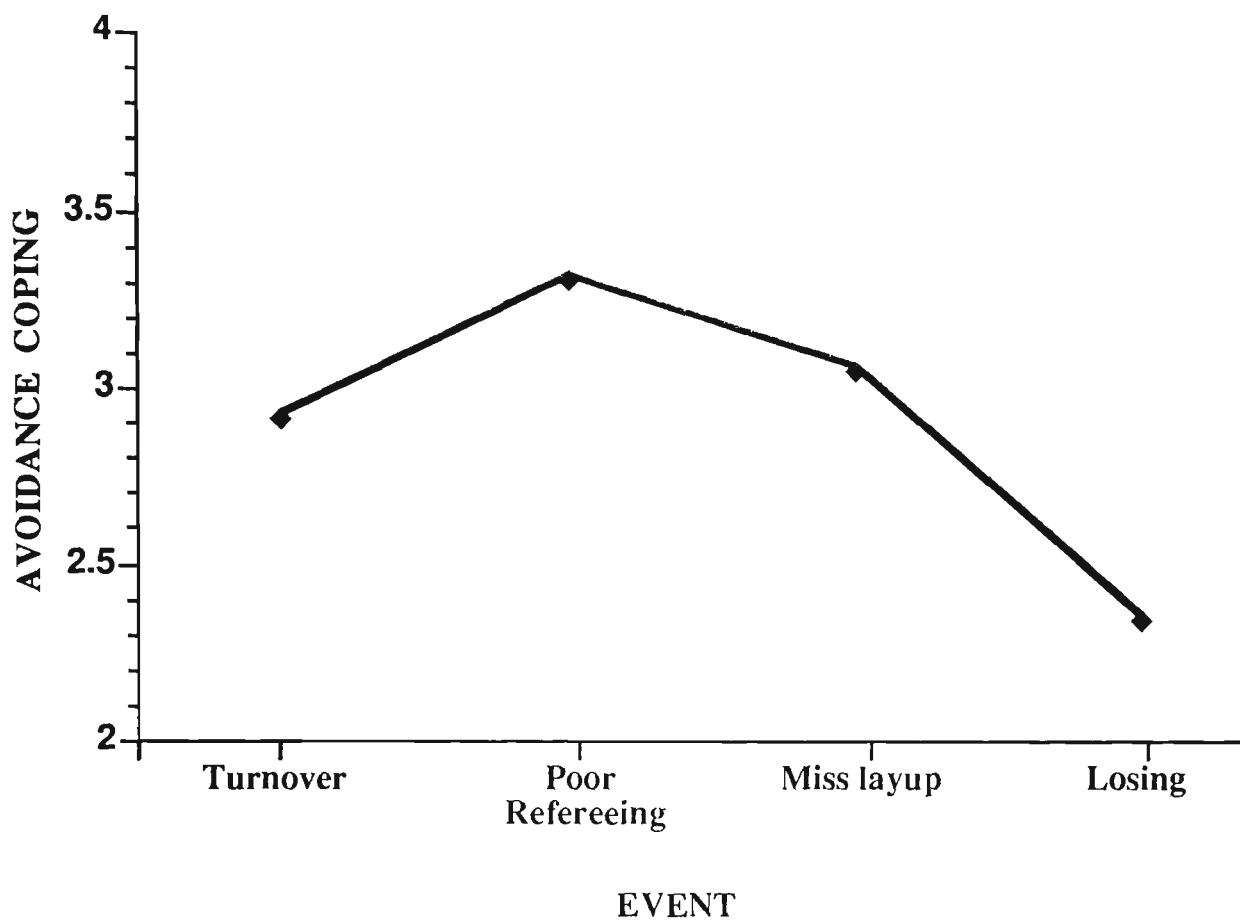


Figure 10. Avoidance Coping Across Situations for All Subjects.

Table 21

The Effects of Gender, and Skill Level on Coping, Situational Appraisals, and Personal Dispositions of Basketball Players.

	PERSONAL DISPOSITIONS				SITUATIONAL APPRAISALS		COPING	
	Self-Esteem	Optimism	Monitoring	Blunting	Perceived Control	Perceived Stress	Approach	Avoidance
Within-SS (Across Situations)	N.A.	N.A.	N.A.	N.A.	$p < .001$ 2<1, 2<3, 2<4	sign.	$p < .02$ 2<1, 2<3	$p < .001$ 2>3>4, 2>1
Between-SS (Male-Female)	M > F $p < .005$	-	-	-	-	gender * level interaction	$p < .001$ F < M lay-up	-
Between-SS (Elite-Non-elite)	-	-	-	-	-	gender * level interaction	-	-

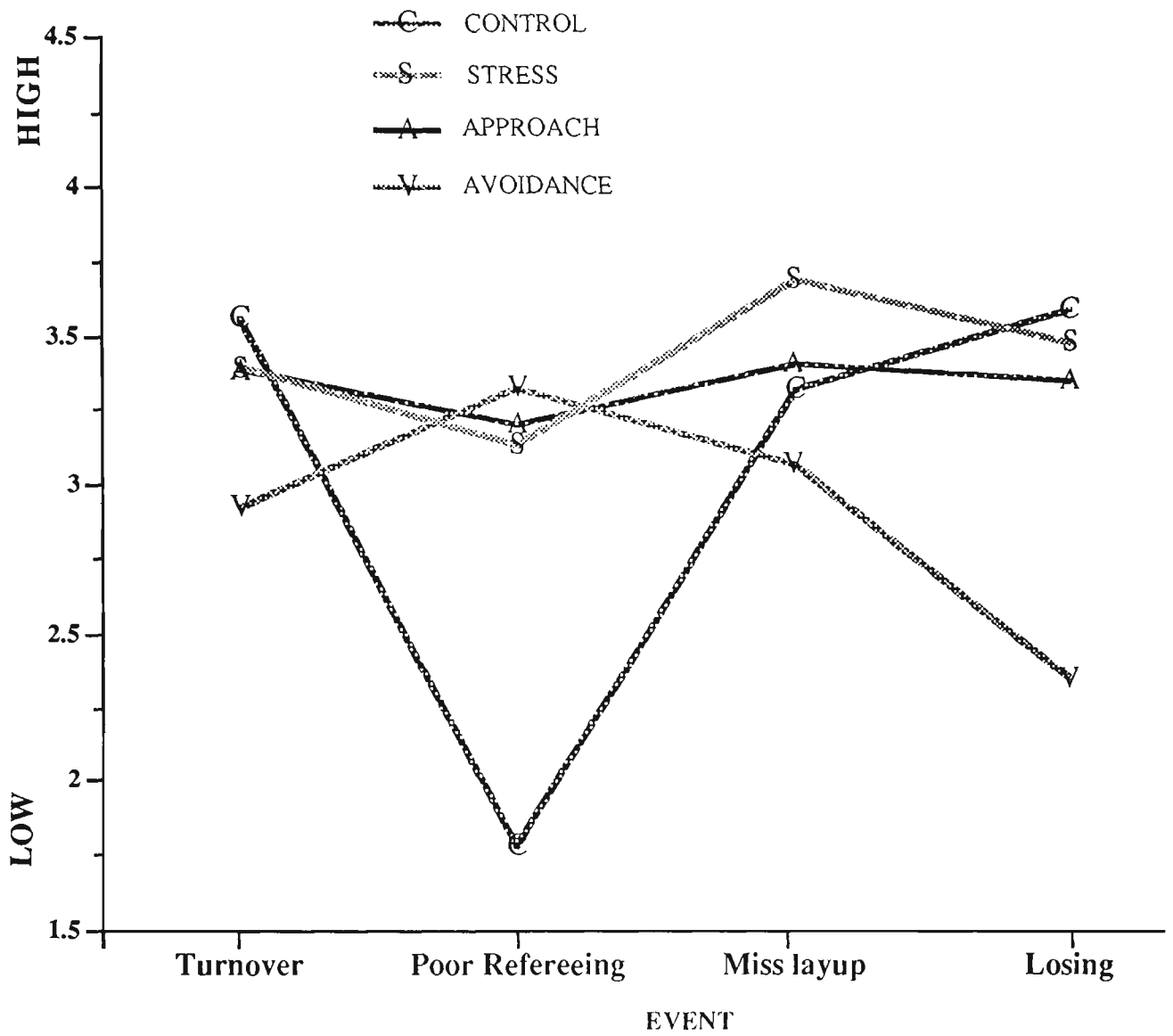


Figure 11. Perceived Control, Stress, and Coping Across Situations for Basketball Athletes.

Regression Analyses

To examine the effects of personal dispositions and situational appraisals on the players' coping responses, two separate hierarchical regression analyses were carried out, one on approach and one on avoidance coping. Personal variables were entered in the first step, whereas situational appraisals were entered in the second step.

In view of the differences found in the present study between male and female players in self-esteem, perceived stress, and approach coping responses, it was decided that separate regression analyses be performed for male and female players on each situation. Regressions of personal and situational variables were performed on males' and females' approach and avoidance scores for each situation. However, these analyses produced similar results. Thus, regressions were performed on combined males' and females' approach and avoidance scores across the four situations. Residual analysis was carried out to evaluate the assumptions underlying regression analysis. These assumptions were not violated in any regression analysis. The results from these analyses are presented in Table 22. For the reader with an inquisitive mind, analytical results of regressions of personal and situational variables on approach and avoidance coping for each situation are presented in Appendices J and K, respectively. Appendix L includes the regression of male and female players' personal and situational variables on their approach coping responses for situation 3 ("Missing a Lay-Up and/or an Easy Jump-Shot"), in which gender had a statistically significant main effect on the players' approach coping responses.

Regression of Personal and Situational Variables on Approach Coping

As Table 22 indicates, each set of predictors significantly contributed to predicting approach coping strategies for Australian basketball athletes. Specifically, personal factors predicted 7% of the variance in approach coping ($p < .01$), while situational appraisals added 16% unique variance ($p < .001$). Monitoring, optimism, and perceived

Table 22

Hierarchical Regression Analysis Predicting Approach and Avoidance Coping for Basketball Players: Dispositions Entered First.

Predictor	Approach		Avoidance	
	Step 1	Step 2	Step 1	Step 2
Personal Dispositions				
Blunting	.02	.02	.16*	.17**
Monitoring	.19**	.17**	.05	.08
Self-esteem	-.13	-.13	.02	.00
Optimism	.25**	.26**	.16	.14
Situational Appraisals				
Perceived control		.38***		-.17*
Perceived stress		.11		-.19**
R	.27	.49	.23	.35
R²	.07**	.24***	.05	.12***
R² increment after step 2		.16†††		.07†††
% of explained variance	31.02	68.98	47.43	52.57

Note. All entries are standardised regression (β) coefficients.

Maximum $n = 166$; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

control made a significant contribution to the prediction of approach coping strategies (see β coefficients in Table 22).

Situational appraisals accounted for 69% of total explained variance and personal dispositions for the remaining 31%. To examine whether situational appraisals, as compared to personal dispositions, are stronger predictors of approach coping, or if this finding is an artifact due to the order in which each set of variables was entered, another regression analysis was performed with situational appraisals entered in the first step and personal dispositions entered second (Table 23). Results indicated that when the order of entry was reversed situational appraisals were better predictors of approach coping (70% of total explained variance) than personal dispositions (30% of total explained variance). The overall and predictive values of each of the situational and personal variables were similar to those in the first regression in which personal dispositions were entered first and situational appraisals second. These findings provide clear evidence that situational appraisals are better predictors of approach coping than personal dispositions, irrespective of the order in which each set of variables is entered in the regression.

Regression of Personal and Situational Variables on Avoidance Coping

The contribution of personal dispositions, when entered first, was not significant as a predictor of avoidance coping. On the other hand, after entering personal dispositions, situational appraisals still accounted for a significant portion of avoidance coping variability. Specifically, personal factors predicted 5% of the variance in avoidance coping ($p > .05$), while situational appraisals added 7% unique variance ($p < .001$). Blunting, perceived control, and perceived stress were the only significant predictors of avoidance coping for the athletes (see β coefficients in Table 22).

Situational appraisals accounted for 53% of total explained variance and personal dispositions for the remaining 47%. To examine whether situational appraisals, compared to personal dispositions, were stronger predictors of avoidance coping or if this finding was an artifact due to the order in which each set of predictors was entered,

Table 23

Hierarchical Regression Analysis Predicting Approach and Avoidance Coping for Basketball Players: Appraisals Entered First.

Predictor	Approach		Avoidance	
	Step 1	Step 2	Step 1	Step 2
Situational Appraisals				
Perceived control	.37***	.38***	-.16*	-.17*
Perceived stress	.11	.11	-.20**	-.19*
Personal Dispositions				
Blunting		.02		.17*
Monitoring		.17**		.08
Self-esteem		-.13		.01
Optimism		.26**		.14
R	.41	.49	.27	.35
R²	.16***	.24***	.07***	.12***
R² increment				
after step 2		.07††		.05
% of explained variance	69.79	30.21	59.91	40.09

Note. All entries are standardised regression (β) coefficients.

Maximum $n = 166$; ns varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

another regression was performed; situational appraisals were entered first followed by personal dispositions (Table 23). Results showed that situational appraisals accounted for a higher portion of the total variability explained (60%, as opposed to 53%). Personal dispositions when entered second, accounted for the remaining 40% of the total explained variance. The overall and predictive value of each situational and personal variable was similar to those in the first regression in which personal dispositions were entered first, followed by situational appraisals. These findings provide evidence that situational appraisals are better predictors of approach coping than personal dispositions, irrespective of the order in which each set of variables is entered in the regression.

Discussion

This study investigated the extent to which basketball players exhibited consistent (preferred) coping responses across a range of acute stressful situations, which were identified as highly stressful in Madden et al.'s (1990) study of sources of stress for Australian basketball players. Another objective of the study was to examine the effects of situational appraisals and personal dispositions on coping responses of basketball players. A final objective was to investigate differences between female and male basketball athletes in personal dispositions, situational appraisals, and coping responses.

It was hypothesised that subjects would exhibit low consistency in their coping responses across situations, and that their approach and avoidance coping responses would depend more on situational than on personal variables. It was also hypothesised that personal, situational, and coping variables would differ between male and female basketball players. The majority of these hypotheses were confirmed. Prior to their discussion, a perusal of the subjects' mean scores in personal, situational, and coping variables shows several patterns (Table 18).

First, both the monitoring and blunting scores of Australian basketball players were higher than the norms of the MBSS (see Appendix G). Likewise, pooled mean optimism scores (combined groups) were higher than the norms reported by previous studies (Scheier & Carver, 1985). These findings suggest that athletes possess certain exceptional psychological qualities (e.g., optimists, high monitors/high blunters). The athletes' high optimism may be related to the positive effects that physical activity has on individuals. Although the mechanisms through which exercise positively influences individuals are still unclear, Sutherland and Cooper (1990) suggest that regular physical activity may fortify the body's physiological functions and enhance the individual's emotional functioning so that the stressors of life are viewed in a more positively light.

In terms of situational appraisals, "Receiving a 'Bad' Call From the Referee" was rated by both genders as the least controllable and the least stressful situation. This finding suggests that basketball players in the present study realise they have no control

over the calls and, thus, accept the referee's judgment. "Missing a Lay-Up or an Easy Jump-Shot" was rated by the combined male and female group as the most stressful situation, followed by the situations "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us," and "Having the Ball Stolen From Me." The intensity of perceived stress for each of these situations is comparable to that reported in Madden et al.'s (1990) study of sources of stress for Australian basketball players. In their study, the same items as part of a larger survey received similar ratings, considering that the researchers used a scale from 0 to 4, compared to the 1 to 5 scale used in the present study.

Finally, in terms of average coping scores for both genders, basketball players used more approach coping than avoidance coping during games. Examples of approach coping strategies used by players in this study include "I tried to understand exactly what happened" and "I tried to accept it as part of the game," while avoidance coping strategies include "I tried to keep it out of my mind" and "I tried not to think about it" (see Table 17).

Consistency of Coping Responses Across Situations

It was hypothesised that subjects would exhibit low stability in their coping responses across situations. It was also hypothesised that approach and avoidance coping would depend more on situational appraisals than on personal dispositions. To examine these predictions, four stressful game-related situations were used to trigger the subjects' responses. These included "Having the Ball Stolen From Me, Receiving a 'Bad' Call From the Referee, Missing a Lay-Up or an Easy Jump-Shot," and "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us."

In terms of the stability of coping responses across situations, results confirmed the initial predictions. Australian basketball players reported significantly different degrees of approach and avoidance coping responses across situations. Specifically, basketball players used significantly less approach strategies in the stressor "Receiving a 'Bad' Call

from the Referee" as compared to the stressors "Having the Ball Stolen From Me" and "Missing a Lay-Up or an Easy Jump-Shot." In terms of avoidance, basketball players used the least amount of avoidance coping strategies during the stressful situation "My Team is Losing and the Opposition is Holding Up Play by Keeping the Ball Away From Us." Findings also revealed that players used significantly more avoidance coping following the situation "Receiving a 'Bad' Call from the Referee" than after "Missing a Lay-Up or an Easy Jump-Shot" and "Having the Ball Stolen From Me." Thus, subjects appeared to exhibit coping responses specific to the situations depicted in this study.

The second hypothesis, an extension of the first hypothesis, predicted that situational appraisals, compared to personal dispositions, would be better predictors of basketball players' coping responses. This hypothesis was tested by examining the regressions of personal dispositions and situational appraisals on approach and on avoidance coping responses. Results from both regressions, on approach and on avoidance coping, supported the hypothesis.

Specifically, both personal and situational factors made a significant contribution as predictors of the athletes' approach coping responses. From the personal variables, optimism and monitoring emerged as significant predictors of approach coping responses. On the other hand, situational appraisals, as compared to personal dispositions, explained a greater percentage of the variance for approach coping (69% and 31%, respectively). Perceived control made a significant contribution in the prediction of approach coping for basketball players, whereas perceived stress failed to reach significance as a predictor of approach coping. Finally, entering personal and situational factors into the hierarchical regression analysis in reverse order resulted in essentially the same amount of explained variance for approach coping (30% and 70%, respectively). Thus, these results indicate that the order of entry did not affect the percentage of variance explained for approach coping.

The prediction of subjects' avoidance coping responses from the respective sets of variables was also significant but weaker than that of approach coping. Although the amount of variance explained by personal dispositions approached significance, only

situational factors made a significant contribution to the prediction of avoidance coping. Blunting was the only personal disposition that emerged as a significant predictor of the players' avoidance coping responses. Both perceived stress and perceived control made a significant contribution for the prediction of avoidance coping responses. When the order of entering each set of variables in the regression analysis was reversed, situational factors accounted for a greater portion of explained variance than personal dispositions. Specifically, when situational appraisals were entered first, they accounted for a greater portion of total explained variance (60%) than when they were entered second (53%). The predictive value of single variables as well as the total variance explained for avoidance coping was similar when the reverse order of entry was employed.

Collectively, these findings indicate that basketball players' approach and avoidance coping responses are influenced by both personal dispositions and situational appraisals. Personal and situational factors were not related. This lends further support to the additive model of coping, which postulates that personal factors and situational appraisals are unrelated and influence coping responses independently (see Terry, 1991). Findings also show that coping responses of basketball players are more influenced by situational appraisals than by personal dispositions. In this respect, results are consistent to Holms et al. (1986) and Fleishman (1984), who reported that the type and the characteristic of every day life stressors best predicted individuals' coping responses. Thus, the results of the present study are also supportive of past studies that have reported variability in subjects' coping responses across various events (Folkman & Lazarus, 1980; Menaghan, 1982).

Relationships Between Personal Dispositions, Situational Appraisals, and Coping Responses

Several hypotheses were generated in which relationships between personal dispositions, situational appraisals, and individual coping responses were predicted. The results of this study provided support for the majority of these hypotheses. With regard

to relationships between personal dispositions and coping responses, it was hypothesised that high self-esteem and optimism would be positively and moderately related to approach, and negatively related to avoidance coping responses. These hypotheses were based on past literature findings that optimism was positively related to problem-focused coping, emphasising the positive aspects of a situation, and seeking social support and negatively related to denial and distancing and disengagement from the goal (Scheier et al., 1986). The results of the present study indicated that optimism was correlated with both approach and avoidance coping. These findings suggest that optimists tend to employ both approach and avoidance coping responses, in their attempt to ensure that one type of coping will make things work out. This tendency to use a mixture of approach and avoidance coping strategies in an attempt to cater for both "misses" and "false alarm" at the same time is comparable to what Krohne (1986) refers to as an "unstable coping mode" (see section Costs and Benefits of Approach and Avoidance). According to Krohne's modes of coping, individuals with an unstable coping mode struggle to choose the best coping response in their attempt to control the situation. This in turn puts them in constant conflict about the appropriateness of the strategy they have used and produces a high degree of anxiety. However, optimism was unrelated to perceived stress in the present study, thus not supporting Krohne's model. Unlike optimism, self-esteem was unrelated to both approach and avoidance coping.

It was also hypothesised that monitoring would be moderately correlated with approach whereas blunting was thought to be related to avoidance coping. The results confirmed both components of this hypothesis by showing significant, although weak, correlations between monitoring and approach coping, and between blunting and avoidance coping. These correlations lend further support for the concurrent validity of the CSIA in that its approach and avoidance coping dimensions were weakly but significantly correlated to Miller's validated monitoring and blunting coping measures, which are thought to be a reanimation of the approach-avoidance constructs (Roth and Cohen, 1986). Correlations between personal dispositions indicated a weak but significant correlation between blunting and monitoring ($r = -.17$). This finding was not

unexpected. Miller (1987, 1990) claims that the monitoring and blunting dimensions are often negatively correlated. However, Miller postulates that the two measures are orthogonal, and thus, should be treated as separate dimensions. Likewise, Roth and Cohen (1986) contend that the dimensions of approach and avoidance should be considered independent. This was confirmed in the present study by the finding that approach coping was unrelated to avoidance coping. Optimism was moderately strong correlated with self-esteem. This result is comparable with findings in study II, and findings by Scheier and Carver (1985).

With respect to relationships between situational appraisals and coping responses, it was hypothesised that high perceived stress would be positively related to approach coping and negatively related to avoidance coping. The results of this study confirmed this prediction in that approach was correlated with high perceived stress, while avoidance coping was related to low perceived stress. These results closely match those from study II with referees, and support previous findings which report that highly stressed individuals utilise more approach strategies than avoidance (e.g., Krohne & Hindel, 1988; Madden et al., 1990; Miller, 1980, 1989). Krohne and Hindel, for example, found that successful table tennis athletes employed more avoidant than vigilant coping strategies and reported less cognitive anxiety. Similarly, Madden et al. (1990) found that basketball players reporting high perceived stress relied more on coping strategies such as increased effort and resolve, problem-focused coping, and social support seeking than subjects with low perceived stress. As discussed earlier, basketball athletes in the present study reported using more approach than avoidance coping strategies. As Madden et al. suggest, perhaps basketball players are using strategies that may have opposite to the desired effects. Approach coping strategies may increase the level of arousal of the already highly aroused athletes, thus impeding performance. However, other studies have provided evidence that approach may be a more efficient coping strategy than avoidance (e.g., Billings & Moos, 1981, 1982; Cook, 1985; Endler & Parker, 1990; Nakano, 1991). These studies have found that individuals who relied on active or problem-focused coping responses reported less stress compared to those individuals

who used avoidance and emotion-focused coping responses. As discussed earlier in the literature review, this discrepancy in findings regarding the effectiveness of approach as compared to avoidance coping responses may be due to methodological problems such as the non-systematic conceptualisation of coping, the aspects of the stressful situations, indicators of successful coping, the point at which coping effectiveness was evaluated, the definition of the area in which a problem has to be solved, and the compatibility or relationship between coping style and situational demands (see Krohne, 1988; Roth & Cohen, 1986). Nevertheless, the findings from studies II and III suggest that avoidance is a more adaptive strategy than approach in the reduction of stress for both basketball players and referees in responding to acute stress during the game.

It was also hypothesised that high perceived controllability would be positively related to approach coping and negatively related to avoidance coping. The results of this study confirmed both parts of this hypothesis. Perceived control was correlated with approach coping at a moderately strong level of significance, and negatively correlated with avoidance at a moderately low level of significance. These results are supportive of previous studies that have linked high perceived control with active (problem-focused) forms of coping and low perceived control with emotion-focused coping strategies (Carver et al., 1989; Folkman & Lazarus, 1980; Folkman et al., 1987; Scheier et al., 1986). This finding may be explained by Miller's (1990) model of coping effectiveness as a function of controllability (see Table 1). Based on her model, an avoidance coping style in uncontrollable situations is more likely to reduce anxiety and frustration than an approach coping style. By contrast, in controllable situations approach coping is more adaptable than avoidance because it allows for the execution of instrumental actions, that is actions that deal with the source of the stress. According to Miller, the ability to identify variations in situational variables such as control is a prerequisite to efficient self-regulation.

Regarding relationships between situational variables, it was predicted that perceived stress would be correlated with perceived control. The results of the present study did not confirm this hypothesis. Contrary to predictions, perceived control was unrelated to

perceived stress. This finding is comparable to the absence of a significant relationship between referees' perceived control and perceived stress in study II. Provided that the item "able to do something about it" adequately operationalizes control (Folkman et al., 1986) one has to seek alternative explanations for these results. As discussed earlier (see Discussion in study II), previous researchers have reported mixed results concerning the relationship between perceptions of stress and control. While some researchers argue that lack of control over a situation produces stress (Adler, 1924, Madden et al., 1990), evidence for the reverse also exists (Averill, 1973; Thompson, 1981). Thus, although results from both studies II and III with referees and with players, respectively, indicate that perceived control is unrelated to perceived stress, it appears that further research is warranted to examine this relationship.

With respect to correlations between personal dispositions and situational appraisals, it was hypothesised that high self-esteem and optimism would be correlated with low perceived stress. Previous research has reported that psychological resources buffer individuals' perceptions of stress (e.g., Brustad & Weiss, 1987; Pearlin & Schooler, 1978). The findings of study II with referees supported these studies by showing that perceived stress was negatively correlated with both optimism and self-esteem. However, perceived stress of players in study III was unrelated to both self-esteem and optimism. Thus, results with players do not support previous studies and findings in study II with referees. The lack of coherent results regarding the relationships of optimism and self-esteem with perceived stress of basketball players and referees is comparable to the inconsistent relationships found between optimism and stress in a study with sea workers (Riordan, Johnson, & Thomas, 1991). Riordan et al. found that optimism was negatively related to stress for land based workers but not for shrimpers, and that mastery was associated with reduced stress for shrimpers and with greater stress for land workers. Differences were also found in the coping strategies used by each group of workers even though both groups reported that they experience similar job stressors. Land-based workers used more problem-focused strategies and less avoidance strategies than shrimpers. Thus, these findings suggest that for different populations

(e.g., basketball players and referees) in the same environment (e.g., sports, work) the relationships of personal dispositions such as optimism or self-esteem with perceived stress vary as a function of the characteristics of the situation or the role of the subjects.

Based on previous moderate relationships found between perceived control and optimism (e.g., Carver et al., 1989; Scheier et al., 1986), it was hypothesised that psychological resources such as self-esteem and optimism would be correlated with individuals' perceptions of controllability. The results of the present study did not support this hypothesis either. Low correlations between perceived control and self-esteem and optimism were also obtained in study II. Finally, contrary to findings of study II and those reported by Miller (1987, 1990), the correlation between monitoring and perceived stress failed to reach significance.

In summary, the relative low correlations found in the present study between personal dispositions and situational appraisals indicated that the two sets of variables are independent. The weak, but significant, correlations between personal dispositions and coping responses, and between situational appraisals and coping responses, suggest that each set of variables influence independently the basketball players' coping responses. Thus, the findings of the present study tend to support the additive model of coping (see Terry, 1991).

Coping as a Function of Gender

One objective of this study was to investigate the extent to which coping patterns were similar for male and female basketball players. During the analyses of data, the extent to which coping patterns were similar for elite and non-elite players was also investigated. Although past research has found differences between elite and non-elite sport participants in psychological characteristics (e.g., Dwyer & Carron, 1986; Mahoney, 1989), anxiety (e.g., Highlen & Bennett, 1983), and coping style (e.g., Madden, Kirkby, & McDonald, 1989), analyses in the present study indicate that elite and

non-elite Australian basketball players did not differ in the selected personal dispositions, in situational appraisals, and in their coping responses to the four stressful situations.

Few previous studies in the coping area have examined the influence of gender on subjects' coping responses. A consistent finding of these studies is that men used more approach and less avoidance coping than women (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980, 1982; Stone & Neale, 1984). Based on this evidence, it was hypothesised that male basketball players would employ more approach and less approach coping than their female counterparts. Also, it was anticipated that male athletes would report higher self-esteem than females (De-Man & Blais, 1982; Lirgg, 1991). Differences between female and male basketball athletes in their situational appraisals were also expected, based on gender differences of a more general nature (see Abra & Valentine-French, 1991; Greenglass, 1991; Smallman et al., 1991; Yamamoto & Davis, 1982).

The findings of this study indicate significant gender differences in all three sets of variables, personal dispositions, situational appraisals, and coping responses. More specifically, in terms of personal dispositions, male players reported higher self-esteem than their female counterparts. This finding is comparable to De-Man and Blais (1982) who found higher self-esteem among male, as compared to female, individual sport participants. Lirgg (1991), in a meta-analysis of studies that have examined differences in self-confidence in physical activity, also reported that results favoured male subjects in being more self-confident than females. These researchers have attributed these results to gender stereotypes and societal influences. One study found that males have a greater tendency than females to brag and use positive disclosure (Miller, Cooke, Tsang, & Morgan, 1992). Thus, differences between males and females in self-reported self-esteem may also be due to differences in their tendency to brag. No differences were found between male and female basketball players in this study on optimism, monitoring, and blunting.

With regard to situational appraisals, differences between male and female basketball players were evident only at the non-elite level. Results indicated that non-elite female

Summary of Findings

Personal dispositions, situational appraisals, and coping responses of male and female Australian basketball players were measured to examine the process of coping. Results indicated that:

1. Subjects' approach and avoidance coping responses varied across four sport-related stressful situations.
2. Both personal and situational factors accounted for significant variation in players' approach coping responses. Situational variables were better predictors of approach coping than were personal dispositions. Optimism, monitoring, and perceived control each emerged as significant predictors of approach coping.
3. Situational appraisals were better predictors of avoidance coping responses than personal dispositions. In fact, only situational appraisals were significant predictors of avoidance coping. For single variables, blunting, perceived control, and perceived stress were significant predictors of avoidance coping.
4. Approach coping was positively correlated with perceived stress, perceived control, monitoring, and optimism.
5. Avoidance coping was positively related to optimism, and blunting, and negatively related to perceived stress, and perceived control.
6. The correlation between self-esteem and optimism was moderately strong. Monitoring was negatively related to blunting.
7. Male basketball players, compared to females, employed significantly more approach coping for the stressor "Missing a Lay-Up or an Easy Jump-Shot."
8. At the non-elite level, female players were less stressed than their male counterparts by the stressors "Having the Ball Stolen From Me," and "Receiving a 'Bad' Call From the Referee."
9. Male basketball players reported higher self-esteem than females.

General Discussion

The present study examined the process of coping with acute stressors in sport, as a function of personal characteristics and situational appraisals. The objectives of this study were to examine sources of stress, personal dispositions, situational appraisals, and coping responses as a function of subjects' nationality, age, and gender (e.g., Australian and Greek, adult and adolescent, male and female, respectively), and to investigate the effects of personal and situational factors on subjects' coping responses. The findings are discussed in relation to previous literature.

Sources of Stress for Basketball Referees

Study I examined the sources and the perceived intensity of acute stress for referees as a function of their age and culture. It was found that particular events during the game contributed markedly to increased acute stress in basketball officiating. Specifically, results revealed that among the most stressful situations during refereeing were "Making a Mistake, Threats of Physical Abuse, Verbal Abuse From Coaches, Verbal Abuse From Players," and "Presence of My Supervisor." These findings are comparable to previous research in sports. For instance, the stressor "Making a Mistake" has also been found to be one of the highest concerns among athletes (e.g., Gould et al., 1983; Pierce &

Stratton, 1981), whereas conflicts with coaches and players have been rated as a major source of stress for soccer officials (Taylor et al., 1990). Also, "Presence of a Supervisor" has been ranked among the top stressors for American basketball officials (Rotella et al., 1985).

A secondary purpose of study I was to examine whether age affected the referees' perception of stress. It was predicted that adult referees would report lower levels of acute stress than their adolescent counterparts. Results confirmed this hypothesis and revealed that adolescent basketball referees were significantly more stressed than their adult counterparts in the situations "Calling a Technical Foul" and "Making a Wrong Call." These results were comparable to Osipow et al.'s (1985) findings that younger employees experience more work-related stress than older employees. In the sports area, findings support Philips' (1985) comparisons between experienced and inexperienced basketball referees. Philips found that inexperienced referees perceived the behaviour of crowds, coaches, and players as more negative than did experienced referees. Based on past research, it was suggested that the differences found in the present study between adult and adolescent referees were due to age differences in appraisal (e.g., Larsson, et al., 1988; Lazarus & Folkman, 1984), coping skills (e.g., Folkman et al., 1987; Labouvie-Vief et al., 1987; Larsson et al, 1988), and coping resources (e.g., Osipow et al., 1985). Identifying the particular acute stressors that affect basketball referees should be the first step in creating stress management programs and improving the referees' coping ability in counteracting stress. Results indicated that this is especially relevant for younger, less experienced referees who have more difficulty coping than adults.

Following Duda and Allison's (1990) recommendations for conducting cross-cultural research, sources of stress were also examined comparing Greek and Australian basketball officials. Data revealed that Australian, as opposed to Greek referees, perceived "Arguing With Players, Arguing With Coaches, Verbal Abuse From Players, Verbal Abuse From Coaches, Making a Controversial Call" and "Calling a Technical Foul," to be significantly more stressful. On the other hand, Greek referees, compared to Australians, perceived "Presence of Media" to be more stressful. These findings were

attributed to vocational, sociological, and psychobiological differences between subjects from the two cultures.

The importance of identifying sources of stress in a work environment has been discussed in the literature review. As Taylor-Brown et al. (1982) contend, identifying sources of stress for a particular population may assist in increasing awareness, assessing personal needs, and providing a focus for successful profession-specific stress management interventions.

The referee profession is inherently laden with stressful experiences. Consequently, its members suffer from extensive burnout and, sadly, a high dropout rate (Weinberg & Richardson, 1990). However, the results of this study suggest that the causes of this predicament are identifiable and prevalent in certain situations. This suggests that the training of referees should target the specific stressors in game simulations, and include proper coping techniques. Particular attention must be given to learning behavioural coping strategies, referred to by Lazarus and Folkman (1984) as problem-focused coping, in responding to the actions of others (e.g., players and coaches). This, however, should not undermine the importance of teaching sports officials how to deal with their own thoughts and feelings.

In summary, study I examined the sources of acute stress for referees and their relative degrees of perceived intensity as a function of age and culture. The results suggested that individual and group differences existed in the referees' cognitive and behavioural responses to acute stress during competition. It was concluded that, prior to the design of stress management interventions, further research is warranted to examine the factors that are responsible for these differences. As indicated earlier, these factors include personal dispositions, situational appraisals, and coping style. Thus, the purpose of study II was to investigate the effects of personal dispositions and situational appraisals on the referees' coping responses to specific acute stress situations in basketball competitions. To elicit subjects' responses, three standard sport-specific situations, which were identified as highly stressful in study I, were used. Finally, study III utilised

a similar design to investigate the coping process with basketball players. Findings from these studies are presented below.

The Effects of Personal Dispositions and Situational Appraisals on Coping Responses, and the Consistency of Coping Responses Across Situations

In studies II and III it was hypothesised that subjects would exhibit low stability in their coping responses across situations, and that approach and avoidance coping style would depend more on situational appraisals than on personal dispositions. To examine these hypotheses, a number of highly stressful game-related situations were used to elicit the subjects' responses in each study. These situations included acute sources of stress for basketball referees and players, as depicted in study I and in Madden et al.'s (1990) study of sources of stress for the respective populations. Subjects were asked to rate each source of stress in terms of perceived controllability and stressfulness, and to report their responses to them. In addition, psychological inventories assisted in obtaining data on subjects' personal dispositions such as self-esteem, optimism, and monitoring-blunting. To examine the hypotheses, analyses of data on personal dispositions, situational appraisals, and coping responses were performed.

In terms of the stability of subjects' coping responses across situations, the two studies revealed opposite findings. Results from study II did not support the initial predictions. Both Greek and Australian basketball referees reported using statistically similar degrees of approach and avoidance coping responses across situations. Thus, referees appeared to exhibit stable (preferred) coping styles in the selected situations. On the other hand, results from study III indicated that Australian basketball players employed significantly different approach and avoidance coping responses across situations, thus confirming the predictions. For instance, the majority of players used significantly more avoidance coping after "Receiving a 'Bad' Call From the Referee" than after any of the three other stressful situations.

The results of previous literature have also been equivocal, with subjects sometimes showing consistent coping responses across different situations (e.g., Fleishman, 1984; Miller et al., 1988), and other times exhibiting situation-specific coping responses (e.g., Folkman & Lazarus, 1980; Menaghan, 1982). Comparable to the findings in study II, Larsson et al. (1988) found that police officers were consistent in their coping appraisals across different situations. To interpret these findings the researchers suggested that this consistency may be due to selection factors, uniform training, and work socialisation among police officers. These factors may also be responsible for the consistency found in the coping responses of basketball referees. On the other hand, basketball players did not receive any training on how to deal with their sources of stress. Thus, the instability of basketball players in their coping responses is at least partially explained by this theorisation.

As discussed in the Review of Literature, previous studies performed comparisons of individuals' coping responses among a number of dissimilar situations. In an attempt to address this common methodological limitation of previous studies, the present study controlled for the similarity of scenarios upon which subjects described their coping efforts by presenting them with standard game-related stressful situations. This method, which was one of the strengths of this study, allowed for between- and within-subjects comparisons of their actual coping responses to the same stressful situations. However, as evident from the examination of the subjects' situational appraisals, the three stressful situations selected in study II varied in terms of controllability, but not in terms of perceived intensity of stress. Considering that perceived stress was found to be a significant predictor of subjects' approach coping responses in both studies, it is possible that the similarity in the intensity of the situations selected in study II was responsible for the consistency in the referees' coping responses. That is, it is possible that subjects employ similar coping responses for situations of equal stress intensity. On the other hand, the four situations selected in study III varied in both perceived intensity and perceived controllability, and produced variations in the subjects' coping responses. In view of these results, it is recommended that future investigations select highly dissimilar

situations in characteristics such as intensity and controllability. In this way, researchers would be able to determine whether the consistency of individual coping responses to certain stressful situations is a result of the similarity of the situations or an effect of the individual's stable coping style.

Another objective of studies II and III was to examine the influence of personal, as compared to situational, factors on subjects' approach and avoidance coping responses. It was hypothesised that situational appraisals would be better predictors of subjects' coping responses than personal dispositions. This latter hypothesis was tested by examining the regressions of personal dispositions and situational appraisals on both approach and avoidance coping responses.

The findings of study II supported the hypothesis for avoidance coping. However, findings were ambiguous for approach coping; the predictive validity of situational and personal factors depended on their order of entry in the regression. This was probably due to the fact that, for referees, personal dispositions and situational appraisals were moderately correlated, indicating that the two sets of predictors were not independent. The findings of study III confirmed the hypothesis that situational appraisals, as compared to personal dispositions, would contribute more to predicting both approach and avoidance coping responses for basketball athletes, irrespective of the order of entry in the regression.

Thus, for avoidance more so than for approach coping, results from studies II and III supported previous studies that have demonstrated the importance of situational factors in the process of coping (e.g., Holms et al., 1986; McCrae, 1984; Terry, 1991). Findings also supported those studies that have reported variability in individuals' coping responses across various events (Folkman & Lazarus, 1980; Menaghan, 1982), and researchers who have argued that the predictive value of personality traits on coping responses is low (e.g., Cohen & Lazarus, 1973; Lazarus & Folkman, 1984; Parkes, 1986).

With respect to the predictive value of individual variables, the prediction of approach coping based on personal and situational factors was significant for both

basketball referees (study II) and players (study III). Among personal dispositions, optimism and monitoring were the most consistent significant predictors of approach coping for both samples. From situational variables, perceived stress significantly contributed to the prediction of approach coping for all basketball referees, whereas perceived control had a significant regression for approach coping with basketball players, and with Greek, but not with Australian, referees.

The prediction of avoidance coping based on personal and situational factors was also significant for referees and athletes, but weaker than that of approach. As mentioned earlier, compared to personal dispositions, situational appraisals were stronger predictors of avoidance coping, particularly for basketball athletes. In fact, the prediction of avoidance coping based on personal dispositions alone did not achieve significance for either basketball players or officials. These findings indicate that, clearly, the subjects' avoidance coping was influenced by situational appraisals more so than it was influenced by personal dispositions. Blunting was the only personal disposition that emerged as a significant predictor of avoidance coping in studies II and III. Perceived control was the only situational variable that emerged as a significant predictor of avoidance coping responses for basketball referees in study II, whereas both stress and control appraisals made a significant contribution in the prediction of avoidance coping responses for basketball athletes in study III.

In regard to the theoretical models of coping, data from this study provided equivocal evidence. Specifically, data from basketball referees (study II) showed that personal dispositions and situational appraisals were moderately correlated, thus indicating that the two sets of variables are not independent. These correlations appear to support Lazarus and Folkman's (1984) interactional theory of coping, which postulates that personal and situational factors are interdependent and that transactions between these factors influence the process of coping. On the other hand, the low correlations found between situational appraisals and personal dispositions in data from basketball players (study III) provide support for the additive model of coping (see Terry, 1991), which postulates that the effects of personal and situational factors on coping responses are

direct and independent of each other. In one study Aldwin and Revenson (1987) found that results supported both interactional and additive models as a function of the type of coping mode they examined. When they examined problem-focused coping strategies, findings supported the interactional model, whereas when they examined emotion-focused coping, results supported the additive model. In the present study results supported both interactional and additive models depending on the population examined. When basketball referees were examined, findings supported the interactional model, whereas when basketball players were examined, results supported the additive model. It is suggested that, for some sport participants (e.g., basketball officials), coping responses are a function of the interactions between situational appraisals and personal dispositions, whereas for others (e.g., basketball athletes), coping responses are influenced directly by situational appraisals and personal dispositions. It appears that further research is needed to examine the applicability of the theoretical models of coping in the area of sports.

In summary, basketball officials reported more stable than variable approach and avoidance coping styles across three high stressful situations. Opposite coping patterns were reported by basketball players, who showed greater variability than stability in their coping responses across situations. Both personal and situational factors were significant predictors of approach coping, but only situational appraisals made a significant contribution in predicting avoidance coping for both basketball referees and players. Results from the referees' data yielded mixed evidence as to which set of variables is a better predictor of approach coping. In the case of players, situational appraisals, compared to personal dispositions, clearly accounted for a greater portion of approach coping variance explained. In the prediction of avoidance, only situational appraisals accounted for a significant variation of the subjects' avoidance coping strategies in both studies II and III. Evidence from data as to which set of variables is a better predictor of avoidance coping favoured situational appraisals. Nevertheless, the contribution of personal dispositions such as optimism, monitoring, and blunting in the prediction of subjects' coping responses shows that these variables can help understand the tendencies of people to use certain coping responses under certain stressful conditions.

Relationships Between Personal Dispositions, Situational Appraisals, and Coping Responses

Several hypotheses were tested in studies II and III in which relationships between personal dispositions, situational appraisals, and individual coping responses were predicted. Results provided support for several of these hypotheses. Findings are discussed in three sections, which, in order of presentation, include relationships between personal dispositions and coping responses, situational appraisals and coping responses, and personal dispositions and situational appraisals.

With respect to relationships between personal dispositions and coping responses, it was hypothesised that high levels of self-esteem and optimism would be positively correlated with approach, and negatively related to avoidance, coping strategies. Contrary to this hypothesis, data from study II with referees indicated that self-esteem and optimism were negatively related to approach and positively related to avoidance coping. These findings are non-supportive of previous research (Carver et al., 1989; Scheier et al., 1986), which has reported that individuals with greater psychological resources use more active coping and less denial and behavioural disengagement. Instead, the findings from study II indicated that optimists and individuals with high self-esteem tended to rely on avoidance more than on approach coping strategies. As discussed in study II, differences between these findings and those of past literature may be due to the context in which the coping strategies were assessed. For instance, optimists and individuals with high self-esteem may use avoidance coping in response to acute sources of stress, and approach coping in the long run.

Results from study III are not as easy to interpret. Data from basketball players indicated that optimism was related to both approach and avoidance. This suggests that optimists tend to employ both modes of coping, perhaps in their attempt to ensure that one type of strategy would make things work out. On the other hand, self-esteem was unrelated to both coping dimensions.

It was also predicted that monitoring would be moderately related to approach, and blunting would be moderately related to avoidance coping. Both these hypotheses were confirmed in study III (basketball players), but only the first part, linking monitoring with approach, was supported in study II (basketball referees), in which blunting was not related to avoidance coping. Blunting was also unrelated to perceived control and perceived stress in both studies II and III. A similar absence of relationships between the dimension of blunting and other coping scales or perceptions of control and stress has been reported by previous research (Carver et al., 1989; Miller et al., 1988). These results confirm Miller et al.'s and Carver et al.'s argument that the dimensions of approach-avoidance and monitoring-blunting are similar but not identical.

In terms of correlations between personal dispositions, optimism correlated moderately strong with self-esteem in both basketball players' and referees' data. In view of this finding, it is suggested that future investigations should reconsider whether or not there is a benefit in using self-esteem and optimism measures simultaneously. Finally, a significant negative correlation was found for referees in study II between optimism and monitoring. However, this finding was not confirmed for players in study III.

Another hypothesis regarding relationships between situational appraisals and coping responses was that high perceived stress would be positively related to approach coping and negatively related to avoidance coping. Results from studies II and III confirmed this prediction, indicating that approach was correlated with high perceived stress, and that avoidance coping was related to low perceived stress. These results are comparable to Miller's (1980, 1989) findings that vigilant individuals reported higher degrees of stress than avoiders, and that individuals with monitoring, as compared to blunting, coping style represent a population more vulnerable to distress. In sports, Krohne and Hindel (1988) also found that table-tennis players who employed more avoidance and less approach coping strategies exhibited less anxiety than players who used relatively few avoidance coping strategies. In a more relevant study with basketball players, Madden et al. (1990) found that highly stressed subjects reported more approach than avoidance coping. In view of these findings, one may surmise that avoidance, as opposed to approach, is a

more adaptive style in the reduction of stress when officiating or competing in basketball. However, the retrospective design of this study does not allow an evaluation of these causal inferences. Thus, it is still unclear whether situational stress appraisals influence coping, or whether coping styles influence appraisals.

It was also predicted that perceived controllability would be positively related to approach coping and negatively related to avoidance coping. This hypothesis was clearly supported from results with athletes (study III). Results with referees (study II) also confirmed the first part of these predictions in that perceived control was correlated with approach coping. However, perceived control was also correlated with avoidance coping at a moderate to low level of significance. Although it is possible that the latter finding was artificially inflated due to the large number of responses, this finding is indicative of the complexity of the issue of controllability and its effects on individual coping responses (also see Folkman, 1984). According to Folkman, it is likely that control does not affect coping directly. Primary appraisal (i.e., threat and challenge) mediates the relationship between the individual's situational appraisals of control and his or her coping responses. Furthermore, it may be surmised that because few situations are clearly controllable or uncontrollable, individuals alternate or employ both approach and avoidance coping strategies in one situation. Nevertheless, in general, the results from the present studies support previous studies that have found links between high controllability and problem-focused (active) coping, and between low-controllability and emotion-focused coping (e.g., Carver et al., 1989; Folkman & Lazarus, 1980; Folkman et al., 1987; Scheier et al., 1986).

In terms of relationships between situational variables, it was predicted that perceived stress would correlate with perceived control. The results of studies II and III did not support this hypothesis; perceived controllability was not related to perceived stress. As evidence from previous studies concerning the relationship between perceptions of stress and control is still equivocal (e.g., positive relationship: Adler, 1924; Madden et al., 1990; negative: Averill, 1973; Thompson, 1981), further research is warranted in this area.

With regard to relationships between personal dispositions and situational appraisals, it was hypothesised that high self-esteem and optimism would correlate with low perceived stress. Previous research has reported that psychological resources buffer individuals' perceptions of stress (e.g., Brustad & Weiss, 1987; Pearlin & Schooler, 1978). These findings were confirmed with referees in study II, in which perceived stress was negatively correlated with both optimism and self-esteem, but not confirmed with players in study III, in which perceived stress was not related to either self-esteem or optimism.

Furthermore, data from study II (referees) revealed moderate correlations between monitoring and both perceived stress and perceived control. These results are comparable to Miller's (1980, 1989) findings that monitors experience more stress than blunders. Results also suggest that high monitors were more likely to perceive situations as controllable than low monitors. As mentioned in the discussion of study II, perhaps, for monitors, gathering information about the source of stress is linked with a sense of reassurance, and a feeling that they are in control of the situation. However, despite the strength of these correlations found in study II (referees) between monitoring and both perceived stress and control, these findings were not repeated in data from study III (players), in which these correlations were insignificant, thus, questioning the validity of these relationships.

Based on previous moderate correlations found between perceived control and optimism (e.g., Carver et al., 1989; Scheier et al., 1986), it was also hypothesised that self-esteem and optimism would enhance individuals' perceptions of controllability. The absence of significant correlations between perceived control and both self-esteem and optimism in referees and players was non-supportive of this hypothesis.

In summary, some of the hypotheses generated in the present study regarding the relationships between personal dispositions, situational appraisals, and coping responses were clearly supported from data in studies II and III. Examples include the correlations found between approach coping and both perceived stress and perceived control, approach and monitoring, optimism and self-esteem, and the negative correlation between

stress and avoidance. Other hypotheses were supported only in one study. For example, for referees (study II), negative correlations were found between perceived stress and both self-esteem and optimism, and between optimism and monitoring. In addition, positive correlations were found between monitoring and both perceived control and perceived stress. For players (study III), negative correlations were found between avoidance and both blunting and perceived control. Finally, some of the hypotheses generated in the present study regarding the relationships between personal dispositions, situational appraisals, and coping responses were not supported in either study (II or III). Examples include the non-significant correlations of perceived control with self-esteem, optimism, and perceived stress found in both basketball referees and players. In conclusion, these findings are indicative of the complexity of the coping process, and suggest that further comparisons be conducted to clarify the relationships between these sets of variables.

Coping Effectiveness

Average scores over the three stressful situations in study II indicated that basketball referees used more avoidance than approach coping. Contrary to these results, findings from study III indicated that basketball players used more approach than avoidance coping responses overall when dealing with the four stressful situations. These differences in the referees' and players' use of approach and avoidance coping may be attributed to differences in their personal dispositions (e.g., referees scored higher than players in blunting, see Tables 10 and 16) or to different task- or role-demands for each sport population. More importantly, as seen in Tables 10 and 16, basketball officials used more avoidance coping and reported lower degrees of stress than basketball players. Correlations between situational appraisals and coping responses for both basketball referees and players indicated that high perceived stress was positively related to approach coping and negatively related to avoidance coping. Taken together, these findings

suggest that avoidance coping may be a more adaptive strategy in acute sports related situations.

Likewise, the higher levels of stress reported by Australian, as compared to Greek, referees in study I, and the finding of study II that Australian referees tend to rely on approach coping more than their Greek counterparts, confirm the theorisation that avoidance coping may be more effective than approach in reducing stress in sports.

Past studies have also supported the notion that avoidance is a more effective coping strategy in the reduction of stress (see section Costs and Benefits of Approach and Avoidance), particularly in the short term (see Mullen & Suls, 1982; Roth & Cohen, 1986). Roth and Cohen (1986), for example, argue that avoidance acts like a breather providing the time for planning coping strategies. In sports, Krohne and Hindel (1988) found that table-tennis athletes who employed more avoidance and less approach strategies exhibited less anxiety than athletes who used the reverse coping pattern. Madden et al. (1990) found that highly stressed basketball players relied more on coping strategies such as increased effort and resolve, problem-focused coping, and social support seeking than subjects with low perceived stress. The results of study III indicated that basketball players used more approach than avoidance coping strategies. As Madden et al. argue, it is possible that using approach coping activities may increase the level of arousal of the already highly aroused individuals, thus impeding performance.

According to Anshel (1990a), a sport participant cannot become distracted or demotivated by any acute stressor when sport activity is ongoing. Krohne and Hindel (1988) argue that in situations requiring immediate decisions avoidance coping is especially efficient because it reduces interfering anxiety. This enables the individual to employ all the technical and tactical skills in a wise fashion after considering the demands of the situation.

Although other studies have shown that approach coping may sometimes be a more efficient coping strategy than avoidance (e.g., Billings & Moos, 1981, 1982; Cook, 1985; Endler & Parker, 1990; Nakano, 1991), the results of the present study support the notion that avoidance coping responses are associated with reduced perceived stress in

acute stress sports-related situations, whereas approach coping is related to increased perceived stress. Thus, these findings suggest that basketball officials and athletes should be taught to use more avoidance than approach strategies to reduce their stress during competitions.

Coping as a Function of Cultural Differences

Another objective of study II was to determine whether coping patterns of basketball referees are similar across cultures. Based on past research on the influence of culture on stress and coping (e.g., Evans, Palsane, & Carrere, 1987; Seiffge-Krenke & Shulman, 1990), it was hypothesised that Australian and Greek basketball officials would differ in personal dispositions, situational appraisals, and coping responses. However, predictions regarding the nature of differences in personal dispositions, situational appraisals, and coping responses between Australian and Greek basketball officials were not formulated, due to the relative absence of cross-cultural research examining the coping process. The findings of study II indicated significant cross-cultural differences in the referees' personal dispositions and coping responses, but not in their situational appraisals. Specifically, in terms of personal dispositions, Greek referees, compared to Australian, reported a higher preference for a monitoring coping style and a lower preference for a blunting coping style.

Moreover, although a comparison of Australian and Greek subjects with American was not one of the objectives of this study, subjects from both groups of this study (referees and players) scored higher in personal dispositions such as optimism, monitoring, and blunting than the norms reported by previous studies with subjects from the United States (see Tables 10 and 16, Appendix G, and Scheier & Carver, 1985). These findings suggest either that basketball referees and athletes in the present study possess particular qualities (e.g., high optimism, high monitoring preference, high blunting preference), or that the psychological inventories that were used in the present study to measure personal dispositions (e.g., self-esteem, optimism, monitoring-

blunting) have different meaning for Australians and Greeks, compared to Americans. As discussed in study II, considering the low internal consistency of some of these inventories found in this study, it is recommended that further validation of the scales is needed before testing in other countries. Nonetheless, these findings partially support previous studies that have reported differences in various personal dispositions of subjects from different countries (e.g., Ben-Zur & Zeidner, 1988; Learner et al., 1980).

Results also revealed that Australian basketball officials employed significantly more approach strategies than Greeks in response to the three stressful situations. This finding, in conjunction with the finding that approach coping correlated positively to stress, may partially explain why Australian referees, compared to their Greek counterparts, reported higher degrees of stress for certain stressors in the first study (i.e., "Arguing With Players, Arguing With Coaches, Verbal Abuse From Players, Verbal Abuse From Coaches," and "Making a Controversial Call"). However, the two groups did not differ in their degree of perceived stress for the selected situations in study II, "Making a Mistake, Experiencing Aggressive Reactions," and "Presence of Important Others." Finally, regressions of personal and situational variables on approach coping explained more variance for Greek than for Australian referees, whereas the reverse was true for avoidance coping. These results suggest that the prediction of coping responses is a function of both the mode of coping (e.g., approach or avoidance) and cultural differences.

In conclusion, the findings of study II with basketball referees indicate that Australian and Greek referees differed in their tendencies to rely on approach coping responses. Considering that the two groups did not differ in their situational appraisals, the differences in their approach coping responses are likely to be a function of the differences found in their personal dispositions. However, as Keinan and Perlberg (1987) recommend, these findings should be interpreted with caution because potential differences in the openness and willingness of individuals from different ethnic and racial backgrounds to admit their stress or their coping responses may be responsible for the results. Nevertheless, it is recommended that stress management interventions consider

the characteristics of each population before applying programs that have been designed for the needs of other cultural groups.

Coping as a Function of Age

As earlier described, study I examined the influence of age on sources of stress for basketball officials. The second study examined the influence of age in perceived stress, perceived control, personal dispositions, and coping responses of basketball officials.

As discussed earlier, past studies (e.g., Folkman & Lazarus, 1980; Laughlin, 1984; Osipow et al., 1985; Taylor et al., 1990) indicated that sources of stress vary as a function of age. Findings in study I (sources of stress for referees) indicated that older referees were relatively less stressed than their adolescent counterparts. Thus, it was hypothesised in study II that differences in stress appraisals would also exist between older and younger adult referees. However, the results did not support this hypothesis, showing that the effect of age on the referees' perceived stress was not significant. Specifically, data indicated that the perceived intensity of three stressful game-related situations (e.g., "Making a Mistake, Aggressive Reactions by Coaches or Players," and "Presence of Important Others") did not differ between older and younger referees. Similarly, age did not influence the referees' perceived controllability.

Other studies have shown that age also affects the individuals' coping responses (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987; Kennedy, 1985; Larsson et al., 1988; Laughlin, 1984; McCrae, 1982; Osipow et al., 1985; Taylor et al., 1990). These differences between age groups in stress and coping have often been attributed to developmental differences (e.g., Backman & Molander, 1986a, 1986b; Folkman et al., 1987) and/or to experience (Lazarus & Folkman, 1984). Based on these findings, it was hypothesised that age would affect the referees' coping responses in study II. Results indicated that age did not influence the coping responses of adult Australian and Greek basketball referees (aged 18 to 53 yrs) during the three acute stressful situations. These findings, however, do not exclude the possibility that

differences may exist between adult and adolescent referees in their appraisals or their coping responses in other sources of stress.

Finally, the results of study II indicated that older basketball referees reported higher self-esteem than their younger counterparts. This finding, which is consistent with previous studies (e.g., Kalliopuska, 1987), has potential implications for the training and evaluation of younger referees by their trainers/supervisors. For example, it is recommended that referee-supervisors try to enhance younger referees' self-esteem by offering more praise and positive feedback than might be needed for older basketball referees. Considering the relationship found between self-esteem and perceived stress, enhancing referees' self-esteem may reduce their stress.

Coping as a Function of Gender

Although the examination of differences in the coping process as a function of gender was not a primary purpose of study II because of the low number of female subjects who participated in the project, analyses revealed significant differences between male and female referees' perceptions of stress and in their tendencies to use avoidance coping responses. Specifically, results showed that female referees were significantly more stressed than male referees when experiencing "Aggressive Reactions by Coaches or Players," which was also considered to be the most stressful event for females.

In addition, the examination of the referees' coping responses showed that males used more avoidance than females following the stressful situations "Making a Mistake," and "Aggressive Reactions by Coaches or Players." This result together with the findings that female referees were more stressed than male referees, and that avoidance was correlated with high perceived stress support the view that avoidance is a more adaptive style for the reduction of stress than approach. Perhaps, female referees would benefit by using avoidance coping strategies, particularly when experiencing "Aggressive Reactions by Coaches or Players."

The finding that female basketball referees tend to use less avoidance coping than male referees contradicts past research that has shown that women, as compared to men, use more avoidance coping strategies in most situations (e.g., Billings & Moos, 1981; Endler & Parker, 1990; Folkman & Lazarus, 1980, 1982; Frydenberg & Lewis, 1991; Labouvie-Vief et al., 1987; Pearlin & Schooler, 1978; Stone & Neale, 1984). The differences found in study II between male and female referees raised further questions concerning the effects of gender on subjects' situational appraisals, personal dispositions, and coping responses. These questions were further addressed in study III (players).

In study III it was hypothesised that the players' personal dispositions, situational appraisals, and coping responses would vary as a function of gender. Findings confirmed these hypotheses, indicating differences between male and female players in all three sets of variables (i.e., personal dispositions, situational appraisals, and coping responses). More specifically, in terms of personal dispositions, consistent to previous research (e.g., De-Man & Blais, 1982; Lirgg, 1991), male basketball players reported higher self-esteem levels than female players. This finding may be partially explained by the greater tendency of males to brag and use positive disclosure (Miller et al., 1992).

With regard to situational appraisals, findings showed that at the non-elite level, male players were more stressed than their female counterparts. Given that elite and non-elite players were similar in personal dispositions and coping responses, differences in their situational appraisals were attributed to societal or contextual variables. Other results indicated that male, compared to female, basketball athletes utilised significantly more approach coping strategies in the situation "Missing a Lay-Up or an Easy Jump-Shot." Although this finding is not consistent with findings from the second study with referees in which males used more avoidance coping than females, it supports previous studies in which males used more approach coping than females (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980, 1982; Stone & Neale, 1984). These findings suggest that approach and avoidance coping may be more influenced by the context than by the respondents' gender. Nevertheless, the differences found between genders in studies II

and III justify Endler and Parker's (1990) and Wallbott and Scherer's (1991) recommendations to consider the effects of gender when conducting research.

Coping as a Function of Skill Level

Data in study III allowed for the examination of the effects of skill level on personal dispositions, situational appraisals, and coping responses of basketball players. Comparisons revealed that elite and non-elite Australian basketball players did not differ in their personal dispositions, perceptions of control, and coping responses to the four stressful situations identified by Madden et al. (1990). However, a significant gender by skill level interaction indicated that elite and non-elite players differed in the way they viewed the situations in terms of intensity. Further analyses revealed that this interaction was due to differences between male non-elite and female non-elite basketball players in perceived stress. It appears that, at this level, male athletes were more stressed than their female counterparts in the situations "Having the Ball Stolen From Me," and "Receiving a Bad Call From the Referee." The reasons for these differences are still unclear. Given that elite and non-elite players did not differ in personal dispositions, perceived control, and coping responses, it is surmised that these differences in perceived stress between male non-elite and female non-elite players are due to differences in other societal or contextual variables such as the demands, purpose, and meaning of basketball competitions for males and females at the non-elite level.

Methodological Considerations

The present study utilised a coherent theoretically grounded framework to study coping by first ascertaining sources of stress for the particular population of basketball referees (study I). Following the recommendations of others (e.g., Folkman, Lazarus, Dunkel-Schetter et al, 1986; Krohne, 1988), three concrete, profession-specific situations, identified in study I as stress-inducing, were employed to elicit subjects'

coping responses. These coping responses were subsequently examined in study II as a function of selected personal dispositions and situational appraisals. The methodological approach that was followed can be described as a retrospective assessment of coping strategies that takes into account the actual appraisal and coping process of individuals in several stressful situations as recommended by Larsson et al. (1988). Controlling for the nature of the situations is one of the strengths of the study, as it allowed for legitimate within- and between-subjects comparisons of coping responses.

To examine the reliability of the coping patterns that emerged, cross-cultural (Australian versus Greek referees, study II) and cross-sectional comparisons (basketball referees versus basketball players, study III) were performed. It was assumed that such comparisons be a valid approach to the study of coping responses instead of comparing results with previous studies that have utilised dissimilar coping inventories and samples from unrelated domains (e.g., hospital patients, university students, the elderly). The exclusion of inapplicable coping items from the coping inventory prior to its administration was another strength of this investigation. Finally, compared to previous investigations that failed to distinguish between acute and chronic stressors the present study was a pioneer attempt to examine acute stress situations.

However, this study was not without certain limitations. The present studies relied on self-report measures. The limitations associated with the use of self-reports include inadequate memory problems, the desire of subjects to present themselves in a positive light, language ambiguity, the use of verbal reports as an ego defense, and retrospective falsification (Lazarus & Folkman, 1984). To minimise the effects of some of these problems, subjects were asked to report on specific events, which they recently experienced. To ensure honest responses answer sheets were anonymous. It may be argued that physiological and behavioural measures of coping would have provided a more accurate and valid assessment of the subjects' stress and coping responses. However, previous investigations have often illustrated that physiological, behavioural, and subjective responses to threatful stimuli tend not to be highly correlated (Cook,

1985). At other times these response modes are independent (Rotella et al., 1985; Steptoe & Vogele, 1986).

With respect to behavioural observations of referees, for example, Rotella et al. (1985) found no relationships between reports of the prospective referees' judges (supervisors) on the over-all quality of their performance and the referees' self-reports on perceived stress, job satisfaction, and total symptoms or stressors encountered. Lazarus and Folkman (1984) contend that it is not easy to understand what is going on the individuals' minds by behavioural observations. Physiological measurements, on the other hand, most often require laboratory settings. Because of the low generalisability of those findings that have been obtained under artificial settings, laboratory experiments have been criticised by several researchers as an inadequate research methodology for the examination of stress and its effects (Laux & Vossel, 1982; Larsson et al., 1988; Lazarus & Launier, 1978; Lazarus & Folkman, 1984). As Larsson et al. allege, naturalistic stressful situations are open-ended and are usually less controllable than artificially induced stressful tasks. Furthermore, real life situations differ from artificial settings in terms of the consequences for the individual who does not perform well on the task.

For example, potential risks for the referees who do not deal effectively with the demands of the situation include loss of their job, verbal or even physical abuse, loss of self-esteem and respect by important others, and increased stress. Although some recent laboratory studies have overcome this limitation by manipulation checks (e.g., Baumeister, 1984), subjects in such studies often know that no serious consequences will materialise nor will the researchers abuse them in case they perform badly. For these reasons, previous research in the area of coping has relied extensively in the employment of self-report measures from real-life experiences (e.g., Billings & Moos, 1981; Carver et al., 1989; Folkman & Lazarus, 1980; Osipow et al., 1985; Parkes, 1986; Roth & Cohen, 1986; Scheier et al., 1986).

Theoretical and Practical Implications

Results from the three studies carry significant theoretical and practical implications for examination of the coping process and management of stress in acute situations, respectively. From a theoretical perspective, the present findings provided new insight in the process of coping in acute stress situations. For instance, findings of study II with referees supported Lazarus and Folkman's (1984) interactional model of coping, whereas data from study III with athletes were more supportive of an additive model of coping (see Terry, 1990). Although subjects in study II exhibited consistent coping responses across situations, subjects in study III reported unstable coping across situations. These findings support Krohne's (1988) recommendation that future investigations of the coping process may have to proceed in situation- and profession-specific designs.

The findings also suggest that avoidance is a more adaptive coping style than approach for reducing acute stress in sports. Thus, using an avoidance coping style in acute game-related stress situations may assist basketball referees and players in managing their stress. Another finding with potential implications for the training of basketball referees and players is the negative correlation found between perceived stress and both self-esteem and optimism. Enhancing the self-esteem and optimism of sport participants may assist in the reduction of their stress in game-related situations. This could be partially accomplished with positive feedback on performance, instruction, and praise, particularly after challenging games, and especially for younger individuals.

Also of interest were the cross-cultural comparisons between Greek and Australian referees carried out in the first and second studies, which indicated differences in the subjects' perceived stress (study I), and in their personal dispositions and coping responses (study II). These results suggest that before employing stress management programs, the characteristics of the population for whom the program is intended should be considered. Likewise, it may be necessary to re-examine the validity of scales developed in other countries, as evidence from the present study indicates that the psychometric qualities of instruments developed in the United States when applied to

subjects from other countries are questionable. In addition, further cross-cultural research is warranted to explain the differences found in sources of stress, personal dispositions, and coping responses as a function of vocational, cultural, sociological, or psychobiological variables.

The influence of age, gender, and skill level differences on personal dispositions, situational appraisals, and coping responses of subjects was also investigated. Age was found to affect stress appraisals of referees in study I, but not in study II. Results also indicated that older referees have higher self-esteem than their younger counterparts. Perhaps, as Larsson et al. (1988) recommend, the stress inoculation process can be enhanced for young referees by systematically matching them with older, more experienced partners.

The examination of the influence of gender on the subjects' perceptions and coping responses, as depicted in study II, indicated that male referees, compared to females, used more avoidance coping in the stressful situations "Aggressive Reactions by Coaches or Players," and "Making a Mistake." Results also showed that female referees were significantly more stressed than male when experiencing "Aggressive Reactions by Coaches or Players." These findings suggest that particular attention may be necessary to the needs of female sports officials when dealing with this particular stressor. Findings from previous research with volleyball players (Crocker, 1989) indicated that women were more susceptible to cognitive affective stress management programs, whereas men showed very little change. Cognitive affective stress management programs may be particularly beneficial for women referees who experience excessive stress as a result of aggressive reactions by coaches or players. Such stress management programs are particularly useful during situations in which it appears that there is very little or no control over situational conditions. For example, individuals can reappraise uncontrollable events as "challenging" rather than "threatful" and set obtainable goals such as controlling their emotions, or tolerating harm by using avoidance strategies.

Results of study III on athletes also showed differences between male and female basketball players in their personal dispositions, stress appraisals, and coping responses

to acute stress situations. More specifically, male, compared to female basketball athletes, reported higher self-esteem and a higher preference for approach coping strategies in the stressful situation "Missing a Lay-Up or an Easy Jump-Shot." Gender differences were also evident between non-elite players in perceived stress; male players were more stressed than their female counterparts. Overall, the results confirmed previous recommendations from researchers that gender differences should be taken into consideration during the examination of coping and when designing stress interventions.

The present study has implications for teaching referees as well as athletes of all ages cognitive and behavioural strategies for coping with acute stress more effectively. The findings of this study suggest that future stress management should consider both personal and situational characteristics in fostering the coping process in sport. The importance of analysing the situation, considering possible responses and evaluating their benefits should also be highlighted. As evident in the findings, in general, individuals' coping responses were more influenced by situational appraisals than by personal dispositions. As mentioned earlier, the data of this study suggest that avoidance is a more adaptive coping mode than approach. However, an even more important skill may be the ability to examine and assess situational factors and adjust one's coping strategy to the situation. Thus, as Miller (1990) recommends, teaching a variety of coping skills and improving the individual's ability to identify critical situational factors and then adapt to the situation should be an important component of stress management in sport.

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APPENDICES

APPENDIX A

Basketball Officials Sources of Stress Survey (BOSSS)

REFEREE SURVEY

NAME: _____
PHONE: _____
ACCREDITATION LEVEL: _____

Age: _____

Referees, especially in basketball, are sometimes under considerable stress. The purpose of this survey is to better understand the types and sources of stress that you experience as a basketball referee - before, during, and even after the game. This survey is part of a very important study - among the first in Australia concerning basketball referees - about stress in sports officiating.

REMEMBER: DETAIL IS IMPORTANT. TELL US AS MUCH AS YOU CAN.

ABOUT THE QUESTIONS:

Please respond to each question by circling the appropriate number which indicates the extent of stress you experience for each listed situation. Other questions follow that ask about your present way of responding to that particular situation. For example, when asked about your physical and mental responses after experiencing a particular stressor, we want to know how you cope or deal (or don't cope or deal) with it. Please take the time to let us know your thoughts and experiences. You are the best source of information in understanding very important aspects about being a basketball referee. Thank you for your cooperation.

Reminder: Please circle the number that best describes the amount of stress you feel for each example.

1 2 3 4 5 6 7 8 9 10
Not Somewhat Extremely
at all

(1) Verbal abuse from coaches. 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

What were your physical (what did you **do**) responses to these types of experiences?

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(2) Verbal abuse from players: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did your respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(3) Arguing with coaches: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did your respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(4) Arguing with players: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did your respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(5) Threats of physical abuse: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did your respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(6) Verbal abuse by spectators: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did you respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(7) Working with my (referee) partner: 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did you respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(8) Making a "wrong" call (an error, in my view):
1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did you respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(9) Making a controversial call (one that could have gone either way):
1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did you respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(10) Making a mistake in my mechanics: 1 2 3 4 5 6 7 8 10

One example of this stressor in your experience: _____

How did you respond physically to this stressor? _____

What were your thoughts after experiencing this type of stressor? _____

General comments about this particular stressor: _____

(11) Being in the wrong location when making a call:
 1 2 3 4 5 6 7 8 9 10

One example of this stressor in your experience: _____

How did you respond physically to this particular stressor? _____

What were your immediate thoughts after experiencing this stressor? _____

General comments about this stressor: _____

PLEASE COMMENT ABOUT OTHER POSSIBLE FORMS OF STRESS:

12. Presence of my supervisor/evaluator: 1 2 3 4 5 6 7 8 9 10

13. Presence of media: 1 2 3 4 5 6 7 8 9 10

14. Experiencing an injury: 1 2 3 4 5 6 7 8 9 10

15. Calling a technical foul: 1 2 3 4 5 6 7 8 9 10

GENERAL COMMENTS ABOUT ANY OF THESE STRESSORS: _____

APPENDIX B

Basketball Officials Sources of Stress Survey (BOSSS) Greek Version

ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΓΙΑ ΔΙΑΙΤΗΤΕΣ ΜΠΑΣΚΕΤ

Ποια κατηγορία διαιτητεύετε συνηθως;

Συνολο χρονων σαν διαιτητης (εμπειρια): ____

Φυλλο: Α Γ

Ηλικια: ____

Οι διαιτητες, κυριως στο Μπασκετ, βρισκονται μερικες φορες κατω απο εντονες συνθηκες στρες (αγχος). Ο σκοπος αυτης της ερευνας ειναι να βοηθησει στη βαθυτερη κατανοηση του τυπου και των πηγων του στρες που δοκιμαζεις σαν διαιτητης στο μπασκετ πριν, κατα, ακομα και μετα τον αγωνα. Αυτο το ερωτηματολογιο ειναι μερος μιας πολυ σημαντικης ερευνας -αναμεσα στις πρωτες στην Ελλαδα- γυρω απο το στρες κατα τη διαιτησια αγωνων μπασκετ.

ΘΥΜΗΘΕΙΤΕ: ΟΙ ΛΕΠΤΟΜΕΡΕΙΕΣ ΕΙΝΑΙ ΣΗΜΑΝΤΙΚΕΣ. ΠΕΙΤΕ ΜΑΣ ΟΣΑ ΠΕΡΙΣΣΟΤΕΡΑ ΜΠΟΡΕΙΤΕ.

ΣΧΕΤΙΚΑ ΜΕ ΤΙΣ ΕΡΩΤΗΣΕΙΣ:

Παρακαλω απαντειστε σε καθε ερωτηση σημειωνοντας με κυκλο τον καταλληλο αριθμο που εκφραζει το βαθμο του στρες που δοκιμαζετε σε καθε περισταση που αναφερεται. Με αλλες ερωτησεις που ακολουθουν ερωτασθε σχετικα με τον παροντα τροπο που αντιδρατε στη συγκεκριμενη περισταση. Για παραδειγμα, οταν ερωτασθε σχετικα με τις σωματικες και νοητικες σας αντιδρασεις υστερα απο μια συγκεκριμενη κατασταση στρες, θελουμε να ξερουμε πως αντιδρατε η πως την αντιμετωπιζετε (η δεν αντιδρατε σ αυτην η δεν την αντιμετωπιζετε). Παρακαλουμε, αφιερωστε λιγο χρονο για να μας γνωρισετε τις σκεψεις και τις εμπειριες σας. Αποτελειτε την καλυτερη πηγη πληροφοριων για την κατανοηση πολυ σημαντικων στοιχειων σχετικων με την ιδιοτητα του διαιτητη μπασκετ. Σας ευχαριστουμε για την συνεργασια σας.

Υπενθυμιση: Παρακαλω σημειωστε με κυκλο τον αριθμο που περιγραφει καλυτερα τον βαθμο του στρες που αισθανεστε για καθε παραδειγμα.

1	2	3	4	5	6	7	8	9	10
Καθολου				Καπως					Παρα πολυ

(1) Υβριστικη συμπεριφορα απο προπονητες: 1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Ποιες ηταν οι σωματικες σας αντιδρασεις (τι κανατε) σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(2) Υβριστική συμπεριφορά από παίκτες: 1 2 3 4 5 6 7 8 9 10

Ένα παράδειγμα αυτής της πηγής στρες κατά την εμπειρία σας: _____

Τι κάνατε σ αυτές τις περιπτώσεις; _____

Ποιες ήταν οι σκεψεις σας μετά από αυτή την εμπειρία: _____

Γενικά σχολία γύρω από τον παραπάνω τύπο στρες: _____

(3) Διαφωνώντας με προπονητές: 1 2 3 4 5 6 7 8 9 10

Ένα παράδειγμα αυτής της πηγής στρες κατά την εμπειρία σας: _____

Τι κάνατε σ αυτές τις περιπτώσεις; _____

Ποιες ήταν οι σκεψεις σας μετά από αυτή την εμπειρία: _____

Γενικά σχολία γύρω από τον παραπάνω τύπο στρες: _____

(4) Διαφωνώντας με παίκτες: 1 2 3 4 5 6 7 8 9 10

Ένα παράδειγμα αυτής της πηγής στρες κατά την εμπειρία σας: _____

Τι κάνατε σ αυτές τις περιπτώσεις; _____

Ποιες ήταν οι σκεψεις σας μετά από αυτή την εμπειρία: _____

Γενικά σχολία γύρω από τον παραπάνω τύπο στρες: _____

(5) Απειλές κατά της σωματικής σας ακεραιότητας:
1 2 3 4 5 6 7 8 9 10

Ένα παράδειγμα αυτής της πηγής στρες κατά την εμπειρία σας: _____

Τι κάνατε σ αυτές τις περιπτώσεις; _____

Ποιες ήταν οι σκεψεις σας μετά από αυτή την εμπειρία: _____

Γενικά σχολία γύρω από τον παραπάνω τύπο στρες: _____

(6) Υβρεις απο θεατες: 1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(7) Δουλευοντας με τον (διαιτητη) συναδελφο μου: 1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(8) Δινοντας 'λαθος' σφυριγμα (λαθος κατα την αποψη μου):

1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(9) Δινοντας ενα αμφιλεγομενο σφυριγμα (που θα μπορουσε να δωθει και στις δυο πλευρες)

1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(10) Κανοντας ενα λαθος στις κινήσεις/νοήματα μου:

1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

(11) Βρισκομενος σε λαθος θεση τη στιγμη που δινω ενα σφυριγμα:

1 2 3 4 5 6 7 8 9 10

Ενα παραδειγμα αυτης της πηγης στρες κατα την εμπειρια σας: _____

Τι κανατε σ αυτες τις περιπτωσεις; _____

Ποιες ηταν οι σκεψεις σας μετα απο αυτη την εμπειρια: _____

Γενικα σχολια γυρω απο τον παραπανω τυπο στρες: _____

ΠΑΡΑΚΑΛΩ ΣΧΟΛΙΑΣΤΕ ΣΧΕΤΙΚΑ ΜΕ ΑΛΛΟΥΣ ΠΙΘΑΝΟΥΣ ΤΥΠΟΥΣ ΣΤΡΕΣ

(12) Η παρουσία του κριτη μου: 1 2 3 4 5 6 7 8 9 10

(13) Η παρουσία των μεσων ενημερωσης 1 2 3 4 5 6 7 8 9 10

(14) Δοκιμαζοντας εναν τραυματισμο 1 2 3 4 5 6 7 8 9 10

(15) Σφυριζοντας μια τεχνικη ποινη 1 2 3 4 5 6 7 8 9 10

ΓΕΝΙΚΑ ΣΧΟΛΙΑ ΑΝΑΦΟΡΙΚΑ ΜΕ ΟΠΟΙΑΔΗΠΟΤΕ ΑΠΟ ΤΙΣ ΠΑΡΑΠΑΝΩ ΠΗΓΕΣ ΣΤΡΕΣ:

APPENDIX C

Selected Comments and Responses of Basketball Officials to Acute Sources of Stress

1. General Comments

- Pre-game stress is higher than competition stress
- Attention focusing is a difficult task. During easy games boredom settles in.
- Not meeting one's own standards is more stressful than other external conditions.
- The more experience one gets the less stress he/she experiences. I was much more stressed 10-15 years ago than I am today.
- The highest the level of competition the more pleasant refereeing becomes.

2. Modes of Thinking

(a) **Negative Thinking**

- I purposely reduce the number of games I officiate each year, because I cannot tolerate poor sportsmanship behaviour.
- Will I make it in time? Will my partner-referee be there early?
- Oh, no! Not him [*a particular coach*] again!
- When will this game end?

(b) **Positive Thinking**

- One has to understand that refereeing is hard work, and try to make the most out of it.
- Keeping a positive attitude and working hard reduces stress.
- I like the pressure, the roaring crowd, difficult coaches. What gives me satisfaction is knowing that I've done my job and made it through tough conditions.
- Officiating is the best way to mental and somatic stress reduction!

APPENDIX D

Coping Style Inventory for Basketball Officials (CSI)



SURVEY FOR BASKETBALL REFEREES

Sponsored by the University of Wollongong, Dept. of Human Movement
with the cooperation of the
National Referees Association and the Australian Basketball Federation Incorporated

This is a survey to find out how you feel about certain things and how you respond to certain stressful events. First we need some information about you.

WE DO NOT NEED YOUR NAME

SCORING INSTRUCTIONS:

FILL THE CIRCLES: On the answer sheet provided make a heavy black mark that fills the circle completely. You can only use **pencil** (any type). If you wish to change your answer, make an 'X' over the old answer and fill in your new answer. We will erase it for you.

AGE. SEX. LEVEL. EXPERIENCE

Please, complete the following information at the **bottom left** of the computer sheet in the area named "Student Identification Number." Do not write your name or ID down.

AGE: In columns 1 and 2 write your age as of October 1st, 1991.

SEX: In the third column, "1" = Female and "2" = Male

LEVEL of Competition: In the fourth column fill in

"1" = level 1(A-B-C), "2" = level 2, "3" = level 3, "4" = Austr. Badge, "5" = FIBA.

YEARS OF REFEREEING: In columns 5 and 6 (e.g., six years: 0 and 6).

-THERE IS NO RIGHT OR WRONG ANSWER, so please be honest.

-Please do not write on the survey.

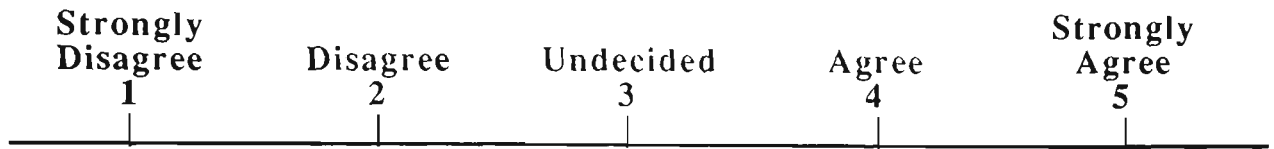
-Give only one answer to each statement.

-Do not spend too much time on any one statement. First thoughts are usually the best.

All answers will be confidential

PART 1

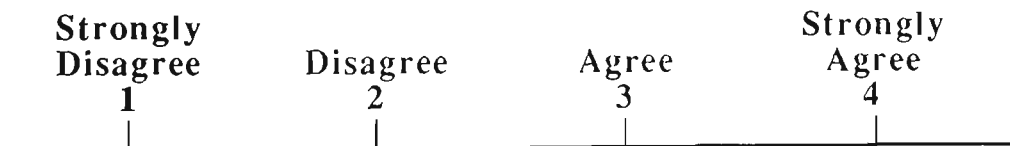
Please, tell us how much you agree or disagree with each statement below, using the following scale:



1. In situations when I'm not certain what is going to happen, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong with me, it will.
4. I always look on the bright side of things.
5. I am always cheerful, optimistic, or hopeful about my future.
6. I enjoy my friends a lot.
7. It's important for me to keep busy.
8. I hardly ever expect things to go my way.
9. Things never work out the way I want them to.
10. I don't get upset too easily.
11. I believe that "every cloud has a silver lining" (there's always something good that comes from bad or unpleasant experiences).
12. I rarely count on good things happening to me.

PART 2

ATTENTION: This time, for each question record the answer that best represents your agreement or disagreement with the statement on a scale from 1 to 4.



13. On the whole, I am satisfied with myself.
14. At times I think I am no good at all.
15. I feel that I have a number of good qualities.
16. I am able to do things as well as most other people.
17. I feel I do not have much to be proud of.
18. I certainly feel useless at times.
19. I feel that I am a person of worth, at least on an equal plane with others.
20. I wish I could have more respect for myself.
21. All in all, I am inclined to feel that I am a failure.
22. I take a positive attitude toward myself.

PART 3

Sources of Stress During Officiating

How stressful are the following situations to you?
Please, rate them on a scale from **1 (not stressful)** to **5 (very stressful)**.

NOT STRESSFUL		MODERATELY STRESSFUL		VERY STRESSFUL
1	2	3	4	5

23. Making a mistake such as a wrong call or a block versus charge.
24. Experiencing aggressive reactions by coaches or players such as insults or threats of physical abuse.
25. Becoming aware of the presence of important others such as supervisors, media, parents, or friends.



PART 4

Responses to Sources of Stress

This part consists of questions about your reactions to three stressful events. We would like to know how well each of these comments describes your reactions. Imagine yourself immediately after experiencing the situation described. Fill in the number on the computer sheet that best describes the extent to which each comment is true for you.

Not at all true		Somewhat true		Very true
1	2	3	4	5

EVENT 1: After making a mistake such as a wrong call or a block vs. charge.

26. I feel that usually I can do something about it.
27. I tend to review my actions, thinking about whether I was right or wrong on the call.
28. I try to concentrate on what I have to do next.
29. I tend to think about my mistake and get distracted or upset.
30. I try to get on with the game as quickly as possible.
31. I make an effort to relax and calm down.
32. I try not to think about my mistake.
33. I tend to explain my actions to the coach(es) or the player(s)
34. I think about quitting.

PART 5

For each of the following situations:

Fill in "1" = Yes, I would.

Fill in "2" = No, I would not.

SITUATION 1: Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do?

53. I would ask the dentist exactly what s/he was going to do.
54. I would take a tranquilliser or have a drink before going.
55. I would try to think about pleasant memories.
56. I would want the dentist to tell me when I would feel pain.
57. I would try to sleep.
58. I would watch all the dentist's movements and listen for the sound of his/her drill.
59. I would watch the flow of water from my mouth to see if it contained blood.
60. I would do mental puzzles in my mind.

(1 = yes 2 = no)

SITUATION 2: Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well.

61. I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.
62. I would make small talk with the passengers beside me.
63. I would watch the end of the movie, even if I had seen it before.
64. I would call for the stewardess and ask her exactly what the problem was.
65. I would order a drink or tranquilliser from the stewardess.
66. I would listen carefully to the engines for unusual noises and would watch the crew to see if their behaviour was out of the ordinary.
67. I would talk to the passenger beside me about what might be wrong.
68. I would settle down and read a book or magazine or write a letter.

(1 = yes 2 = no)

SITUATION 3: Vividly imagine that, due to a large drop in sales, it is rumoured that several people in your department at work will be laid off. Your supervisor has turned an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days.

69. I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.
70. I would review the list of duties for my present job and try to figure out if I had fulfilled them all.
71. I would go to the movies to take my mind of things.
72. I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered his/her opinion of me.
73. I would push all thoughts of being laid off out of my mind.
74. I would tell my spouse that I'd rather not discuss my chances of being laid off.
75. I would try to think which employees in my department the supervisor might have thought had done the worst job.
76. I would continue doing my work as if nothing special was happening.

(1 = yes 2 = no)

SITUATION 4: Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do?

77. I would sit by myself and have as many fantasies and daydreams as I could.
78. I would stay alert and try to keep myself from falling asleep.
79. I would exchange life stories with the other hostages.
80. If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.
81. I would watch every movement of my captors and keep an eye on their weapons.
82. I would try to sleep as much as possible.
83. I would think about how nice it's going to be when I get home.
84. I would make sure I knew where every possible exit was.

THIS COMPLETES THE SURVEY

Please make sure that all items have been answered

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

APPENDIX E

Coping Style Inventory for Basketball Officials (CSI) Greek Version

6 pages blank
because the greek csi is not on disk.

will have to use photocopies

APPENDIX F

Sample Answer Sheet for the Coping Style Inventory for Basketball Officials (CSI)

insert photocopy

APPENDIX G

Norms for the Miller Behavioral Style Scale (MBSS)

insert photocopies

APPENDIX H

Coping Style Inventory for Basketball Athletes (CSIA)



SURVEY FOR BASKETBALL PLAYERS

Sponsored by the University of Wollongong, Dept. of Human Movement
with the cooperation of the
Australian Basketball Federation Incorporated

This is a survey to find out how you feel about certain things and how you respond to certain stressful events. First we need some information about you.

WE DO NOT NEED YOUR NAME

SCORING INSTRUCTIONS:

FILL THE CIRCLES: On the answer sheet provided make a heavy black mark that fills the circle completely. You can only use **pencil** (any type). If you wish to change your answer, make an 'X' over the old answer and fill in your new answer. We will erase it for you.

AGE. SEX. LEVEL. EXPERIENCE

Please, complete the following information at the **bottom left** of the computer sheet in the area named "Student Identification Number." Do not write your name or ID down.

AGE: In columns 1 and 2 write your age as of October 1st, 1991.

SEX: In the third column, "1" = Female and "2" = Male

LEVEL of Competition: In the fourth column fill in

"1" = National level, "2" = State level, "3" = Championship, "4" = Grades A, B, C.

YEARS of playing in competition: In columns 5 and 6.

-THERE IS NO RIGHT OR WRONG ANSWER, so please be honest.

-Please do not write on the survey.

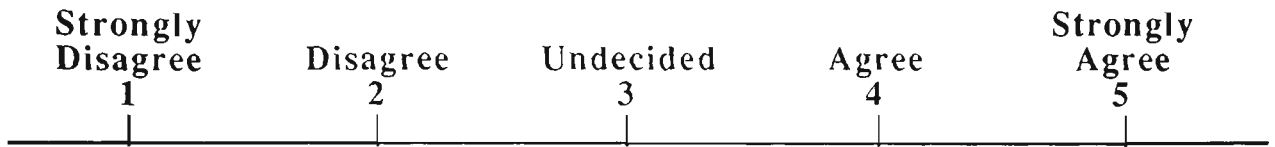
-Give only one answer to each statement.

-Do not spent too much time on any one statement. First thoughts are usually the best.

All answers will be confidential

PART 1

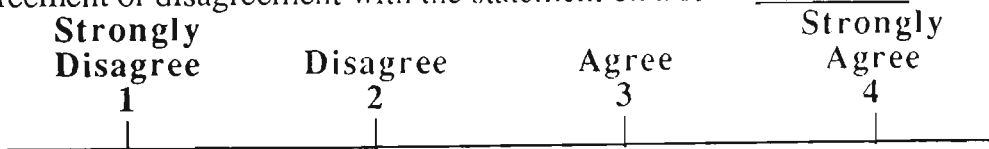
Please, tell us how much you agree or disagree with each statement below, using the following scale:



1. In situations when I'm not certain what is going to happen, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong with me, it will.
4. I always look on the bright side of things.
5. I am always cheerful, optimistic, or hopeful about my future.
6. I enjoy my friends a lot.
7. It's important for me to keep busy.
8. I hardly ever expect things to go my way.
9. Things never work out the way I want them to.
10. I don't get upset too easily.
11. I believe that "every cloud has a silver lining" (there's always something good that comes from bad or unpleasant experiences).
12. I rarely count on good things happening to me.

PART 2

ATTENTION: This time, for each question record the answer that best represents your agreement or disagreement with the statement on a scale from 1 to 4.



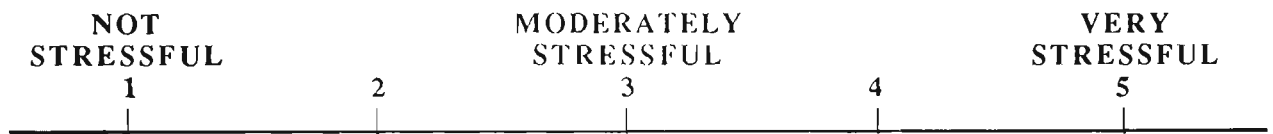
13. On the whole, I am satisfied with myself.
14. At times I think I am no good at all.
15. I feel that I have a number of good qualities.
16. I am able to do things as well as most other people.
17. I feel I do not have much to be proud of.
18. I certainly feel useless at times.
19. I feel that I am a person of worth, at least on an equal plane with others.
20. I wish I could have more respect for myself.
21. All in all, I am inclined to feel that I am a failure.
22. I take a positive attitude toward myself.

PART 3

Sources of Stress During Competition

How stressful are the following situations to you?

Please, rate them on a scale from **1** (not stressful) to **5** (very stressful).



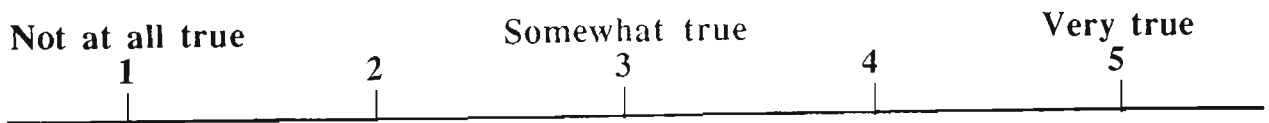
23. Having the ball stolen.
24. Receiving a "bad" call or penalty from the referee.
25. Missing a lay-up and/or an "easy" jump-shot.
26. My team is losing and the opposition is holding up play by keeping the ball away from us.



PART 4

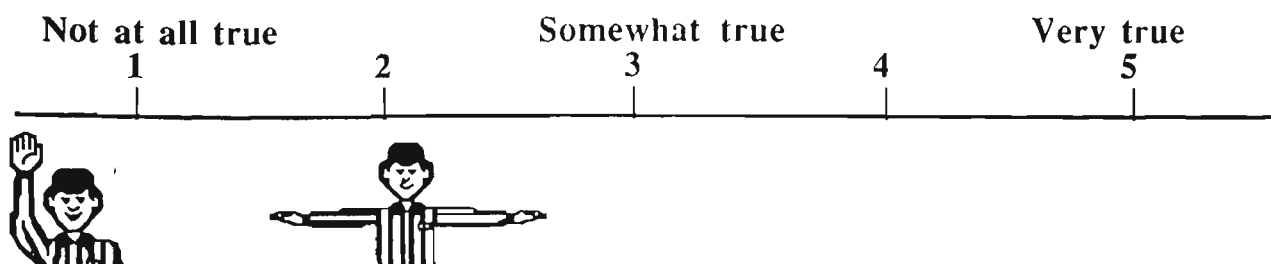
Responses to sources of stress

This part consists of questions about your reactions to four stressful events you experienced. We would like to know how well each of these comments describes your reactions. Please fill in the number on the computer sheet that best describes the extent to which each comment is true for you.



EVENT 1: After having the ball stolen.

27. I feel that typically I can do something about it.
28. I tried to keep it out of my mind.
29. I tried to understand exactly what happened.
30. I tried not to think about it.
31. I tried to think about what I should do next.
32. I tried to accept it as part of the game.
33. I kept thinking about it even though it upset me.



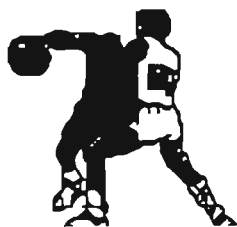
EVENT 2: After receiving a "bad" call or penalty from the referee.

- 34. I feel that typically I can do something about it.
- 35. I tried to keep it out of my mind.
- 36. I tried to understand exactly what happened.
- 37. I tried not to think about it.
- 38. I tried to think about what I should do next.
- 39. I tried to accept it as part of the game.
- 40. I kept thinking about it even though it upset me.



EVENT 3: After missing a lay-up and/or an "easy" jump-shot.

- 41. I feel that typically I can do something about it.
- 42. I tried to keep it out of my mind.
- 43. I tried to understand exactly what happened.
- 44. I tried not to think about it.
- 45. I tried to think about what I should do next.
- 46. I tried to accept it as part of the game.
- 47. I kept thinking about it even though it upset me.



EVENT 4: My team is losing and the opposition is holding up play by keeping the ball away from us.

- 48. I feel that typically I can do something about it.
- 49. I tried to keep it out of my mind.
- 50. I tried to understand exactly what happened.
- 51. I tried not to think about it.
- 52. I tried to think about what I should do next.
- 53. I tried to accept it as part of the game.
- 54. I kept thinking about it even though it upset me.

PART 5

For each of the following situations

Fill in "1" = Yes, I would.

Fill in "2" = No, I would not.

SITUATION 1: Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do?

55. I would ask the dentist exactly what s/he was going to do.
56. I would take a tranquillizer or have a drink before going.
57. I would try to think about pleasant memories.
58. I would want the dentist to tell me when I would feel pain.
59. I would try to sleep.
60. I would watch all the dentist's movements and listen for the sound of his/her drill.
61. I would watch the flow of water from my mouth to see if it contained blood.
62. I would do mental puzzles in my mind.

(1 = yes 2 = no)

SITUATION 2: Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well.

63. I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.
64. I would make small talk with the passengers beside me.
65. I would watch the end of the movie, even if I had seen it before.
66. I would call for the stewardess and ask her exactly what the problem was.
67. I would order a drink or tranquillizer from the stewardess.
68. I would listen carefully to the engines for unusual noises and would watch the crew to see if their behaviour was out of the ordinary.
69. I would talk to the passenger beside me about what might be wrong.
70. I would settle down and read a book or magazine or write a letter.

(1 = yes 2 = no)

SITUATION 3: Vividly imagine that, due to a large drop in sales, it is rumoured that several people in your department at work will be laid off. Your supervisor has turned an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days.

71. I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.
72. I would review the list of duties for my present job and try to figure out if I had fulfilled them all.
73. I would go to the movies to take my mind of things.
74. I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered his/her opinion of me.
75. I would push all thoughts of being laid off out of my mind.
76. I would tell my spouse that I'd rather not discuss my chances of being laid off.
77. I would try to think which employees in my department the supervisor might have thought had done the worst job.
78. I would continue doing my work as if nothing special was happening.

(1 = yes 2 = no)

SITUATION 4: Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do?

79. I would sit by myself and have as many fantasies and daydreams as I could.
80. I would stay alert and try to keep myself from falling asleep.
81. I would exchange life stories with the other hostages.
82. If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.
83. I would watch every movement of my captors and keep an eye on their weapons.
84. I would try to sleep as much as possible.
85. I would think about how nice it's going to be when I get home.
86. I would make sure I knew where every possible exit was.

THIS COMPLETES THE SURVEY

Please make sure that all items have been answered

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

APPENDIX I

Factor Analysis of the Coping Style Inventory for Athletes (CSIA)

<u>Factor I Loadings</u>		<u>Factor II Loadings</u>	
<u>Items</u>	<u>(Avoidance)</u>	<u>Items</u>	<u>(Approach)</u>
Q28.	.50	Q29.	.49
Q30.	.48	Q31.	.56
Q32.	.47	Q36.	.41
Q33.*	-.57	Q38.	.63
Q35.	.64	Q43.	.56
Q37.	.54	Q45.	.75
Q39.	.58	Q50.	.50
Q40.*	-.57	Q52.	.55
Q42.	.66		
Q44.	.67		
Q46.	.44		
Q47.*	-.57		
Q49.	-		
Q51.	-		
Q53.	-		
Q54.*	-.35		

Percent Variance Accounted for: 29.4% (total)

Note. Items marked " * " were not included in data analysis to reduce the number of avoidance items and because their inclusion would reduce the internal consistency of the scale.

APPENDIX J

Hierarchical Regression Analysis Predicting Approach Coping for Australian Basketball Players (All Situations)

Predictor	Event 1		Event 2		Event 3		Event 4	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Personal Dispositions								
Blunting	.01	.00	-.02	-.01	-.03	-.02	.10	.10
Monitoring	.11	.08	.17*	.19**	.14*	.13	.12	.13
Self-esteem	-.14	-.15	-.16	-.13	-.03	-.01	-.05	-.06
Optimism	.18*	.20*	.12	.12	.19*	.21*	.23**	.23**
Situational Appraisals								
Perceived control		.20**		.28***		.25***		.23**
Perceived stress		.18**		.01		.10		-.04
R	.19	.33	.21	.35	.24	.36	.25	.34
R²	.03	.11**	.05	.12***	.06*	.13***	.06*	.12**
R² increment after step 2		.08†††		.08†††		.08†††		.05††
% of explained variance	27.27	72.73	41.67	58.33	46.15	53.85	50.00	50.00

Note. All entries are standardised regression (β) coefficients.

Maximum $n = 164$; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

APPENDIX K

Hierarchical Regression Analysis Predicting Avoidance Coping for Australian Basketball Players (All Situations)

Predictor	Event 1		Event 2		Event 3		Event 4	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Personal Dispositions								
Blunting	.12	.12	.12	.12	.09	.08	.11	.15*
Monitoring	.02	.05	.05	.06	.06	.07	.01	.04
Self-esteem	.08	.08	-.01	-.05	.06	.03	-.08	-.06
Optimism	-.04	-.06	.21*	.16	.13	.12	.14	.15
Situational Appraisals								
Perceived control		-.14		-.12		-.17*		-.25***
Perceived stress		-.17*		-.30***		-.12		-.19**
R	.13	.26	.24	.40	.20	.28	.16	.35
R²	.02	.07**	.06	.16***	.04	.08*	.03	.12***
R² increment after step 2		.05††		.11†††		.04†		.10†††
% of explained variance	22.22	77.78	27.27	72.73	50.00	50.00	25.00	75.00

Note. All entries are standardised regression (β) coefficients.

Maximum $n = 164$; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

† $p < .05$. †† $p < .01$. ††† $p < .001$ (significant increment in R^2).

APPENDIX L

**Hierarchical Regression Analysis Predicting Approach Coping for Male
and Female Australian Basketball Players In Situation 3
("Missing a Lay-Up and/or an 'Easy' Jump-Shot")**

Predictor	Male		Female	
	Step 1	Step 2	Step 1	Step 2
Personal Dispositions				
Blunting	-.04	-.04	.02	.05
Monitoring	.08	.07	.25*	.24*
Self-esteem	-.03	-.04	-.17	-.11
Optimism	.15	.17	.28*	.28*
Situational Appraisals				
Perceived control		.21		.28**
Perceived stress		.13		.01
R	.16	.29	.32	.43
R^2	.03	.08	.10*	.18**
R^2 increment after step 2		.06		.08 [†]
% of explained variance	37.50	62.50	55.55	44.44

Note. All entries are standardised regression (β) coefficients.

Male $n = 74$, Female $n = 86$; n s varied slightly because of missing data.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed test).

[†] $p < .05$. ^{††} $p < .01$. ^{†††} $p < .001$ (significant increment in R^2).