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The Effects of Affective Arousal on Intentions to Engage in Sexual-Risk Behavior: An Experimental Study

Alan Z. Sheinfil
Syracuse University

Abstract

Despite decades of research on correlates of condom use, and numerous intervention development studies, condom use behavior remains inconsistent among adolescents and emerging adults as the incidence and prevalence of sexually transmitted infections continues to rise. One factor that may play a role in risky sexual decision-making is state affect, however, research investigating this relationship is equivocal. Therefore, the goal of this study was to examine the effects of experimentally induced affective arousal and affective valence on intentions to engage in condomless sexual activity in a sample of emerging adults. Based on the dual systems model of youth decision-making, it was hypothesized that participants randomized to the high affective arousal conditions would report greater intentions to engage in condomless sexual activity than participants randomized to the low affective arousal conditions. In addition, it was hypothesized that there would be no differences in intentions to engage in condomless sexual activity between participants randomized to the positive or negative valence conditions. Participants included heterosexual-sexually active emerging adults who reported not being in a monogamous romantic relationship ($N = 136$). Results did not support the hypothesis predicting a main effect of affective arousal, however, the hypothesis predicting no main effect of affective valence was supported. This study provides the first experimental data about the relationship between affective arousal and affective valence on risky sexual decision-making. Findings suggest that stable individual-difference factors may be more strongly associated with sexual risk behavior than situational and contextual factors.

Keywords: affect, sexual risk behavior, emerging adult, condom use

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An Experimental Study

by

Alan Z Sheinfil

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Although adolescents and emerging adults make up just over 25% of the sexually active population, they account for approximately half of the 20 million new annual sexually transmitted infections (STIs), including 57% of Gonorrhea, 67% of Chlamydia, and 22% of HIV cases in the United States (Centers for Disease Control [CDC], 2015). According to the World Health Organization (WHO), condoms are the single most effective method of reducing all STIs (WHO, 2009) and have been identified as the most accessible and inexpensive STI prevention strategy (Satterwhite et al., 2013). Despite decades of research on correlates of condom use, and numerous intervention development studies (for reviews see DiClemente, Salazar, & Crosby, 2007; Pedlow & Carey, 2003), condom use remains inconsistent among adolescents and emerging adults and prevalence of STIs has increased in recent years (CDC, 2015; Kiene & Barta, 2006; Kiene, Barta, Zelenski, & Cothran, 2005). Accounts of adolescent and emerging adult past-month condom use indicate that only 67% of males and 49% of females report always using a condom, and 23% of males and 39% of females report never using condoms (Martinez, Copen, & Abma, 2011). Compared to all other age groups, adolescents and emerging adults engage in the highest rates of multiple types of risk-taking behaviors including: illicit drug use, alcohol abuse, reckless driving, and unprotected sexual activity (CDC, 2015; Delany-Moretlwe, et al., 2015; Smith, Chein, & Steinberg, 2013; Steinberg, 2008). Although middle adolescents (ages 14-17) have the highest propensity for risk-taking, late adolescents (ages 18-21) engage in the highest levels of risk-taking behaviors (Defoe et al., 2015; Shulman et al., 2016) and represent the group at highest risk for STIs. These trends indicate that there are still critical gaps

in our understanding of sexual risk behavior (SRB) among this high-risk group. One such gap, as will be argued, is the role of affect in adolescent and emerging adult sexual decision-making.

Adolescence (ages 13-17) and emerging adulthood (ages 18-25) are recognized as distinct stages of human development, marked by age-specific cognitive and affective changes that are relevant to risk-taking behavior (Arnett, 2000). Affect is a broad term that has been used interchangeably with other feeling experiences, such as emotion and mood, and can be measured as either a state or trait variable (Watson, Clark, & Tellegen, 1988). As a trait variable, affect is a temporally stable construct that can be defined as how a person feels in general or over time (Larsen & Diener, 1987). As a state variable, affect is defined as the momentary feelings a person experiences at a specific point in time, fluctuating regularly (e.g., hour to hour, moment to moment; Watson, 1988). State affect is typically measured on two independent spectrums: valence and arousal (Figure 1). Valence is the evaluation of the feeling, ranging from positive to negative, or pleasure to displeasure (Russell, 1980). Arousal is the level of activation of the affective state, ranging from low to high (Russell, 1980).

Research has identified state affect as a correlate of decision-making—increasing the tendency to make impulsive decisions and decreasing the ability to make rational decisions (Isen & Patrick, 1983; Leith & Baumeister, 1996). Adolescents and emerging adults experience affective states that are more intense, more variable, and less predictable than adults (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Charles, Reynolds, & Gatz, 2001; Diener, Sandvik, & Larsen, 1985; Larson & Lampman-Petraitis, 1989), presenting a greater opportunity for affectively-driven, impulsive sexual decision-making. Indeed, research has shown that both positive and negative affective states are associated with increased SRB among adolescents and emerging adults (Shrier, Shih, & Beardslee, 2005), although, the findings from global

association, event-level, and experimental studies on the topic have been mixed. The lack of a unifying theoretical model to guide this area of research is one potential reason for the discrepancies found in the literature. The circumplex model of affect (Yik, Russell, & Steiger, 2011) was developed as a way to integrate prominent theories of affect, and will be introduced next, followed by a proposal for using this model as a guide for the present study on the relationship between affect and SRB in emerging adults.

12-Point Affect Circumplex

The emotion literature contains multiple conceptualizations of affect and its underlying structure including: positive and negative affect (PA & NA; Watson & Tellegen, 1985), tense and energetic arousal (Thayer, 1989), eight combinations of pleasantness and activation (Larsen and Diener, 1992), and Russell's (1980) circumplex (Yik, Russell, & Barrett, 1999). In an attempt to provide a single-unifying dimensional taxonomy of affect, Yik et al. (1999; 2011) proposed an integration of these models (Figure 2) and, with a series of validation studies, demonstrated that affect is best understood as having a circumplex structure. The key assertions of the 12-Point Affect Circumplex (12-PAC) model are: (1) two orthogonal factors, valence (horizontal axis) and arousal (vertical axis), serve as the basis of the dimensional structure, (2) the similarity between two affective states is a function of their distance from each other on the perimeter of a circle, and (3) the circular space is divided into 12 segments approximately 30° apart, representing similar but slightly different facets of affect (Figure 3). According to the 12-PAC, affect that is low-arousal and negative-valence is characterized by discrete feelings such as sad, down, or blue, and affect that is high-arousal and negative-valence is characterized by discrete feelings such as anxious, nervous, or fearful (Schaefer, Nils, Sanchez, & Philippot, 2010; Yik, Russell, & Steiger, 2011). A major strength of the 12-PAC is its ability to provide a

more nuanced account of the combined experience of affective arousal *and* valence compared to other popular instruments (e.g., Positive Affect Negative Affect Schedule [PANAS]; Watson et al., 1988) that aggregate affect into an overall PA or NA score. Affect has been overlooked as a central component of theoretical conceptualizations of sexual risk-taking – which partially explains inconsistencies in the literature on affect and SRB.

Theoretical Basis for the Influence of Affective States on SRB

Several theoretical models have been designed to explain and predict SRB, with the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the Information-Motivation-Behavioral Skills (IMB) model (Figures 4-6) the most widely applied among them (Fisher & Fisher, 2000). Although these models have considerable empirical support for explaining, predicting, and understanding SRB among adults, they are less successful at predicting condom use among youth (Pedlow & Carey, 2003). For example, in a meta-analysis of 96 studies, the TRA did not demonstrate good fit for explaining condom use in adolescent samples (*SRMR* = .12), however, did demonstrate marginal fit in adult samples (*SRMR* = .06; Albarracín, Johnson, Fishbein, & Muellerleile, 2001). Further, in a longitudinal study of 650 adolescents and emerging adults (ages 15-24), condom use intentions and perceived control (core components of the TPB) only accounted for approximately 10% of the variance in reported condom use behavior (Reinecke, Schmidt, & Ajzen, 1996).

One potential explanation for the limited success of these theories when applied to youth is the assumption that during highly emotionally charged situations, such as sexual encounters, adolescents and emerging adults are capable of making rational decisions regarding condom use (Reinecke et al., 1996). Research has shown that contextual factors may override the rational decision-making process, especially in youth, who may be more vulnerable to emotion-based

decision making. Failing to account for contextual variables present during sexual events assumes that individuals uniformly act as rational operators, ignoring the role that affect may play in the sexual decision-making process (McKirnan, Ostrow, & Hope, 1996).

Dual Systems Models of Decision-Making & Sexual Arousal

The dual systems model of decision-making was originally proposed to explain the high prevalence of general risk-taking among adolescents. The model theorizes that there are two distinct neurobiological systems that are involved in decision-making processes (Figure 7; Shulman et al., 2016; Steinberg, 2008): (1) the socioemotional system, which is "automatic" and relies on environmental cues, such as affective states, in order to make decisions (Figner, Mackinlay, Wilkening, & Weber, 2009) and (2) the cognitive control system, which is "slower" and uses deliberate, effortful processes to exert self-control (Shulman et al., 2016; Steinberg, 2008). The dual systems model thus recognizes that humans act as both rational operators and emotional beings, the balance of which depends on developmental stage. There is evidence that the socioemotional system develops earlier than the cognitive control system, which means youth are disproportionately influenced by affective states when engaged in decision-making processes (Shulman et al., 2016). The imbalance in the development of these two systems has thus been proposed as a reason for the comparatively high levels of risk-taking observed among adolescents and emerging adults (Shulman et al., 2016). The model also suggests that it is affective arousal, rather than affective valence, that activates the socioemotional system and diminishes the regulatory abilities of the cognitive control system. Emerging adults are thus more likely to be influenced by the socioemotional system during situations that elicit affective arousal, such as sexual encounters. This process is exacerbated if an individual is already experiencing a high arousal affective state immediately prior to or during the sexual encounter,

further activating the socioemotional system, and overriding the role of the cognitive control system in the sexual decision-making process, leading to an increased likelihood of SRB.

The focus of the dual systems model on the role of affective arousal in risk-taking and decision-making is congruent with theoretical conceptualizations of sexual arousal and general sexual functioning. Janssen's work conceptualizes sexual arousal as a discrete emotional state that relies on both excitatory and inhibitory processes (Bancroft & Janssen, 2000; Janssen, 2011; Janssen & Bancroft, 2007) which can be experienced simultaneously with both positive and negative affective valence (Maisto & Simons, 2016; Janssen, 2011). Both models assert that two cognitive processes contribute to behavior, one that is automatic and one that is controlled or effortful. Further, Janssen's characterization of sexual arousal as an affective state that can impact sexual functioning is congruent with claims made by the dual systems model that arousing affective states influence SRB by activating the "automatic" socioemotional system. Using the aforementioned theories as a guide, a review of the literature on affect and SRB will be provided next, followed by a summary of the current study, and theory-driven hypotheses.

Empirical Evidence for the Association between Affective States and SRB

Research on the association between affect and SRB is dominated by global association studies that correlate a person's *average* levels of affect over a period of time, or *current* affect, with their recent SRB. Global association studies cannot assess a person's affective state at the time of a sexual event however, and are thus unable to establish if affect precedes or co-occurs with SRB. Event-level and experimental designs, summarized next, can better establish temporal ordering and causal effects, providing a more precise assessment of the relationship between affect and sexual behavior.

Summary and Critique of Event-Level Findings

The two sub-types of event-level study designs used in this literature are *critical incident* and *multiple event* (Weinhardt & Carey, 2007). *Critical incident assessments* consist of participants recalling their affective state prior to their most recent one to three sexual encounters, and *multiple event assessments* consist of participants reporting their affective state prior to >3 of their recent sexual encounters. Within multiple event study designs, a number of data-collection methodologies have been used: *daily diaries* (used to capture sexual events and accompanying affective states at a predetermined time, every 24 hours), *interactive voice response technology* (IVR; a telephone-based daily diary) assessments, and *ecological momentary assessment* (EMA; handheld computers or smartphones are used to complete multiple questionnaires at random points throughout the day). Six event-level studies (1 critical-incident, 5 multiple events [3 daily diaries, 1 IVR, and 1 EMA]) have examined the relationship between affective states and SRB in men who have sex with men (MSM), adolescents, and emerging adults. Due to the limited number of studies that have examined this relationship, all studies were reviewed, even those that did not conduct studies with samples of emerging adults exclusively. Descriptive information of the reviewed studies can be found in Table 1.

Findings from event-level research on the relationship between affective states and SRB are inconclusive. Three studies found no significant association between NA states and SRB (Blood & Shrier, 2013; Houck et al., 2014; Mustanski, 2007) two studies found NA to be associated with significantly less SRB (Sarno, Mohr, & Rosenberger, 2016; Schroder, Johnson, & Wiebe, 2009), and one study found lower levels of NA to be associated with significantly more condom use (Hensel, Fortenberry, & Ohr, 2010). The findings for PA were also mixed: two studies found no significant association between PA states and SRB (Blood & Shrier, 2013; Houck et al., 2014), two studies found PA to be associated with a significant increased risk of

SRB (Sarno et al., 2016; Schroder et al., 2009), one study found PA to be associated with significantly less SRB (Mustanski, 2007), and one study found lower levels of PA to be associated with significantly more condom use (Hensel et al., 2010). Aggregated measurement of affective states and absence of an affective arousal measurement may have contributed to the equivocal findings.

Most of the event-level studies used some form of the PANAS to measure affective states. While the PANAS is the most widely-used measure of affect (positive and negative) its scoring does not differentiate between levels of affective arousal (Watson et al., 1988). This is problematic because the measurement of negative affective states aggregated across levels of affective arousal does not capture the differential influence these states can have on SRB. None of the event-level studies in this literature have accounted for affective arousal, and instead, summarized affective states with a single score across items on each dimension of the PANAS. Incorporating accurate measurement of affective arousal may be a crucial component of risky sexual decision-making that can clarify the mixed findings of event-level research studies.

Laboratory-Based Experimental Studies

Four out of the six event-level studies used daily assessments to examine affect and SRB (Hensel et al., 2010; Mustanski, 2007; Sarno et al., 2016; Schroder et al., 2009). As discussed previously, affect fluctuates frequently—often moment to moment—throughout the course of the day (Larson, Moneta, Richards, & Wilson, 2002; Weinstein, Mermelstein, Hankin, Hedeker, & Flay, 2007; Yik et al., 2011) a phenomenon that is more pronounced among adolescents and emerging adults (Carstensen et al., 2000; Diener et al., 1985; Larson, & Lampman-Petraitis, 1989). Affective states are also significantly impacted by daily life events (Thomas & Diener, 1990), such that engaging in SRB in and of itself likely influences a person's recollection of their

affective state prior to the encounter. Experimental studies can address some of these limitations by inducing and directly observing affect in a laboratory setting, permitting causal inferences about the effect of acute affective states on risky sexual decision-making (Hendershot & George, 2007). These experiments typically use a standardized affect induction procedure (AIP; e.g., Velten technique, image/video stimuli presentation; Lang, Bradley, & Cuthbert, 1999; Schaefer et al., 2010; Velten, 1968; Westermann, Spies, Stahl, & Hesse, 1996) and then assess sexual decision-making via simulated or hypothetical scenarios (e.g., interactive videos or experimental written vignettes) and theoretical proxies of SRBs (e.g., condom use intentions, likelihood of condom use, difficulty using condoms; Maisto & Simons, 2016.) To my knowledge, only three laboratory-based experiments have been conducted in which affective states have been experimentally induced followed by the measurement of risky sexual decision-making (Armitage, Connor, & Norman, 1999; Haase & Silbereisen, 2011; MacDonald & Martineau, 2002), and of these three studies, only one directly tested the effects of affect on SRB (MacDonald & Martineau, 2002).

MacDonald & Martineau (2002) designed an experimental study to test the hypothesis that affect moderates the relationship between self-esteem and risky sexual decision-making. A sample of 67 female emerging adult undergraduates (ages 18-25), categorized as having either high or low self-esteem, were randomly assigned to a negative or positive Velten AIP (i.e., participants read positive or negative self-referential statements aloud such as “I have a lot of good things in my life”; MacDonald & Martineau, 2002; Velten, 1968; Westermann, Spies, Stahl, & Hesse, 1996). Participants subsequently completed a 12-item affect induction manipulation check measure (α = .98) and then viewed an interactive video in which two undergraduates return to the female’s apartment after a party. When faced with the decision of

whether to engage in sexual intercourse, the video explains that there is no condom available, and concludes with the characters attempting to solve the dilemma (MacDonald, Fong, Zana, & Martineau, 2000; MacDonald & Martineau, 2002). Participants then reported their intentions to engage in unprotected sex on a 9-point Likert-type scale ("If I were in this situation, I would engage in sexual intercourse with Mike." [not likely-very likely]). Results of the affect induction manipulation check indicated that the AIP was successful in inducing the intended positive valence vs. negative valence affective state. Additionally, results revealed a significant interaction between affect and self-esteem (F (1, 63) = 4.54, $p < .05$), such that in the negative valence condition, women with low self-esteem were significantly more likely to report intentions to engage in unprotected sex compared to women with high self-esteem (t (63) = 2.50, $p < .05$). Furthermore, among all women who were low in self-esteem, those assigned to the negative valence condition reported significantly greater intentions to engage in unprotected sex compared to women with low self-esteem who were assigned to the positive valence condition (t (63) = 2.98, $p <.05$; MacDonald & Martineau, 2002).

The results of this laboratory-based study should be interpreted in light of its limitations. First, the Velten AIP used in this study is not the most effective method for inducing affect (Westermann et al., 1996). While the authors reported the results of an affect induction manipulation check, there was no mention of the duration of the effects of their procedure, nor whether participants were experiencing the intended affective state while completing dependent variable ratings. Moreover, this study used an aggregated measurement of affective states as a manipulation check, with no assessment of affective arousal. Second, the sample was comprised entirely of female emerging adults—which leaves a gap in our understanding of how affect is associated with male sexual decision-making. In order to move the field forward, additional

experiments that are guided by relevant theoretical models, and account for, and use, sensitive measures of affective arousal are needed. The design of these experiments must also account for individual-difference and contextual factors, as will be reviewed next.

Individual-Difference and Contextual Factors relevant to Affective States and Risky Sexual Decision-Making

There are multiple individual-difference and/or situation-specific contextual factors that may influence the relationship between affective states and risky sexual decision-making. Gender, partner-type, and condom use self-efficacy have all been identified as significant correlates of condom use in the broader literature on sexual risk behavior. While the dual systems model does not make any predictions regarding differences in decision-making processes between males and females, sexual decision-making and condom use behavior is fundamentally different for men compared to women. National estimates suggest that approximately 1% of sexually active female youth have ever used a female condom, as compared to approximately 93.5% who have used a male condom (Martinez, Copen, & Abma, 2011). Therefore, the majority of condom use behavior is under the physical control of the male partner which places more emphasis on negotiation for women (Holland, Ramazanoglu, Scott, Sharpe, & Thomson, 1992; Maxwell & Boyle, 1995). Indeed, research has found males to engage in more condomless sex than females in general (Petersen & Hyde, 2011), and among emerging adults (Staton et al., 1999; Tapert, Aarons, Sedlar, & Brown, 2001). Sexual partner type is also an important contextual factor that has been found to influence condom use (Brown & Vanable, 2007; Gomez & Marin, 1996; Macaluso, Demand, Artz, & Hook III, 2000). In general, condoms are used less often in “long-term” relationships (Gomez & Marin, 1996), compared with “new” and/or “casual” partners (Macaluso, et al., 2000) due to less perceived risk

for STIs, the establishment of sexual routines, and cultural norms that promote condom use with "new" and "casual" sex partners (Macaluso et al., 2000). The effect of affective states on SRB may thus be weaker in serious, compared to casual partnerships, which is also consistent with literature on partner-type as a moderator of the association between alcohol use and SRB (Brown & Vanable, 2007). Similarly, condom use self-efficacy is an essential component of condom use behavior (Baele, Dusseldorp, & Maes, 2001) and has been strongly and significantly correlated with frequency of condom use. High levels of condom use self-efficacy have been linked to decreased likelihood of SRB among older adolescents and emerging adults (Chen et al., 2012). The effects of affective states on risky sexual decision-making may not be as pronounced in individuals that possess high levels of condom use self-efficacy—the belief in one's ability to effectively use condoms may overpower contextual factors that can inhibit condom use behavior.

Several personality traits and dispositional tendencies may also be relevant third variables in the association between affect and SRB such as: trait affect, emotion regulation ability, urgency, and sexual sensation seeking. For example: if an individual, on average, experiences greater levels of trait NA, the effects of state NA on behavior are likely to be weaker compared to a person who experiences lower levels of trait NA on average (Mustanski, 2007). Emotion regulation has been conceptualized as the effortful decrease of emotional arousal, and controlling emotional experience and expression (Gratz & Roemer, 2004). Individuals who possess a greater ability to reduce the arousal level of affective states may experience weaker influence of the socioemotional system in the decision-making process. Therefore, it is likely that for individuals who are high in emotion regulation, the effect of high-arousal affective states on risky sexual decision-making will be weaker. Urgency is defined as a personality trait that refers to an individual's propensity to engage in impulsive behavior while experiencing heightened affective

states (Cyders & Smith, 2008). Negative Urgency is conceptualized as the intersection between NA and impulsivity (Whiteside, Lynam, Miller, & Reynolds, 2005), and has been linked to unprotected sex (Simons, Maisto, & Wray, 2010). Conversely, Positive Urgency is conceptualized as the intersection between PA and impulsivity (Cyders et al., 2007). If one has a dispositional inclination to engage in impulsive behavior when experiencing an arousing affective state, there is an increased likelihood of engaging in SRB when experiencing a high-arousal state of affect and the effect of high-arousal affect on risky sexual decision-making will be stronger. Sexual sensation seeking is the tendency to pursue novel and exciting experiences with regards to sexual activity (Kalichman et al., 1994). This personality characteristic has been positively associated with unprotected sexual behavior among heterosexual adults, MSM, and college students (Gullette & Lyons, 2005; Kalichman et al., 1994; Kalichman & Rompa, 1995; McCoul & Haslam, 2001) and is especially relevant when exploring risky sexual decision-making. For those that have the propensity to seek out novel and pleasurable sexual experiences, that desire may outweigh the decision to use a condom, especially if condom use is viewed as a detriment to sexual satisfaction. Furthermore, if an individual is experiencing an affective state that activates the socioemotional system, which increases the desire for novel and exciting experiences, the interaction of those two factors will likely decrease the likelihood of condom use above and beyond that of each factor alone. Accounting for these potential third variables that may influence the relationship between state affect and intentions to engage in sexual risk behavior will allow for a sensitive test of the true nature of this relationship.

General Summary

The literature exploring the relationship between affect and sexual risk behavior is inconclusive in part due to the lack of a consistently applied theoretical model of affect, and its

role in sexual decision-making processes. The purpose of the present study was therefore to conduct a laboratory-based experiment to determine the effects of both affective arousal and affective valence on intentions to engage in condomless sexual activity among sexually active emerging adults. To address the identified gaps in the literature, the dual systems model and the 12-PAC were used to generate theory-driven hypotheses, guide variable selection, data analysis, and interpretation of study findings. Second, the study experimentally induced both affective arousal and affective valence by presenting video clips from validated databases that have been shown to be the most effective AIPs (Bednarski, 2012; Gabert-Quillen, Bartolini, Abravanel, & Sanislow, 2015; Li, Bailenson, Pines, Greenleaf, & Williams, 2017; Schaefer et al., 2010). Third, in integrating the 12-PAC model of affect with the dual systems model, this study was the first to test hypotheses about causal effects of *both* affective arousal and affective valence on intentions to engage in condomless sexual activity. The aims of the study were as follows:

Developmental aim: A series of pilot studies were conducted to develop the procedures for the laboratory-based induction of affective arousal and affective valence, and to develop the sexual vignettes that were used to measure intentions to engage in condomless sexual activity. The developmental phase was considered complete once manipulation checks confirmed that the AIP effectively induced both affective arousal and affective valence, and the sexual vignettes were rated as acceptably realistic and accurate.

Primary aim: A 2 (affective arousal) X 2 (affective valence) randomized-factorial design was used to examine the effects of experimentally induced affective arousal and affective valence on intentions to engage in condomless sexual activity among a sample of emerging adults. A total of $N = 136$ emerging adults (age range 18–25, 50% female) were randomly assigned to either high or low affective arousal and positive or negative affective valence,

creating four independent experimental conditions: (1) high-arousal negative-valence, (2) low-arousal negative-valence, (3) high-arousal positive-valence, and (4) low-arousal positive-valence. **It was hypothesized that** there would be a main effect of affective arousal on intentions to engage in condomless sexual activity, such that participants in the high-arousal conditions would report a greater likelihood of engaging in condomless sexual activity, compared to the low-arousal conditions. This hypothesis is based on the dual systems model which stipulates that the socioemotional system activates in states of high affective arousal, relies on current affective arousal states for decision-making, and increases the motivation for sensation seeking in the form of novel and exciting experiences. Additionally, it was expected that there would be no main effect of affective valence—that is, no differences in reports of intentions to engage in condomless sex between the low-arousal positive-valence condition and the low-arousal negative-valence condition, as well as no differences between the high-arousal positive-valence and high-arousal negative-valence conditions.

Exploratory aim 1: The study also explored the influence of gender and other individual-difference characteristics as potential covariates of the affective arousal and intentions to engage in condomless sex relationship. Baseline questionnaires administered before the AIP measured the following constructs: (a) Trait-Affect, (b) Sexual Sensation Seeking, (c) Emotion Regulation, (d) Condom Use Self-Efficacy, (e) Negative Urgency, (f) Positive Urgency, and (g) Subjective sexual-arousal.

Methods

Overview

A 2 (affective arousal) X 2 (affective valence) randomized-factorial design was used to examine the effects of experimentally induced affective arousal and affective valence on

intentions to engage in condomless sexual activity among a sample of emerging adults. Based on an *a priori* power analysis, a total of $N = 136$ emerging adults (age range 18–25, 50% female) were randomly assigned to either high or low affective arousal and positive or negative affective valence, creating four independent experimental conditions: (1) high-arousal negative-valence (HN), (2) low-arousal negative-valence (LN), (3) high-arousal positive-valence (HP), or (4) low-arousal positive-valence (LP). The experimental study was preceded by a series of pilot studies designed to develop the AIP and the sexual vignettes. Eligibility criteria for all phases of the study were as follows: between the ages of 18 and 25 (i.e., emerging adults), English-speaking, self-identified heterosexual, and sexually active in the previous year. Exclusion criteria were: currently in a monogamous relationship and inability to provide informed consent. An equal number of male and female participants were enrolled.

Materials

AIP. In choosing the AIP for this study, a meta-analysis that compared the differential effectiveness of multiple AIPs (Westermann et al., 1996) was consulted. Compared to all other laboratory AIPs, Westermann et al. (1996) concluded that the most effective method for inducing both positive and negative affective states is through the presentation of emotional video clips. Schaefer & colleagues (2010) compiled and validated a database of film clips with a sample of undergraduate emerging adults (M age = 19.6 years) that reliably induce affective valence and arousal. This was the primary database from which clips were selected for the present study. Clips that received the highest average ratings for both valence and arousal were chosen for each experimental condition. Notably, the majority of clips used for the induction of high-arousal, positive-affect throughout the affect induction literature contain sexually explicit content — presenting a confound for the present study. To address this concern, additional video clips were

incorporated into the AIPs at different junctures of pilot testing and were taken from databases that were validated more recently (Bednarski, 2012; Gabert-Quillen et al., 2015; Li, et al., 2017), and other research that has used video clips as an AIP (Puccinelli, Deshpande, & Isen, 2007). The selection of video clips from the other databases followed a similar line of logic in that clips with ratings that mapped on most closely to the target subscales of the 12-PAC were selected for use in the AIP. The final AIPs used in the primary experiment consisted of three to four clips per condition, and were matched for total duration ranging from 12 minutes – 15 minutes (see Appendix A).

Sexual Vignettes. Two experimental vignettes depicting hypothetical sexual scenarios were used to assess risky sexual decision-making (see Appendix B). The vignettes were adapted from a laboratory study in which the impact of sexual-arousal on sexual risk-taking and decision-making among emerging adults was examined (Skakoon-Sparling, Cramer, & Shuper 2016), as well as another experiment that examined intentions to engage in SRB (Woolf-King & Maisto, 2015). In order to provide the most sensitive test of the association between affect and SRB, and consistent with previous laboratory-based research on the effects of alcohol on risky sexual decision-making (George et al., 2009), the study only presented hypothetical sexual scenarios depicting a "casual" partner. Scenarios were presented in the second-person and portrayed a sexual encounter with a casual sex-partner in which a condom was explicitly depicted as unavailable. The sexual vignettes were randomly sequenced within-condition, and across gender to minimize order-effects.

Measures

Individual-Difference Measures.

Screening Measures. Participants provided their age, gender identity, if they were sexually active in the past year, sexual orientation, and monogamous relationship status as part of an electronic pre-screening questionnaire.

Sample Demographics. A demographic questionnaire was administered to collect information on participant age, race, ethnicity, and current education level.

Sexual History Questionnaire. The Sexual Behavior Questionnaire (SBQ; Maisto et al., 2002) was used to obtain self-reported number of lifetime sexual partners, sexual partners in the previous year, sexual partners in the last 3 months, past-year condom use, and past-3-month condom use (see Appendix C).

Trait-Affect. The "Describes Me" format of the 12-PAC was used to measure trait-level affect (Appendix D; Yik et al., 2011). The 12-PAC is a 60-item measure spanning 12 facets of affect that vary both in valence and arousal. As described in the introduction, the 12-PAC assumes affect has an underlying circumplex structure with 12 subscales representing each of the 12 facets of affect plotted at 30°, equally distanced from each other. Across four validation studies, the scale has demonstrated adequate to good internal consistency (α = .64 - .95). In order to assess trait affect, the items for this study were modified such that each of the adjectives were in reference to the participants' *general description* of themselves. For example: "Please use the following response options to indicate how well each phrase describes your feelings IN GENERAL, that is, ON AVERAGE." In the present study, this scale demonstrated high internal consistency (α = .90), and the distribution of scores did not indicate skewness (*z*-score = .96) or kurtosis (*z*-score = .90).

Given the circumplex structure of the 12-PAC, a structural summary approach (Wright, Pincus, Conroy, & Hilsenroth, 2009) was used to estimate circular summary statistics analogous

to linear summary statistics (e.g., mean, variance and confidence intervals). Due to the lack of beginning or end to the circular subscales, trigonometric mathematical techniques are used to calculate the following structural summary parameters: standardized affective arousal scores (*z*-scores for the vertical axis), standardized affective valence scores (*z*-scores for the horizontal axis), angular displacement (δ; i.e., *circular mean*), amplitude (*a*), elevation (*e*), and goodness-of-fit (R^2) to the cosine curve model (Ansell & Pincus, 2004; Wright et al., 2009).

Figure 8 illustrates how the cosine curve can be conceptualized as the circumplex "pulled apart" into a cosine wave (Ansell & Pincus, 2004). The structural summary parameters are then used to make comparisons between the observed cosine curve and the expected sinusoidal curve. The angular displacement (δ) reflects the circular mean (*M*) and peak of the cosine curve of the affect profile and is expressed as a point (in degrees) plotted on the circumference of the circle that best characterizes the affective state. For example, a 12-PAC profile that resulted in angular displacement $\delta = 60°$ is representative of a pleasantly activated affective state (i.e., high-arousal positive-valence [e.g., energetic, excited]). 95% CIs of the angular displacement are also calculated and are identical to their linear counterpart—indicating the precision of the estimated profile angular displacement. Amplitude (*a*) captures the cosine curve's average level to its peak level and is indicative of the degree to which the profile can be differentiated from other profiles. In the present study, high values of amplitude (i.e., a sinusoidal curve) are representative of a profile that is experiencing a discrete affective state, and a low value would represent one that is experiencing a mixed-state. Elevation (*e*) is the average response level across scales and indicates the intensity with which a profile is experiencing an affective state (higher values representing greater intensity of affect), or may be a function of response style. R^2 is a goodness-of-fit statistic in which the angular displacement (δ) is compared to the predicted pattern of 12-

PAC scores (in this case, based on estimated population profile norms obtained by Yik et al. (2011) in their validation studies). The R^2 indicates the extent to which the observed cosine wave fits with the expected-prototypical wave. Thus, affective state R^2 values $\geq$ .80 indicate that the profile can be accurately summarized by circular statistics, and values < .70 indicate those parameters are inadequate for summarization (Ansell & Pincus, 2004; Gurtman & Pincus, 2003; Wright et al., 2009). Trait-affect in the overall sample was best characterized as deactivated pleasure (δ = 349.59°, [95% CI = 355.35° - 337.60°], R^2 = .78, a = .58, e = .17)—demonstrating that the overall sample is best characterized as having low-arousal, positive-valence trait affect.

Sexual Sensation Seeking. The 11-item Sexual Sensation Seeking Scale (SSSS) assesses the inclination for diverse and new sexual experiences, and the willingness to take risks for the purpose of enhancing sexual sensations (Gaither & Sellbom, 2010; Kalichman et al., 1994; see Appendix E). Higher scores indicate a greater propensity to engage in novel sexual experiences. In the experimental study, the mean of the SSSS was 24.05 (*SD* = 5.29), the scale demonstrated adequate internal consistency (α = .76), and the distribution of scores did not indicate skewness (*z*-score = 2.77) or kurtosis (*z*-score = .71).

Emotion Regulation. The Difficulty in Emotion Regulation Scale-16 (DERS-16; Bjureberg et al., 2015) was used to measure individual-level deficits in emotion regulation (see Appendix F). Higher scores reflect greater difficulties in emotion regulation. In the experimental study, the mean of the DERS was 35.17 (*SD* = 13.44), the scale demonstrated high internal consistency (α = .93), and the distribution of scores did not indicate skewness (*z*-score = 3.03) or kurtosis (*z*-score = -.80).

Condom Use Self-Efficacy. The Condom Use Self-Efficacy Scale (CUSES; Brafford & Beck, 1991) is a 28-item scale that was developed to measure the ability to purchase, apply and

remove condoms, and negotiate condom use with partners. Higher scores are indicative of greater levels of condom-use self-efficacy. A shortened, 16-item version of this scale (MCUSES; Appendix G) has demonstrated excellent internal consistency (α = .89) in college undergraduate samples (Brown & Vanable, 2005; Woolf-King & Maisto, 2015) and was thus used in the present study. In the experimental study, the mean of the MCUSES was 49.79 (*SD* = 9.75), the scale demonstrated high internal consistency (α = .88), and the distribution of scores did not indicate skewness (*z*-score = -3.26) or kurtosis (*z*-score = 1.22).

Negative Urgency. The urgency subscale of the UPPS Impulsive Behavior Scale was used to assess one of five dimensions of impulsivity – negative urgency (Whiteside & Lynam, 2001; Appendix H). Higher scores indicate lower levels of negative urgency. In the experimental study, the mean was 23.99 (*SD* = 7.58), the scale demonstrated high internal consistency (α = .89), and the distribution of scores did not indicate skewness (*z*-score = 3.13) or kurtosis (*z*-score = -.33).

Positive Urgency. The 14-item Positive Urgency scale was used to measure the propensity to act rashly in response to positive affective states (Cyders et al., 2007; Appendix I). Higher scores indicate lower levels of positive urgency. In the experimental study, the mean was 45.7 (*SD* = 8.42), the scale demonstrated high internal consistency (α = .92), and the distribution of scores did not indicate kurtosis (*z*-score = 1.32) but did evidence a negative skew (*z*-score = -4.54). A square root transformation was applied and the distribution of scores no longer demonstrated a negative skew (*z*-score = .89). The transformed variable was used in subsequent analyses.

Dependent Measures.

Sexual Risk-Taking Intentions. After each sexual vignette, participants completed the intentions to engage in condomless sexual activity scale (CSA-intentions; George, et al., 2009, 2014). The scale consists of the following four items: "How likely are you to have sex in this scenario?", "How likely are you to perform oral sex on your partner?", "How likely are you to rub your genitals against your partner's genitals?", "How likely are you to have vaginal sex with your partner?" Response items were presented with anchors of 1 = Not at all likely, 3 = Neither likely nor unlikely, 5 = Extremely likely. The CSA-intentions scale has demonstrated adequate to high internal consistency in previous laboratory-based studies with community-based samples (α = .82 - .89). For this study, ratings of likelihood were made using a continuous visual analog scale (VAS) with the aforementioned anchors (see Appendix J). For data analysis, the pre-programmed REDCap VAS uses a 0 (corresponding to not at all likely) – 100 (corresponding to extremely likely) scale. The 0-100 scale was only visible when exporting the raw data. Consistent with previous research, the average across all four items was calculated for a likelihood of condomless sex score, with higher scores reflecting greater intentions to engage in condomless sexual activity.

In the present study, the mean of the CSA-intentions scale was 68.93 (*SD* = 24.2) for Vignette A, which corresponds approximately to "likely" (about halfway between "neither unlikely or likely" and "very likely") and 61.85 (*SD* = 25.01) for Vignette C, which corresponds approximately to "neither unlikely or likely." The means for the two vignettes were significantly different (t (135) = 4.463, $p < .001$) and thus separate analyses were conducted for each vignette. The scale demonstrated adequate internal consistency (α = .74, .79), and the distribution of scores for Vignette C did not indicate skewness (z-score = -2.04), however, the distribution of scores for Vignette A demonstrated significant negative skew (z-score = -3.48). Neither

distribution of scores indicated kurtosis (*z*-score = -.66, -1.26). A square root transformation of the Vignette A CSA-intentions scale was calculated and the distribution of scores no longer suggested a negative skew (*z*-score = -.41). The primary analyses were conducted with both the raw data and the square root transformed data, and results were the same. Therefore, the variable in its original state was used in all analyses in order to facilitate interpretation of the findings and maintain consistency between the two dependent variables.

Manipulation Checks.

State Affect. The "Adjective" format of the 12-PAC (Appendix D) was used to measure state affect and was administered three times throughout the experiment: immediately before the AIP (Time 1), immediately post-AIP (Time 2), and again after completion of the dependent variable ratings of the sexual risk-taking vignettes (Time 3). The state affect 12-PAC demonstrated adequate internal consistency at all three time points (α = .89, .86, .89, respectively) and the distribution of scores did not indicate skewness (*z*-score = 2.13, 1.45, 2.15, respectively) or kurtosis (*z*-score = 1.05, -.23, 1.24, respectively).

Perceived Realism. After completing the dependent variable measures for each of the sexual risk-taking vignettes, the item "How realistic do you think this scenario was?" was rated on a 4-point Likert-type scale (1 = Not realistic at all – 4 = Very realistic). Consistent with previous research using sexual vignettes in college student samples, vignettes with average scores of 3 or above were considered sufficiently realistic for use in the primary study (Woolf & Maisto, 2008).

Partner-Type. The perception of the type of sexual partner in each of the sexual risk-taking vignettes was measured with the item "How serious do you perceive the relationship to be?" and rated on a 4-point Likert-type scale (1 = Not serious at all – 4 = Very serious).

Consistent with previous research, average ratings of ≤ 2 were used to indicate that a casual partner was accurately depicted in the vignettes (Woolf & Maisto, 2008).

Subjective Sexual Arousal. In order to measure the extent to which reading the sexually explicit content in the vignettes inadvertently induced subjective sexual-arousal, a single-item was used to measure subjective-state sexual arousal ("sexually aroused") on a 5-point scale (1 = Not at all – 5 = Extremely) and was administered as part of the 12-PAC (Times 1, 2, 3). This item was included to capture the potential confounding effects of state sexual arousal, a well-established determinant of SRB (Simons & Maisto, 2016).

Procedures

Recruitment. Participants were recruited from introductory psychology courses through the use of SONA, a research study participant pool. Prior to registering for a study session appointment, participants completed the pre-screening questionnaire to determine eligibility.

Experiment. All sessions took place in a private room in Dr. Woolf-King's laboratory space. Upon arrival at the laboratory, eligibility criteria were confirmed and informed consent was administered. Participants were then randomized into one of the four experimental conditions (blocked-randomization was used to ensure an equal number of males and females were in each condition). All of the questionnaires and AIPs were administered via Research Electronic Data Capture (REDCap), a web-based, data-collection system that allows for secure computerized collection and storage of data as well as stratified randomization algorithms (https://projectredcap.org/). While seated in front of a computer screen in a private room, participants completed the demographics questionnaire and individual-difference characteristic measures. Participants then completed the 12-PAC to indicate their baseline level of state affect *before* the AIP (Time 1). Participants then underwent the AIP by viewing a selection of video

clips based on experimental condition. Immediately after the AIP, participants completed the 12-PAC to characterize the effects of the AIP which were used in affect manipulation check analyses. Following the first post-baseline 12-PAC measurement (Time 2), participants read the experimental vignettes and completed the manipulation checks and dependent measures outlined above. The session concluded with a final 12-PAC state affect rating (Time 3), and participants were then debriefed and awarded course credit for participation.

Pilot Studies

Pilot testing occurred in three phases with a total of 49 participants. The goal of the pilot studies was to develop and refine the procedures and materials that would be used in the primary experiment. The AIP was considered successful if the state affect manipulation check resulted in Time 2 R^2 values $\geq .70$ and if Time 2 δ fell in the following ranges: condition 1, high-negative δ = 90° - 180° (unpleasant activation – activated displeasure); condition 2, low-negative δ = 180° - 270° (unpleasant deactivation – deactivated displeasure); condition 3, high-positive δ = 90° - 0° (activated pleasure – pleasant activation); condition 4, low-positive δ = 360° - 270° (deactivated pleasure – pleasant deactivation). For the purposes of the pilot study, only the angular displacement (δ), R^2, and 95% CIs at Time 1 and Time 2 will be reported. For the sexual risk-taking vignettes, the two scenarios that were perceived as the most realistic (> 3 [“somewhat realistic”]), while also receiving the lowest ratings of partner-type ($\leq$ 2 [“a little serious”]) were selected for use in the primary experiment.

Phase 1: Overview

The primary aim of phase 1 of the pilot studies was to test whether the clips (High-Negative = *Misery*; Low-Negative = *Shawshank Redemption*; High-Positive = *Remember the Titans*; Low-Positive = *Dead Poet’s Society*) selected from the video clip databases (Gabbert-

Quillen et al., 2015; Schaefer et al. 2010) successfully induced the intended affective states. A total of 11 undergraduate college students (n = 5 females) participated in phase 1.

Phase 1: Results & Discussion

State Affect Manipulation Check. As illustrated in Figure 9, 12-PAC ratings measured at Time 1 (immediately prior to the AIP) for the four experimental conditions indicated that participants were experiencing a low-arousal positive-valence affective state (deactivated pleasure). State affect ratings at Time 2 indicated that the high-negative condition (condition 1) was experiencing activated displeasure (δ = 159.56°, [95% CI = 81.94° - 240.01°], R^2 = .76) and the low-positive condition (condition 4) was experiencing deactivated pleasure (δ = 351.81°, [95% CI = 355.72° - 336.83°], R^2 = .80)—demonstrating that the AIP was successful in inducing the intended affective states for conditions 1 and 4. However, state affect ratings at Time 2 indicated that the high-positive condition (condition 3) was experiencing deactivated pleasure (δ = 329.54°, [95% CI = 289.38° - 16.2°], R^2 = .39) and the low-negative condition (condition 2) was experiencing deactivated pleasure (δ = 318.65°, [95% CI = 254.59° - 0.59°], R^2 = .73)—demonstrating that the AIP was unsuccessful in inducing the intended affective states for conditions 2 and 3.

The following changes were implemented for the second phase of pilot testing: The number of video clips for each condition was increased from one to three, and the clip used for the high-positive condition (*Dead Poet's Society*) was substituted and added to the AIP for the low-positive condition instead. This change was made due to the state affect manipulation check indicating that the AIP for the high-positive condition (*Dead Poet's Society*) was inducing a state of low-arousal positive-valence instead of the intended high-arousal positive valence.

Phase 2: Overview

The revised sets of clips used for the AIP of each condition (High-Negative = *Misery, Saving Private Ryan, American History X*; Low-Negative = *Shawshank Redemption, A Perfect World, Dangerous Minds, The Piano*; High-Positive = *Remember the Titans, Dead Poet's Society, The Lottery*; Low-Positive = *When Harry Met Sally*, *Benny & Joon*, *Big*, *The Hangover*) were tested in phase 2. A secondary aim was to collect preliminary ratings of the manipulation checks related to the sexual vignettes (i.e., perceived realism, perceived partner-type) and solicit qualitative feedback for ways in which the sexual scenarios could be improved upon. A total of 14 (n = 7 females) participants completed phase 2 of the pilot study.

Phase 2: Results & Discussion

State Affect Manipulation Checks. As illustrated in Figure 10, 12-PAC ratings measured at Time 1 indicated that participants in the high-negative (condition 1), high-positive (condition 3), and low-negative (condition 2) conditions were experiencing a low-arousal positive-valence (deactivated pleasure) affective state, and that the low-positive condition (condition 4) was experiencing an unpleasant deactivation affective state. 12-PAC ratings at Time 2 indicated that the high-negative condition was experiencing activated displeasure (δ = 166.54°, [95% CI = 128.97° - 193.84°], R^2 = .69), the high-positive condition was experiencing pleasant deactivation (δ = 323.74°, [95% CI = 261.29° - 356.75°], R^2 = .89), the low-negative condition was experiencing pleasant deactivation (δ = 234.42°, [95% CI = 163.58° - 304.67°], R^2 = .63), and the low-positive condition was experiencing pleasant deactivation (δ = 341.55°, [95% CI = 53.91° - 309.55°], R^2 = .37)—demonstrating the none of the AIPs adequately induced the intended affective states.

Sexual Risk-taking Vignette Manipulation Checks. Data for the manipulation checks related to the sexual risk-taking scenarios (i.e., perceived realism, partner-type, and subjective

sexual-arousal) were combined with participant ratings from phase 1 for a total sample of 25. All vignettes met our *a priori* criterion for realism and were perceived as "somewhat realistic" ($M_{\text{Vignette A}} = 3.36$, $M_{\text{Vignette B}} = 3.03$, $M_{\text{Vignette C}} = 3.31$, $M_{\textit{Vignette D}} = 3.28$). Average ratings for partner-type revealed that all vignettes except Vignette D ($M_{\text{Vignette D}} = 2.43$; "a little serious") were within our *a priori* criterion (< 2) for seriousness ($M_{\text{Vignette A}} = 1.48$, $M_{\text{Vignette B}} = 1.23$, $M_{\text{Vignette C}} = 1.12$). The average rating of subjective sexual arousal at Time 2 (immediately prior-sexual vignettes) was 1.36 ("not at all") and at Time 3 (immediately post-sexual vignettes) was 1.4 ("not at all"). Based on *a priori* selection criteria described previously, Vignettes A and C were selected for use in remaining pilot studies.

Results from phase 2 indicated that while the high-negative, low-negative, and low-positive conditions produced angular displacements indicative of the intended affective state, the R^2 statistics revealed that these profiles did not demonstrate adequate fit to the prototypical profiles as reported by Yik et al. (2011). The following changes were implemented for the third phase of pilot testing: the video clip selections for the high-negative, high-positive, and low-positive AIPs were modified by supplementing video clips from additional sources (Gabbert-Quillen et al., 2015; Li et al., 2017). Each condition remained matched in terms of the number of clips and the duration of the total set of clips.

Phase 3: Overview

The following clips were used in phase 3: High-Negative = *Misery, Saving Private Ryan, American History X, The Ring*; Low-Negative = *Shawshank Redemption, A Perfect World, Dangerous Minds, The Piano*; High-Positive = *Remember the Titans, The Lottery, Mega Coaster, Speed Flying*; Low-Positive = *Benny & Joon*, *Big*, *The Hangover*. The clips selected for use in the AIP for phase 3 were taken from an alternative database (Li, et al., 2017) that used

real-life experiences (as opposed to popular film clips). The expectation was that the real-world content of these clips, in conjunction with the film clips used in previous iterations of the AIP, would successfully induce the intended affective states. Furthermore, the content in these video clips did not contain any sexually explicit content, making it an ideal option for use in the high-positive AIP.

Phase 3: Results & Discussion

State Affect Manipulation Checks. As illustrated in Figure 11, 12-PAC ratings measured at Time 1 indicated that participants in the high-negative (pleasant deactivation), high-positive (pleasure), low-negative (deactivated pleasure) were experiencing low-arousal positive-valence affective states, while the low-negative condition was experiencing a low-arousal negative-valence affective state (deactivated displeasure). 12-PAC ratings at Time 2 indicated that the high-negative condition (condition 1) was experiencing displeasure (δ = 177.101°, [95% CI = 97.68° - 213.11°], R^2 = .80), the low-negative condition (condition 2) was experiencing displeasure (δ = 187.91°, [95% CI = 151.29° - 227.39°], R^2 = .93), and the low-positive condition (condition 4) was experiencing deactivated pleasure (δ = 341.83°, [95% CI = 67.65° - 322.51°], R^2 = .87)—demonstrating the AIPs were successful in inducing the intended affective states. The high-positive condition (condition 3) was experiencing deactivated pleasure (δ = 343.56°, [95% CI = 28.46° - 298.40°], R^2 = .85) at Time 2—demonstrating that the AIP was unsuccessful. However, state affect ratings for this condition did move in the expected direction, indicating a trend from a low-arousal positive-valence state to a higher-arousal positive-valence state.

Sexual Risk-taking Vignette Manipulation Checks. Analyses of manipulation checks for the sexual risk-taking vignettes confirmed findings from phase 2: Vignettes A (M = 3.5, SD = .84) and C (M = 3.38, SD = .92) were perceived as acceptably "somewhat realistic," and the

perceived partner type was “not serious at all” for both Vignettes A (M = 1.58, SD = .65) and C (M =1.29, SD = .62).

Results of phase 3 of the pilot study demonstrated that the AIP was successful in inducing the intended affective states for the high-negative, low-negative, and low-positive conditions. While the high-positive condition AIP was unsuccessful, 12-PAC ratings from Time 1 to Time 2 did move in the expected direction, indicating a trend from a low-arousal positive-valence state to a higher-arousal positive-valence state. This may be a result of using clips that did not contain sexually explicit content—the type of clip most commonly used to induce high-arousal positive-valence affective states. Given the small sample size used in each phase of pilot testing, and the possibility that with more statistical power the effects of the AIP would be more pronounced, after presenting the pilot findings to the committee, it was decided that the AIP was sufficiently developed for use in the primary experiment.

Primary Experiment

Procedures

A total of 136 students participated in the primary experiment. Procedures described as part of phase 3 of the pilot studies were identical to those used in the primary experiment. A flow diagram of the experimental session procedures is presented in Figure 12.

Data Analysis Plan

All analyses were conducted using the Statistical Package for Social Sciences (SPSS) versions 23 (SPSS, 2012) and Microsoft Excel (2016). The criterion for statistical significance was set to an alpha level of 0.05.

Preliminary analyses. The skewness and kurtosis of variable distributions were examined for normality prior to conducting analyses. Following recommendations of Tabachnick

& Fidell (2007), appropriate transformations were performed for variables that were significantly non-normal as defined by a *z*-score for skewness or kurtosis exceeding 3.29. Descriptive statistics (e.g., mean, standard deviation) for all variables and Cronbach alpha coefficients for relevant measures were computed. Chi-square analyses and Analyses of Variance (ANOVA) were conducted to test for differences in participant demographic characteristics by condition to determine if randomization was successful.

Power Analysis. An *a priori* power analysis was conducted to determine the number of participants needed to detect a main effect of experimental affect condition on ratings of risky sexual decision-making (i.e. likelihood to engage in condomless sex). G-power statistical software was used to conduct a power analysis for a 2 x 2 factorial ANCOVA with four experimental conditions (Erdfelder, Faul, & Buchner, 1996). The results from Haase & Silbereisen (2011) were used for calculations in the power analysis because it was the only study that tested the effects of experimentally-induced affective states on SRB which contained a sample comprised of both males and females. Results of the power analyses suggested that a sample of $N = 103$ would provide a power of .80 to detect a 'medium' effect size ($f^2 = .333$) at α equal to 0.05, with the use of four experimental conditions. In a separate analysis, the calculated sample size was slightly larger ($N = 136$) with the addition of covariates; providing the number of participants that were enrolled in this experiment.

Manipulation Checks. Consistent with the pilot studies, the Circumplex Group Data Calculator (V 1.1.; Wright et al., 2008) was used to analyze circular statistics as a manipulation check for the state affect 12-PAC ratings. Circular statistics (i.e., δ, 95% CI, a, e, & R^2) at Times 1, 2, and 3 were calculated to make within-group comparisons as a way to test the success of the AIP for each condition. Additionally, two separate Affective Valence X Affective Arousal

Condition factorial ANCOVAs were conducted on the standardized arousal and valence ratings, respectively. The standardized arousal and valence scores at Time 2, controlling for standardized arousal and valence scores at Time 1, were used as the dependent variables in the manipulation check analyses.

Primary Analyses. Two, 2 (affective arousal) X 2 (affective valence) factorial ANCOVAs were used to examine the effects of affective arousal on intentions to engage in condomless sexual activity (Vignette A & Vignette C, separately). The dependent variable was the CSA-intentions scale. To control for baseline state affect, standardized affective arousal and valence ratings before the AIP (Time 1) were included as covariates in these analyses. Based on significant bivariate correlations with the dependent variable, sexual sensation seeking, past-year condom use, and subjective sexual arousal at Time 3 were included as additional covariates.

Results

Participants

Table 2 displays descriptive statistics of participants in the experimental study. Participants were primarily White (82.4%) college freshman (61%; $N = 83$; M age = 19.1 years; 50% female). The average number of sex partners over the past year was 4.21 ($SD = 4.44$), the average number of sexual encounters while using a condom over the past month was 1.39 ($SD = 2.40$), and average number of sexual encounters without using a condom over the past month was 1.57 ($SD = 2.97$). ANOVA (continuous variables) and Chi-square (categorical variables) analyses comparing demographic characteristics of participants in each condition revealed that there were no significant differences ($p > .05$) between participants across the experimental conditions on any baseline variables—indicating that randomization was successful.

Manipulation Checks - State Affect

It took participants an average duration of two minutes to complete the 12-PAC ratings at Times 2 and 3. State affect ratings at Time 1 demonstrated that across experimental conditions, participants were experiencing a low-arousal, positive-valence affective state (pleasant deactivation) before undergoing the AIP (δ = 315.06°, [95% CI = 302.56° - 320.00°], R^2 = .91, *a* = .58, *e* = -.1). Table 4 contains the within-group comparison state affect manipulation checks and Figure 13 illustrates both within and between-group comparisons.

Between-Group Comparisons.

Affective-Arousal. An arousal condition (low vs. high) X valence condition (positive vs. negative) factorial ANCOVA was conducted on the standardized affective arousal scores from Time 2 (immediately post AIP), while controlling for Time 1 baseline standardized affective arousal scores. The mean standardized affective arousal scores for each condition are presented in Table 5. The analysis revealed a statistically significant main effect for affective arousal condition (F (3, 132) = 32.95, $p < .001$, d = 1.07), such that the average standardized affective arousal scores for the high-arousal conditions (M = .20, SD = .52) were significantly greater than the standardized affective arousal scores for the low-arousal conditions (M = -.20, SD = .54), indicating that the affective arousal manipulation was successful.

Affective-Valence. A valence condition (positive vs. negative) X arousal condition (low vs. high) factorial ANCOVA was conducted on the standardized affective valence scores from Time 2 (immediately post AIP), while controlling for Time 1 baseline standardized affective valence scores. The mean standardized affective valence scores for each condition are presented in Table 6. The results from the analysis were significant (F (3, 132) = 172.41, $p < .001$, d = 2.31), such that the average standardized affective valence scores for the positive-valence conditions (M = .64, SD = .55) were significantly greater than the standardized affective valence

scores for the negative-valence conditions (M = -.43, SD = .59), indicating that the affective valence manipulation was successful.

Within-Group Comparisons.

High-Arousal, Negative-Valence (Condition 1). Participants in Condition 1 were experiencing a low-arousal, positive-valence affective state (*pleasant deactivation*) at Time 1 (δ = 309.71° , [95% CI = 286.28° - 320.88°], R^2 = .90, a = .54, e = -.07), and then, as hypothesized, a high-arousal, negative-valence affective state (*activated displeasure*) immediately after the AIP at Time 2 (δ = 153.14° , [95% CI = 136.99° - 175.92°], R^2 = .84, a = .53, e = -.08), and then after completing dependent variable ratings, a low-arousal positive-valence state (*pleasant deactivation*) at Time 3 (δ = 312.70°, [95% CI = 298.24° - 340.79°], R^2 = .72, a = .28, e = -.24). The AIP thus successfully induced a state of high-arousal, negative-valence affect (Figure 13, Panel 1).

High-Arousal, Positive-Valence (Condition 3). Participants in Condition 3 were experiencing a low-arousal positive-valence affective state (*pleasant deactivation*) at Time 1 (δ = 313.38°, [95% CI = 296.62° - 327.08°], R^2 = .88, a = .62, e = -.16), and then, as hypothesized, a high-arousal positive-valence affective state (*activated pleasure*) at Time 2 (δ = 15.10°, [95% CI = 28.21° - 353.95°], R^2 = .93, a = .62, e = -.16), and then after completing dependent variable ratings, a low-arousal positive-valence state (*deactivated pleasure*) at Time 3 (δ = 342.99°, [95% CI = 314.97° - 359.96°], R^2 = .83, a = .38, e = -.24). The AIP thus successfully induced a state of high-arousal, positive-valence affect (Figure 13, Panel 2).

Low-Arousal, Negative-Valence (Condition 2). Participants in Condition 2 were experiencing a low-arousal positive-valence affective state (*pleasant deactivation*) at Time 1 (δ = 313.41°, [95% CI = 289.76° - 329.49°], R^2 = .90, a = .56, e = -.07) and then, as hypothesized, a

low-arousal negative-valence affective state (*displeasure*) at Time 2 (δ = 191.91°, [95% CI = 180.11° - 224.24°], R^2 = .74, *a* = .39, *e* = -.25), and then after completing dependent variable ratings, a low-arousal positive-valence state (*deactivated pleasure*) at Time 3 (δ = 302.91°, [95% CI = 270.36° - 315.82°], R^2 = .79, *a* = .28, *e* = -.21). The AIP thus successfully induced a state of low-arousal, negative-valence affect (Figure 13, Panel 3).

Low-Arousal, Positive-Valence (Condition 4). Participants in Condition 4 were experiencing a low-arousal-positive valence affective state (*deactivated pleasure*) at Time 1 (δ = 323.36°, [95% CI = 303.00° - 339.06°], R^2 = .90, *a* = .59, *e* = -.16), and then, as hypothesized, remained in a low-arousal positive-affective state (*deactivated pleasure*) at Time 2 (δ = 334.95°, [95% CI = 319.66° - 346.29°], R^2 = .95, *a* = .75, *e* = -.21) and then after completing dependent variable ratings, a low-arousal positive-valence state (*deactivated pleasure*) at Time 3 (δ = 336.99°, [95% CI = 317.26° - 354.30°], R^2 = .85, *a* = .49, *e* = -.25). The AIP thus successfully induced a state of low-arousal positive-valence affect (Figure 13, Panel 4).

Manipulation checks - Sexual Risk-taking Vignettes

Participants took an average duration of four minutes between completing the AIP and completing the dependent variable ratings. The average ratings of the perceived realism depicted in Vignette A was 3.38 (*SD* = .77; “somewhat realistic”) and 3.46 (*SD* = .78; “somewhat realistic”) for Vignette C - demonstrating that the sexual-risk vignettes were perceived to be acceptably realistic. The average rating of sexual partner-type for Vignette A was 1.84 (SD = .73; “a little serious”), and 1.29 (SD = .53; “not at all serious”) for Vignette C - demonstrating that a casual sexual partner was accurately depicted in the sexual vignettes. There was a statistically significant increase in subjective sexual arousal (t (135) = 9.95, $p < .001$) from Time 2 (*M* = 1.20, “not at all”, *SD* = .63) to Time 3 (*M* = 2.04, “a little”, *SD* = 1.07), indicating that

participants experienced a slight increase in sexual arousal after reading the sexual vignettes. However, this increase was less than a full point on the Likert-type rating scale and did not exceed beyond "a little" in terms of categorical sexual arousal levels. Subjective sexual-arousal at Time 3 was significantly correlated with CSA-intentions for both Vignettes and was thus included as a covariate in the primary analyses.

Covariates

Vignette A. Bivariate correlation coefficients for key study variables are shown in Table 3. Sexual sensation seeking ($r = .45$, $p < .001$), positive urgency ($r = -.27$, $p < .001$), negative urgency ($r = .24$, $p < .001$), subjective sexual-arousal at Time 3 ($r = .17$, $p < .05$), and past-year condom use ($r = -.50$, $p < .001$), were all significantly correlated with the CSA-intentions scale for Vignette A. Additionally, sexual sensation seeking and negative urgency were significantly correlated ($r = .47$, $p < .001$), sensation seeking and positive urgency were significantly correlated ($r = .35$, $p < .001$), and negative urgency and positive urgency were significantly correlated ($r = .59$, $p < .001$). Based on recommendations by Tabachnik & Fidell (2007), as a way to avoid potential issues related to multicollinearity, only sexual sensation seeking and past-year condom use were retained as covariates in the primary analyses due to being the constructs that were most strongly correlated with the dependent variable. Therefore, in the primary analysis for Vignette A, standardized affective arousal and valence scores at Time 1, subjective sexual-arousal at Time 3, sexual sensation seeking, and past-year condom use were included as covariates.

Vignette C. As displayed in Table 3, there was a similar pattern of significant correlations between key study variables and the CSA-intentions scale for Vignette C as in Vignette A (sexual sensation seeking ($r = .37$, $p < .001$), subjective sexual-arousal at Time 3 ($r = .17$, $p <$

.05), and past-year condom use (r = -.43, p < .001)). Therefore, standardized affective arousal and valence scores at Time 1, subjective sexual arousal at Time 3, sexual sensation seeking, and past-year condom use were included as covariates in the primary analysis with CSA-intentions scale for Vignette C.

Primary Study Results

Vignette A. A 2 (high-arousal vs. low-arousal) X 2 (negative-valence vs. positive-valence) factorial between-groups ANCOVA was conducted to assess the effect of affective arousal and affective valence on intentions to engage in condomless sexual activity, while controlling for affective arousal and valence at Time 1, subjective sexual-arousal at Time 3, sexual sensation seeking, and past-year condom use. Results of this analysis revealed that there was no significant main effect of affective arousal ($M_{High\text{-}Arousal}$ = 69.58, SD = 18.86; $M_{Low\text{-}Arousal}$ = 68.27, SD = 28.71) on intentions to engage in condomless sexual activity in Vignette A (F (1, 135) = 1.53, p = .22). Additionally, there was no significant main effect of affective valence ($M_{Positive\text{-}Valence}$ = 68.85, SD = 25.48; $M_{Negative\text{-}Valence}$ = 69.00 SD = 23.05) on intentions to engage in condomless sexual activity in Vignette A (F (1, 135) = .86, p = .36). Sexual sensation seeking (F (1, 135) = 16.75, p < .001) and past-year condom use (F (1, 135) = 28.31, p < .001) were significantly associated with intentions to engaged in condomless sexual activity, such that higher SSSS scores and less frequent past-year condom use were associated with greater CSA-intention ratings. Results of the ANCOVA are displayed in Table 8.

Vignette C. A 2 (high-arousal vs. low-arousal) X 2 (negative-valence vs. positive-valence) factorial between-groups ANCOVA was conducted to assess the effect of affective arousal and affective valence on intentions to engage in condomless sexual activity, while controlling for affective arousal and valence at Time 1, subjective sexual-arousal at Time 3,

sexual sensation seeking, and past-year condom use. Results of this analysis revealed that there was no significant main effect of affective arousal ($M_{High\text{-}Arousal}$ = 60.85, SD = 22.80; $M_{Low\text{-}Arousal}$ = 62.85, SD = 27.15) on intentions to engage in condomless sexual activity in Vignette C (F (1, 135) = .04, p = .85) and no significant main-effect of affective valence ($M_{Positive\text{-}Valence}$ = 66.13, SD = 23.75; $M_{Negative\text{-}Valence}$ = 61.95, SD = 25.36) on intentions to engage in condomless sexual activity in Vignette C (F (1, 135) = .03, p = .86). Sexual sensation seeking (F (1, 135) = 8.56, p = .004) and past-year condom use (F (1, 135) = 19.49, p < .001) were again significantly associated with intentions to engage in condomless sexual activity, such that higher SSSS scores and less frequent past-year condom use were associated with greater CSA-intention ratings. Results of the ANCOVA are displayed in Table 9.

Post-hoc Analyses.

Post-hoc analyses were conducted to examine the effects of experimentally induced affective arousal and affective valence on intentions to engage in condomless *vaginal* sexual activity using a single item of the composite dependent variable. This analysis was conducted to explore intentions to engage in sexual behavior that exposes emerging adults to the highest risk of negative sexual-health outcomes that was measured as part of this study. This is consistent with previous research that has categorized sexual activity by level of risk associated with each behavior (e.g., Mustanski, 2007; Sarno et al., 2017).

Vignette A. A 2 (high-arousal vs. low-arousal) X 2 (negative-valence vs. positive-valence) factorial between-groups ANCOVA was conducted to assess the effect of affective arousal and affective valence on intentions to engage in condomless *vaginal* sexual activity, while controlling for affective arousal and valence at Time 1. The following variables were significantly correlated with the dependent variable, and were thus included as additional

covariates in the model: past-year condom use (r = -.52, p < .001), sexual sensation seeking (r = .38, p < .001), and gender (r = .18, p = .036). Results of this analysis revealed that there was not a significant main effect of affective arousal ($M_{High\text{-}Arousal}$ = 65.65, SD = 29.87; $M_{Low\text{-}Arousal}$ = 64.74, SD = 39.25) on intentions to engage in condomless *vaginal* sexual activity in Vignette A (F (1, 135) = .477, p = .491). Additionally, there was not a significant main-effect of affective valence ($M_{Positive\text{-}Valence}$ = 64.71, SD = 35.22; $M_{Negative\text{-}Valence}$ = 65.68, SD = 34.52) on intentions to engage in condomless *vaginal* sexual activity in Vignette A (F (1, 135) = 1.017, p = .315). Sexual sensation seeking (F (1, 135) = 8.41, p = .004) and past-year condom use (F (1, 135) = 37.65, p < .001) were significantly associated with intentions to engaged in condomless *vaginal* sexual activity, such that higher SSSS scores and less frequent past-year condom use were associated with greater CSA-intention ratings. Results of the ANCOVA are displayed in Table 11.

Vignette C. A 2 (high-arousal vs. low-arousal) X 2 (negative-valence vs. positive-valence) factorial between-groups ANCOVA was conducted to assess the effect of affective arousal and affective valence on intentions to engage in condomless *vaginal* sexual activity, while controlling for affective arousal and valence at Time 1. The following variables were significantly correlated with the dependent variable, and were included as additional covariates in the model: sexual sensation seeking (r = .36, p < .001), condom use self-efficacy (r = -.20, p = .02), past-year condom use (r = -.48, p < .001) and gender (r = .24, p = .006). Results of this analysis revealed that there was not a significant main effect of affective arousal ($M_{High\text{-}Arousal}$ = 56.43, SD = 32.49; $M_{Low\text{-}Arousal}$ = 57.46, SD = 33.83) on intentions to engage in condomless *vaginal* sexual activity in Vignette A (F (1, 135) = .113, p = .737) nor was there a significant main effect of affective valence ($M_{Positive\text{-}Valence}$ = 57.41, SD = 33.05; $M_{Negative\text{-}Valence}$ = 56.47, SD

= 33.29; F (1, 135) = .356, p = .552). Sexual sensation seeking (F (1, 135) = 8.62, p = .004) and past-year condom use (F (1, 135) = 29.42, p < .001) were again significantly associated with intentions to engaged in condomless vaginal sexual activity, such that higher SSSS scores and less frequent past-year condom use were associated with greater CSA-intention ratings. Results of the ANCOVA are displayed in Table 11.

Discussion

Results of this study demonstrated that experimentally induced states of affective arousal did not have a significant effect on intentions to engage in condomless sexual activity. This finding was inconsistent with our *a priori* hypothesis, which was based on the dual systems model of youth decision-making, that predicted participants in the high-arousal conditions would report greater intentions to engage in condomless sexual activity than participants in the low-arousal conditions. The dual systems model proposes that during states of affective arousal, the socioemotional system becomes activated and increases the propensity to engage in sensation seeking behavior such as unprotected sexual activity. However, findings from the present study did not support this prediction – there was no statistically significant difference in intentions to engage in condomless sexual activity between participants in the high or low affective arousal conditions.

Furthermore, results also indicated that experimentally induced states of affective valence did not have a significant effect on intentions to engage in condomless sexual activity. While this finding was consistent with our *a priori* hypothesis that there would be no difference in intentions to engage in condomless sexual activity between participants in the positive and negative affective valence conditions, it is possible that these findings were simply due to an overall null effect of affect. Results of the affect manipulation check demonstrated that the

effects of the AIP dissipated after approximately four minutes. Therefore, the extent to which participants were experiencing the induced affective states while making the dependent variable ratings is unknown—potentially explaining why there were no significant differences in intentions to engage in condomless sexual activity between any of the conditions. Nevertheless, the dual systems model assumes that affective states that are high in arousal, regardless of valence, is the driving force behind socioemotional system activation. Therefore, the finding that intentions to engage in condomless sexual activity did not significantly differ between participants in the positive and negative valence conditions may be consistent with the dual systems model.

Findings from this study were inconsistent with those of MacDonald & Martineau (2002) who found that experimentally induced negative affect was associated with greater intentions to engage in condomless sexual activity among participants categorized as having low self-esteem. There are several potential explanations for the null findings on the effects of affective arousal on intentions to engage in condomless sexual activity. First, while manipulation checks indicated that the affect induction procedures were successful, the elevation (*e*) parameters in each of the four conditions were negative – indicating that the intensity of the affective states experienced by the participants was low. According to the dual systems, it may be that in order for the socioemotional system to become activated and influence sexual decision-making, it is not only sufficient for an individual to be experiencing an affective state that is high in arousal (Steinberg, 2008), rather the high-arousal affective state may also need to be powerful or intense. Therefore, the low degree to which participants experienced affective states in this study may have contributed to the null findings. Additionally, it is possible that the degree to which affective arousal was induced was not sufficient to conduct a proper test of the dual systems model.

Although the affect manipulation checks demonstrated that the AIP successfully induced affective arousal, this analysis only established that there was a significant difference between the high and low arousal conditions. The manipulation checks were unable to demonstrate whether the AIP induced high-arousal affective states that were comparable to what a participant might experience outside the lab. Future research should consider methods to increase the intensity and arousal level of the manipulated affective states in addition to valence and arousal.

Second, the results from the affect manipulation checks indicated that the effects of the AIP did not last longer than five minutes – as demonstrated by the structural summary statistics at Time 3 (after the dependent variable ratings) which showed that participants returned to their baseline low-arousal, positive-valence affective states by the end of the experiment. This suggests that despite the success of the AIPs in inducing the intended affective states immediately after their completion, the affective states participants were experiencing while completing the dependent variable ratings may have dissipated. Although it is difficult to discern at which time point participants began to return to their baseline levels of state affect, the timeline for which the participants completed the 12-PAC, vignettes, and post-vignettes ratings suggests that at some point within the four minutes between the end of the AIP and completion of post-vignette ratings, the effects of the AIP subsided, which may partially explain the null findings. Given the continual fluctuation of affective states (e.g., moment to moment; Larson et al., 2002; Weinstein et al., 2007; Yik et al., 2011) especially among adolescents and emerging adults (Carstensen et al., 2000; Diener et al., 1985; Larson, & Lampman-Petraitis, 1989), the duration of the effects of the AIP is of considerable importance in the interpretation of our findings.

Third, the average ratings of intentions to engage in condomless sexual activity were relatively high ($M_{Vignette\ A}$ = 68.93, SD = 24.2; $M_{Vignette\ C}$ = 61.85, SD = 25) – suggesting that participants in all conditions reported that they were "likely" to engage in condomless sexual activity with a casual sex-partner. Therefore, the present study analyses may have been impacted by ceiling effects in which the majority of participants reported a high likelihood of engaging in sexually risky activity, potentially reducing the ability to detect the effects of affective arousal in the decision-making process. Future research should consider presenting sexual scenarios that have an even higher perception of risk associated with the sexual encounter (e.g., condomless vaginal sexual intercourse in a first-time sexual encounter) in an attempt to elicit variability in dependent variable ratings.

Although affective arousal did not have an effect on intentions to engage in condomless sexual activity, other individual-difference characteristics were significantly associated with the dependent variable in both vignettes. Specifically, individuals who endorsed higher levels of sexual sensation seeking also endorsed greater likelihood of engaging in condomless sexual activity across affect conditions. In addition, participants who reported using condoms infrequently reported greater intentions to engage in this behavior. Taken together, these constructs, which are more stable than affective states, may be better predictors of sexual risk behavior. This is consistent with general theoretical models of behavior (Ouellette & Wood, 1998) and theories specific to sexual behavior and condom use (Albarracín et al., 2001) that suggest past-behavior and stable personality traits are the strongest predictors of future behavior. Although this study was not powered to detect potential moderation of these constructs, it is possible that affective arousal may only increase risky sexual decision-making in individuals who possess lower levels of sexual sensation seeking. As opposed to individuals with higher

levels of sensation seeking, who may be more likely to engage in SRB regardless of potential contextual influences (e.g., affective arousal), individuals low in sexual sensation, seeking may be more likely to engage in risky sexual decision-making while experiencing affective states high in arousal.

Strengths

The present study possessed a number of strengths. First, participants were randomly assigned to one of four affect conditions, and procedures were conducted in a highly-controlled laboratory setting (e.g., minimal distractions, controlling for order-effects, manipulation checks). The study thus addressed a major gap in the literature on affect-SRB relationship which has largely neglected experimental methodology. While non-experimental studies can measure whether a phenomenon exists in real-world settings, experimental studies can measure whether a phenomenon can exist under a specific set of circumstances—essential for establishing a causal effect of affect on SRB (Hendershot & George, 2007; Mook, 1983). Further, the hypotheses, variable selection, data analysis, and interpretation of study findings, were informed and guided by a developmentally-sensitive model of emerging adult decision-making, and a comprehensive, fine-grained theory of affect. These components helped move the field forward by further explicating the role of affect in emerging adult sexual decision-making.

Another strength of the present study was the manipulation of both affective arousal *and* affective valence. Previous research has universally overlooked affective arousal when studying the relationship of affect and SRB, focusing exclusively on affective valence – potentially confounding findings. In using the 12-PAC – a comprehensive and nuanced measurement of affect – this study was able to test sensitive and specific hypotheses about the relationship

between precise affective states and risky sexual decision-making, advancing methodology used in previous research.

An additional strength of the current study was the extensive piloting process that was conducted prior to the primary experiment. The pilot studies allowed for the development of an AIP that could successfully induce the intended affective states without inadvertently inducing subjective sexual arousal. The majority of AIPs in the literature use sexually-explicit content to induce high-arousal, positive valence affective states, but the literature lacks clarity about how these constructs are distinct from one another. Whether it is necessary to parse out the unique effects of affective arousal on risky sexual decision-making, while excluding any effects of sexual arousal, and how this would generalize to a real-life sexual encounter, remains unclear. Results of the manipulation checks in the primary experiment also indicated that the intended affective states were successfully induced in all four conditions, and that the sexual vignettes were perceived as realistic and accurate in the depiction of a casual sexual partner.

Furthermore, the multiple time points at which state affect was measured served as a way to characterize the duration of the AIP. Despite the widespread use of AIPs in the broader emotion literature, there is a scarcity of research that reports the duration of these manipulations. The majority of studies simply report manipulation checks that consist of a single affect self-report rating completed immediately after the AIP experimental manipulation (Eich, Ng, Macaulay, Percy, & Grebneva, 2007). Although this one-time manipulation check may demonstrate the success of the AIP, without additional affect assessments, it is impossible to discern whether participants were actually experiencing the intended affective state while engaging in subsequent components of the experiment. Moreover, manipulation checks of the current study demonstrate that the duration of the most potent AIP method – video clip

presentations (Westermann et al., 1996) – lasted less than four minutes. This is in contrast to research that reports "short-lived" AIPs last for approximately ten to fifteen minutes (Frost & Green, 1982; Govern & Marsch, 1997; Västfjäll, 2001) – providing implications for future research to reconsider the extent to which the duration of the effects of AIPs used in experimental contexts. As a contribution to the field, the materials from this study will be made available to the public via publication in a peer-reviewed journal and by sharing an electronic link upon researcher request to allow for future examinations of the relationship between experimentally induced affective states and other variables of interest.

Limitations and Directions for Future Research

Findings from this study should be interpreted in light of its limitations. First, while state affect was measured with a nuanced and comprehensive instrument (i.e., 12-PAC) this measure is 60-items long and was administered four times (once at the trait-level). Even though the measure took an average of two minutes to complete, it likely introduced a significant burden to participants who may have demonstrated reactivity in relation to the multiple times they were asked to complete it. Additionally, the average duration of completing the 12-PAC and dependent variable ratings was approximately four minutes. Thus, it is possible that while completing the dependent variable ratings, participants were no longer experiencing the full effects of the AIP – threatening the internal validity of the affect manipulation. Future research should consider using a shorter measure of affect (e.g., valence and arousal subscales of the 12-PAC; Self-Assessment Manikin [SAM], Bradley & Lang, 1994) that can reduce participant burden while still serving as a valid manipulation check.

Second, state affect was manipulated in isolation from other known situational determinants of SRB such as alcohol use. Indeed, a significant portion of SRB co-occurs with

substance use (Fielder & Carey, 2010), especially in contexts that are similar to those portrayed in the sexual vignettes used in this study (e.g., a house party). Therefore, as a way to integrate the large body of literature examining the relationship between substance use and SRB with the affect-SRB literature, future research can benefit from measuring both sets of constructs within the same study. This can advance the field towards capturing the full-picture of the context in which SRB occurs and multiple factors that influence risky sexual decision-making.

An additional limitation of this study was the low intensity of the experimentally-induced affective states. This was demonstrated by the negative elevation (*e*) of the affective states at all three manipulation check timepoints across the four experimental conditions. One possible explanation for the low intensity may be related to the laboratory context in which the study was conducted. The highly-controlled neutral setting may have made it difficult for the AIP to induce affective states that were of high intensity. Future studies may consider using a combination method AIP as a way to induce affective states of greater intensity (Westermann et al., 1997). For example, playing affectively evocative music in conjunction with other AIP techniques (e.g., Velten, video clips) is a common way for researchers to boost AIP effectiveness (Gerrards-Hesse, Spies, & Hesse, 1994). A potential way to increase the intensity *and* duration of the affective states induced by the AIP used in this study would be to play affect-congruent music once the video clip presentation is complete. This music can continue to be played throughout the remainder of the experiment, including while participants complete the dependent variable ratings. This relatively minor methodological modification may lead to significant improvements in the effectiveness of AIPs used in future examinations of the relationship between affect and risky sexual decision-making.

A final limitation of this study was that it did not integrate constructs from other health behavior theories with the dual systems model. Although it was argued that popular theories of health behavior, such as the IMB model, do not perform as well in samples of youth compared to adult samples (Albarracín et al., 2001; Pedlow & Carey, 2003), there is evidence that some components from these models (e.g., condom use motivation) are associated with risky sexual decision-making. Notably, condom use self-efficacy (one facet of Condom Use Behavioral Skills; Brafford & Beck, 1991) was measured as part of this study, however, it was not significantly correlated with intentions to engage in condomless sexual activity in either vignette. Nevertheless, this study relied on the dual systems model to inform the hypotheses and variable selection, without directly comparing it to other well-established health behavior theories. Future research should consider testing both models in a sample of emerging adults and conduct model comparisons to determine which best predicts risky sexual decision-making. Moreover, a model that integrates core components of the developmentally-sensitive dual systems model with determinants of condom use from the IMB model should be examined by future studies as a way to best characterize risky sexual decision-making processes among emerging adults.

Clinical Implications

Findings from this line of research can inform the delivery of current primary sexual risk reduction interventions, and the development of novel interventions that specifically target emerging adults. First, the average level of intentions to engage in condomless sexual activity – even vaginal sexual activity (a particularly high-risk sexual behavior) – was relatively high. Across the entire sample, the average across both vignettes was approximately 65/100, substantially greater than “neither likely, nor unlikely.” This indicates the widespread need for sexual risk reduction interventions targeting emerging adults. Given the findings that higher

levels of sexual sensation seeking and infrequent past-year condom use were associated with greater intentions to engage in condomless sexual activity, existing interventions could be improved upon by specifically targeting sub-populations of emerging adults who endorse these individual-difference characteristics, and thus, are at higher risk of engaging in SRB.

A promising modality for delivering sexual risk reduction interventions to youth populations is through the use of mobile technologies (i.e., mHealth; Burns, Keating, & Free, 2016; Guse et al., 2012; Jones, Eathington, Baldwin, & Sipsma, 2014). "Just/Us", a Facebook page containing STI prevention messaging, is one such mHealth intervention that has demonstrated short-term efficacy in increasing youth condom use (Bull et al., 2012). Promoting engagement with "Just/Us" content among individuals who endorse high levels of sexual sensation seeking and/or infrequent condom use could be an efficient way to reach sub-populations of emerging adults who stand to benefit the most from sexual risk reduction interventions.

Conclusion

The present study was the first experimental study to test the effects of affective arousal and affective valence on intentions to engage in condomless sexual activity among a sample of male and female emerging adults. The results demonstrated no significant main effects of both affective arousal and affective valence on risky sexual decision-making. Findings from this study are in line with null findings in the larger observational literature in which the relationship between affect and SRB has been examined. Additional research is needed in order to further characterize the relationship between affect and risky sexual decision-making.

Table 1
Descriptive Information of Reviewed Event-Level Studies

Study	Participants	Data Collection Method	Theoretical Background	Affect Measure	Study Length	NA Results	PA Results
Houck et al. (2014)	*N*=247 *Age:* m=15.5 *Gender:* 66% male *Ethnicity:* 35% White	Critical Incident	Social Personal Framework	PANAS	Most recent sexual encounter	No association between NA and SRB	No association between PA and SRB
Mustanski (2007)	*N*=149 MSM *Age:* m=28.7 *Gender:* male *Ethnicity:* 86% White	Daily Diary	Mood Maintenance Hypothesis	PANAS	30 days	No association between NA and SRB	PA was negatively associated with SRB (β = -.61, p = .04)
Sarno et al. (2016)	N= 2,871 MSM *Age:* m=38.2 *Gender:* Male *Ethnicity:* 83.9% White	Daily Diary	Mustanski, (2007)	5-point scale: "happy, sad, angry, irritable, cheerful depressed, lonely"	30 days	NA was negatively associated with insertive SRB (β = -0.381, p < .001)	PA was positively associated with insertive SRB (β = 0.353, p<.001)
Hensel et al. (2010)	*N*=387 *Age:* 14-17 *Gender:* female *Ethnicity:* 90% African-American	Daily Diary	N/A	5-point scale: "happy, friendly cheerful, unhappy, angry, irritable"	84 days	Less NA was associated with condom use (*OR* = .90, p < .05)	Less PA was associated with condom use (*OR* = .91, p < .05)

Schroder et al. (2009)	*N*=32 *Age:* m=22.5 *Gender:* 53.1% male *Ethnicity:* Latino	Interactive Voice Response	IMB	11-point scale: "Relaxed, happy, nervous, depressed, and angry"	91 days	NA was positively associated with condom use (β = .105, p = .05)	PA was positively associated with SRB (β = .083, p < .10)
Blood & Shrier (2013)	*N*=51 adolescents with clinically significant depressive symptoms *Age:* m=18 *Gender:* 87% female *Ethnicity:* N/A	Ecological Momentary Assessment	N/A	5-point scale: abbreviated PANAS ("interested, strong, proud, alert, inspired, guilty, upset, hostile, distressed, scared, irritable")	14 days	No association between NA and SRB	No association between PA and SRB

Note: IMB = Information-Motivation-Behavioral Skills, N/A = Not Available, NA = Negative Affect, OR = Odds Ratio, PA = Positive Affect, PANAS = Positive Affect Negative Affect Schedule, SRB = Sexual Risk Behavior.

Table 2

Participant Demographic Characteristics by Affect Condition

	High-Arousal, Negative-Valence		Low-Arousal, Negative-Valence		High-Arousal, Positive-Valence		Low-Arousal, Positive-Valence		ANOVA
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*p*-value
Age (in years)	19.21	1.15	18.94	1.15	19.32	1.39	19.28	1.02	.64
Race (% White)	93.1		75.86		77.78		88.00		. 25 (χ^2)
No. of sex partners past-year	3.47	2.31	5.00	6.88	4.26	3.94	4.18	3.53	.58
No. of sex partners past 3-months	1.65	1.07	2.18	2.52	2.24	2.58	2.29	1.75	.55
No. of sex occasions with a condom past 3-months	4.26	7.47	4.27	5.19	4.79	7.62	3.91	4.23	.95
No. of sex occasions without a condom past 3-months	3.09	6.21	7.39	10.82	3.09	3.77	5.18	8.10	.07

Note: Total *N*s = 34. M = Mean, SD = Standard Deviation.

Table 3

Bivariate Correlations among Select Study Variables

	r											
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. CSA-Intentions A	–											
2. CSA-Intentions C	.718***	–										
3. Age	.133	.106	–									
4. Gender	.085	.148	.297***	–								
5. Trait-Affect	.022	.066	.076	.045	–							
6. SSS	.446***	.366***	.223**	.241**	-.141	–						
7. N. Urgency	.242**	.168	-.097	-.128	-.035	.465***	–					
8. P. Urgency†	.269**	.148	-.006	-.045	-.097	.345***	.589***	–				
9. CUSES	-.108	-.143	.044	.214*	-.047	.016	-.241**	-.182*	–			
10. DERS	.133	.033	-.126	-.210*	.007	.267**	.676***	.455***	-.187*	–		
11. Sexual Arousal	.174*	.171*	.128	.153	-.208**	.347***	.098	.161	-.064	.060	–	
12. Condom Use	-.496***	-.432***	-.060	-.072	-.042	-.291**	-.217*	-.164	.346***	-.083	-.113	–

Note. r = Pearson product-moment (continuous variables), Spearman's rho (categorical/ordinal variables).
CSA-Intentions = Condomless Sexual Activity-Intentions Scale, SSS = Sexual Sensation Seeking, N. Urgency = Negative Urgency, P. Urgency = Positive Urgency, CUSES = Condom Use Self-Efficacy, DERS = Difficulty in Emotion Regulation, Sexual Arousal Time 3 = Subjective Sexual Arousal post-dependent variable ratings, Condom Use= Frequency of condom use during sexual activity during the past-year.
†Indicates variable underwent square root transformation prior to analyses.
*p < .05. **p < .01. ***p < .001.

Table 4

Primary Experiment State Affect Manipulation Checks

Condition	Angular Displacement (δ)	95% CI High	95% CI Low	Amplitude (a)	Elevation (e)	R^2
High-Negative						
Time 1	309.71°	320.88°	286.28°	0.54	-0.07	.90
Time 2	153.14°	175.92°	136.99°	0.53	-0.08	.84
Time 3	312.70°	340.79°	298.24°	0.28	-0.24	.72
Low-Negative						
Time 1	313.41°	329.49°	289.76°	0.56	-0.07	.90
Time 2	191.91°	224.24°	180.12°	0.39	-0.25	.74
Time 3	302.91°	315.82°	270.36°	0.28	-0.21	.79
High-Positive						
Time 1	313.39°	327.08°	296.62°	0.62	-0.10	.88
Time 2	15.10°	28.21°	353.95°	0.62	-0.16	.93
Time 3	342.99°	359.96°	314.97°	0.38	-0.24	.83
Low-Positive						
Time 1	323.36°	339.06°	303.01°	0.59	-0.16	.90
Time 2	334.95°	346.29°	319.68°	0.75	-0.21	.95
Time 3	336.99°	354.30°	317.26°	0.49	-0.25	.85

Table 5

Standardized Affective Arousal Scores by Condition

	Time 1			Time 2			Time 3		
	Affective Arousal Condition			Affective Arousal Condition			Affective Arousal Condition		
	High	Low	Marginal	High	Low	Marginal	High	Low	Marginal
Affective Valence Condition	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)
Positive	-.45 (.40)	-.35 (.58)	-.40 (.50)	.16 (.54)	-.32 (.52)	-.08 (.58)	-.11 (.45)	-.20 (.54)	-.15 (.49)
Negative	-.42 (.50)	-.41 (.54)	-.41 (.51)	.24 (.50)	-.08 (.53)	.08 (.54)	-.20 (.39)	-.24 (.53)	-.22 (.46)
Marginal	-.44 (.45)	-.38 (.56)	-	.20 (.52)	-.20 (.54)	-	-.16 (.42)	-.21 (.53)	-

Table 6

Standardized Affective Valence Scores by Condition

	Time 1			Time 2			Time 3		
	Affective Arousal Condition			Affective Arousal Condition			Affective Arousal Condition		
	High	Low	Marginal	High	Low	Marginal	High	Low	Marginal
Affective Valence Condition	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)	*z*-score (*SD*)
Positive	.43 (.50)	.47 (.50)	.45 (.49)	.60 (.49)	.68 (.60)	.64 (.55)	.36 (.51)	.45 (.55)	.41 (.53)
Negative	.35 (.59)	.38 (.78)	.36 (.69)	-.47 (.62)	-.38 (.56)	-.43 (.59)	.19 (.54)	.15 (.73)	.17 (.64)
Marginal	.39 (.55)	.43 (.65)	-	.07 (.77)	.15 (.79)	-	.27 (.53)	.30 (.66)	-

Table 7

Intentions to Engage in Condomless Sexual Activity by Condition

	Vignette A			Vignette C		
	Affective Arousal			Affective Arousal		
	High	Low	Marginal	High	Low	Marginal
Affective Valence	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)	*M* (SD)
Positive	69.53 (20.39)	68.17 (30.03)	68.85 (25.48)	62.60 (23.96)	63.18 (25.60)	62.89 (24.61)
Negative	69.63 (17.50)	68.38 (27.77)	69.00 (23.05)	59.10 (21.80)	62.52 (29)	60.81 (25.53)
Marginal	69.58 (18.86)	68.27 (28.71)	-	60.85 (22.80)	62.85 (27.15)	-

Note. †Indicates variable underwent square root transformation prior to analyses. M = Mean, SD = Standard Deviation.

Table 8

2 x 2 Analysis of Covariance of Intentions to Engage in Condomless Sexual Activity for Vignette A

ANCOVA						
Source	Sum of Squares	df	Mean Square	F	Significance	η^2
Corrected Model	27786.60	8	3473.33	8.60	< .001	.35
Intercept	8760.12	1	8760.12	21.68	< .001	.15
Sexual Sensation Seeking	6765.38	1	6765.38	16.75	< .001	.12
Past-year Condom Use	11436.86	1	11436.86	28.31	< .001	.18
Sexual Arousal T3	45.25	1	45.25	.11	.74	.001
Affective Arousal T1	55.53	1	55.53	.14	.71	.001
Affective Valence T1	214.43	1	214.43	.53	.47	.004
Affective Arousal Condition	617.83	1	617.83	1.53	.22	.01
Affective Valence Condition	348.13	1	348.13	.86	.36	.007
Arousal * Valence	3.13	1	3.13	.01	.93	.000
Error	51305.91	127	403.98			
Total	725209.25	136				

Note: N = 136

Table 9

2 x 2 Analysis of Covariance of Intentions to Engage in Condomless Sexual Activity for Vignette C

ANCOVA						
Source	Sum of Squares	df	Mean Square	F	Significance	η^2
Corrected Model	21444.57	8	2680.57	5.4	< .001	.25
Intercept	9201.57	1	9201.57	18.57	< .001	.13
Sexual Sensation Seeking	4240.83	1	4240.83	8.56	.004	.063
Past-year Condom Use	9656.62	1	9656.62	19.49	< .001	.133
Sexual Arousal T3	11.04	1	11.04	.02	.88	.000
Affective Arousal T1	184.00	1	184.00	.37	.54	.003
Affective Valence T1	113.35	1	113.35	.23	.63	.002
Affective Arousal Condition	17.84	1	17.84	.04	.85	.000
Affective Valence Condition	15.13	1	15.13	.03	.86	.000
Arousal * Valence	54.86	1	54.86	.11	.74	.001
Error	62921.97	127	495.45			
Total	604642.56	136				

Note: N = 136

Table 10

2 x 2 Analysis of Covariance of Intentions to Engage in Condomless Vaginal Sexual Activity for Vignette A

ANCOVA						
Source	Sum of Squares	df	Mean Square	F	Significance	η^2
Corrected Model	57230.42	8	7153.80	8.60	< .001	.35
Intercept	11742.70	1	11742.70	14.10	< .001	.10
Gender	1598.81	1	1598.81	1.92	.168	.02
Sexual Sensation Seeking	7002.10	1	7002.10	8.41	.004	.06
Past-year Condom Use	31355.30	1	31355.30	37.65	< .001	.23
Affective Arousal T1	47.63	1	47.63	.06	.81	.000
Affective Valence T1	454.83	1	454.83	.55	.46	.004
Affective Arousal Condition	840.86	1	840.86	1.01	.32	.01
Affective Valence Condition	1057.32	1	1057.32	1.27	.26	.01
Arousal * Valence	287.81	1	287.81	.35	.56	.003
Error	105776.61	127	832.89			
Total	740992.00	136	7153.80			

Note: N = 136

Table 11

2 x 2 Analysis of Covariance of Intentions to Engage in Condomless Vaginal Sexual Activity for Vignette C

ANCOVA						
Source	Sum of Squares	df	Mean Square	F	Significance	η^2
Corrected Model	57522.68	9	6391.41	7.63	< .001	.35
Intercept	10323.05	1	10323.05	12.33	.001	.09
Sexual Sensation Seeking	7218.99	1	7218.99	8.62	.004	.06
Past-year Condom Use	24627.02	1	24627.02	29.42	< .001	.19
Gender	1819.45	1	1819.45	2.17	.14	.02
Condom Use Self-Efficacy	292.27	1	292.27	.35	.56	.003
Affective Arousal T1	57.17	1	57.17	.07	.79	.001
Affective Valence T1	570.12	1	570.12	.68	.41	.005
Affective Arousal Condition	802.17	1	802.17	.96	.33	.008
Affective Valence Condition	984.19	1	984.19	1.18	.28	.009
Arousal * Valence	233.48	1	233.48	.28	.60	.002
Error	105484.35	126	837.18	7.63		
Total	740992.00	136				

Note: N = 136

Figure 1: *Affect Structure*

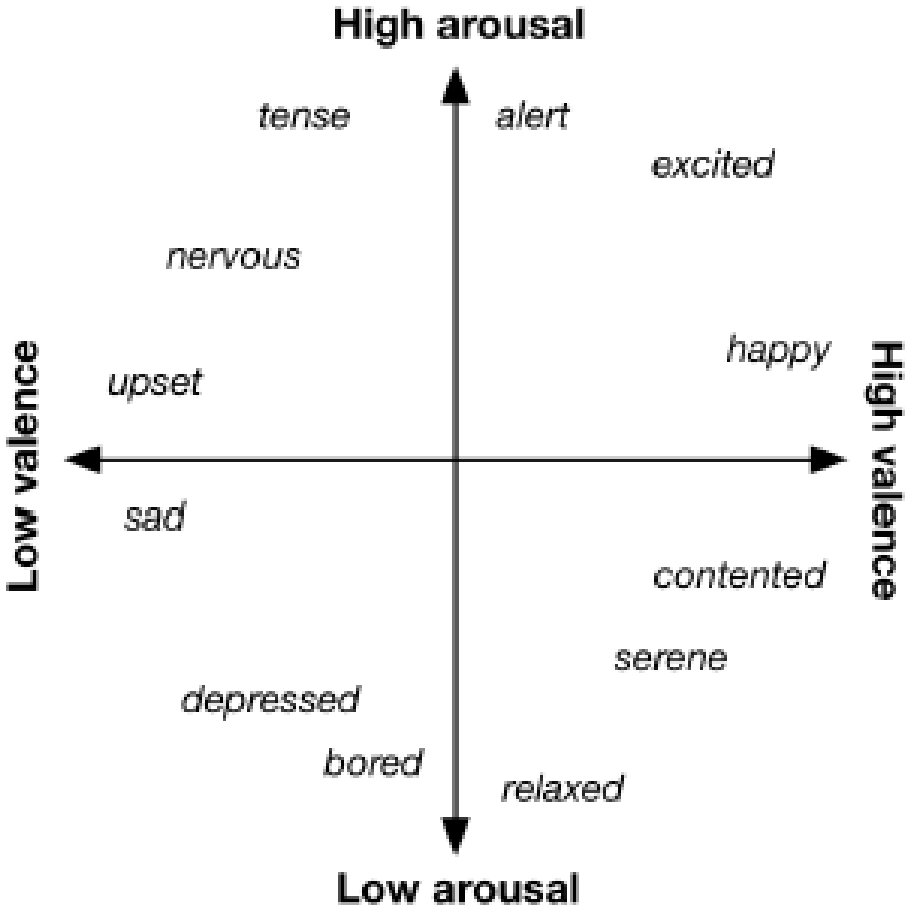


Figure 2. *Integration of Affect Theories (Yik. et al., 2011)*

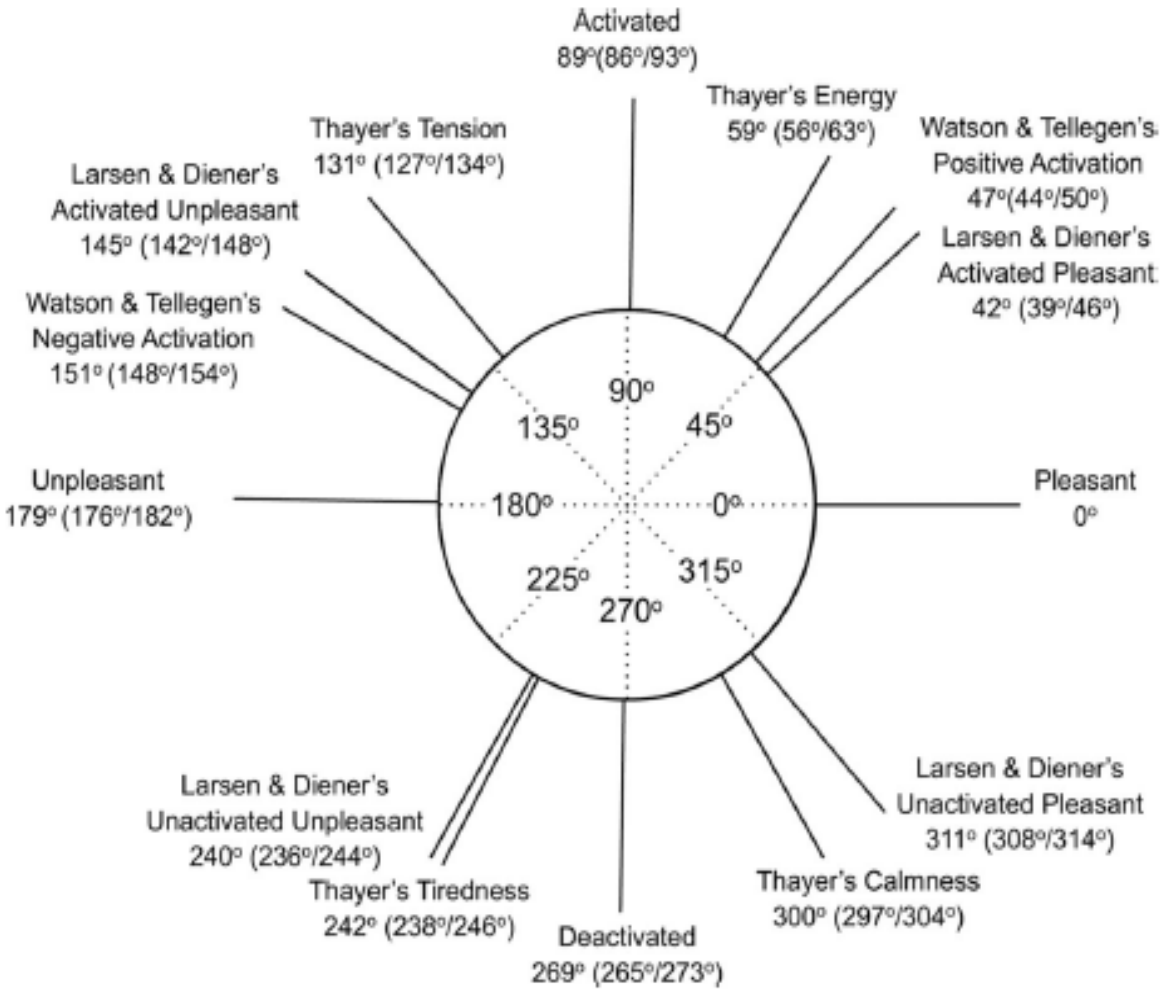


Figure 3: *12-Point Affect Circumplex (Yik. et al., 2011)*

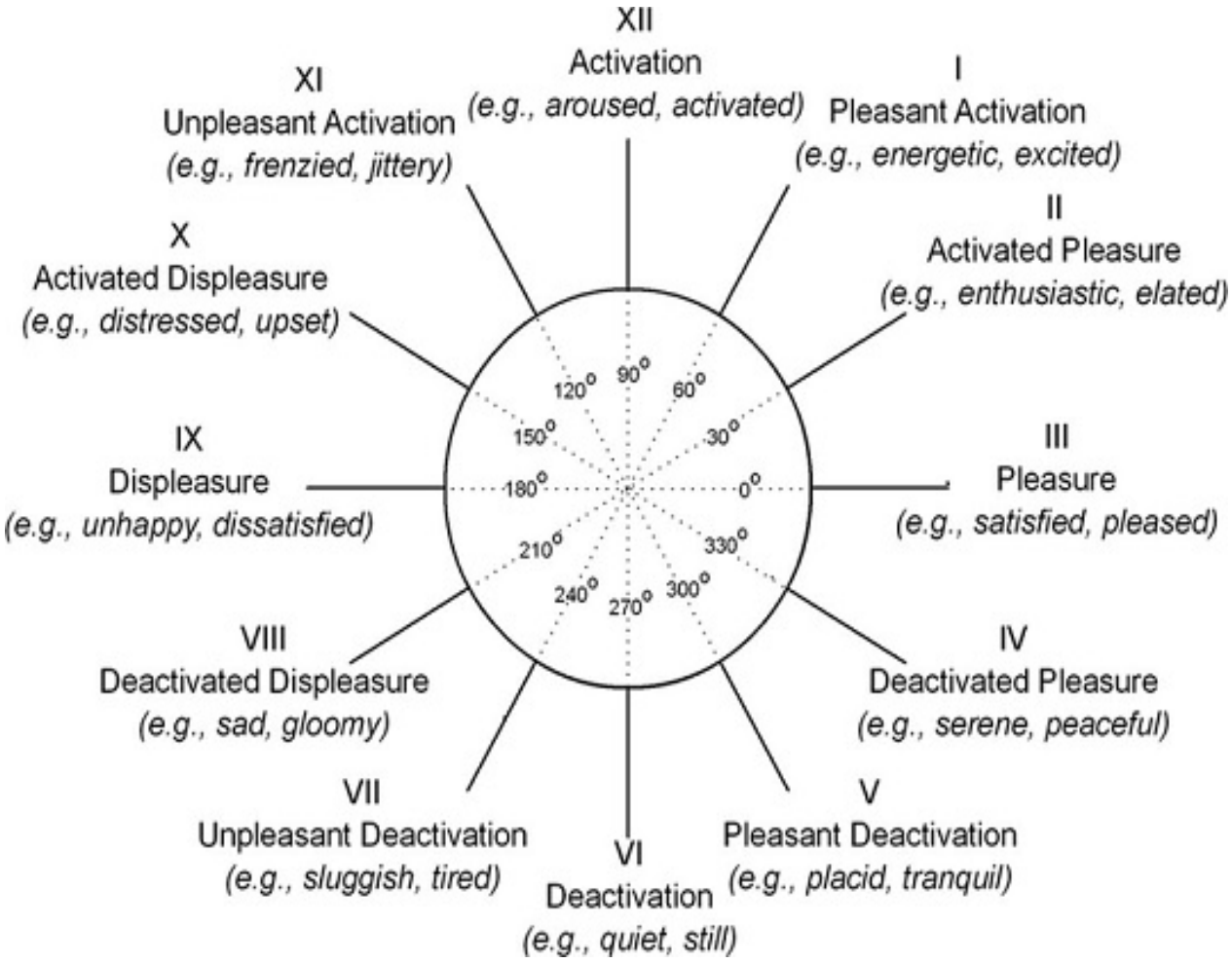


Figure 4: *Theory of Reasoned Action*

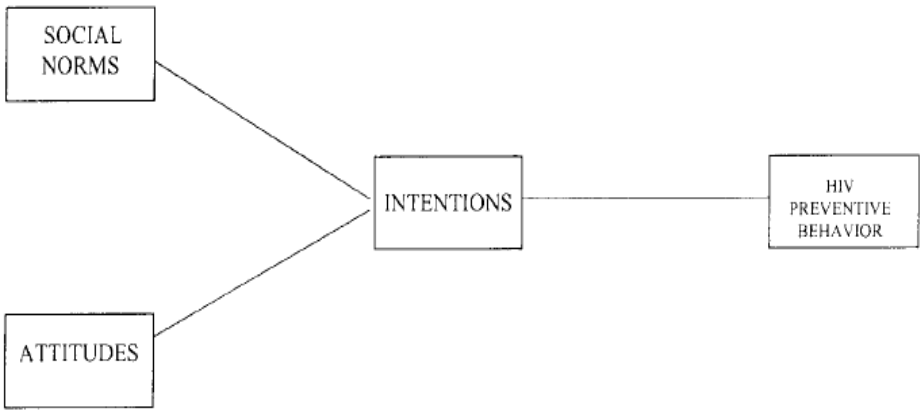


Figure 5: *Theory of Planned Behavior*

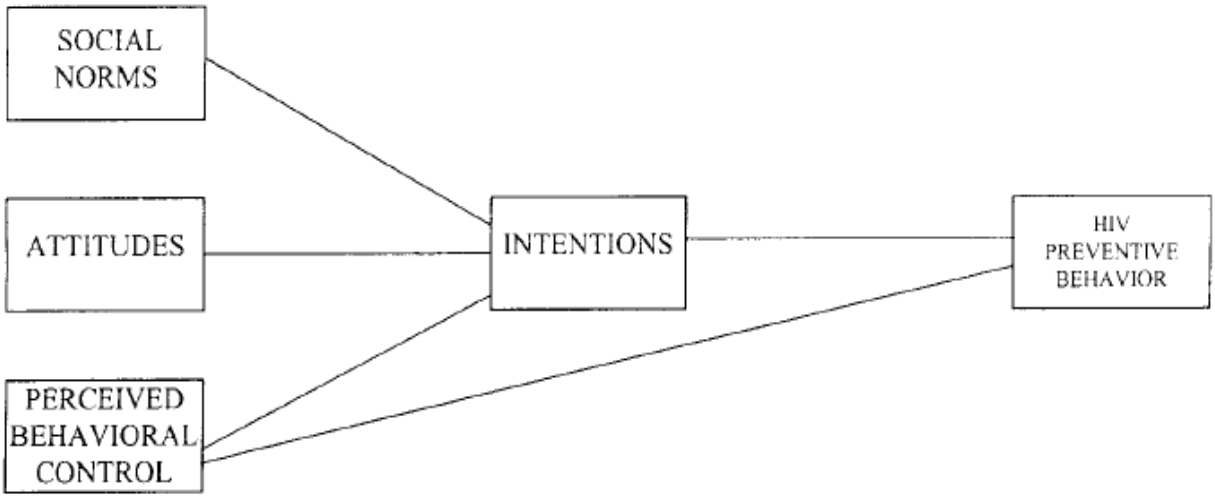


Figure 6: *Information-Motivation-Behavior Model*

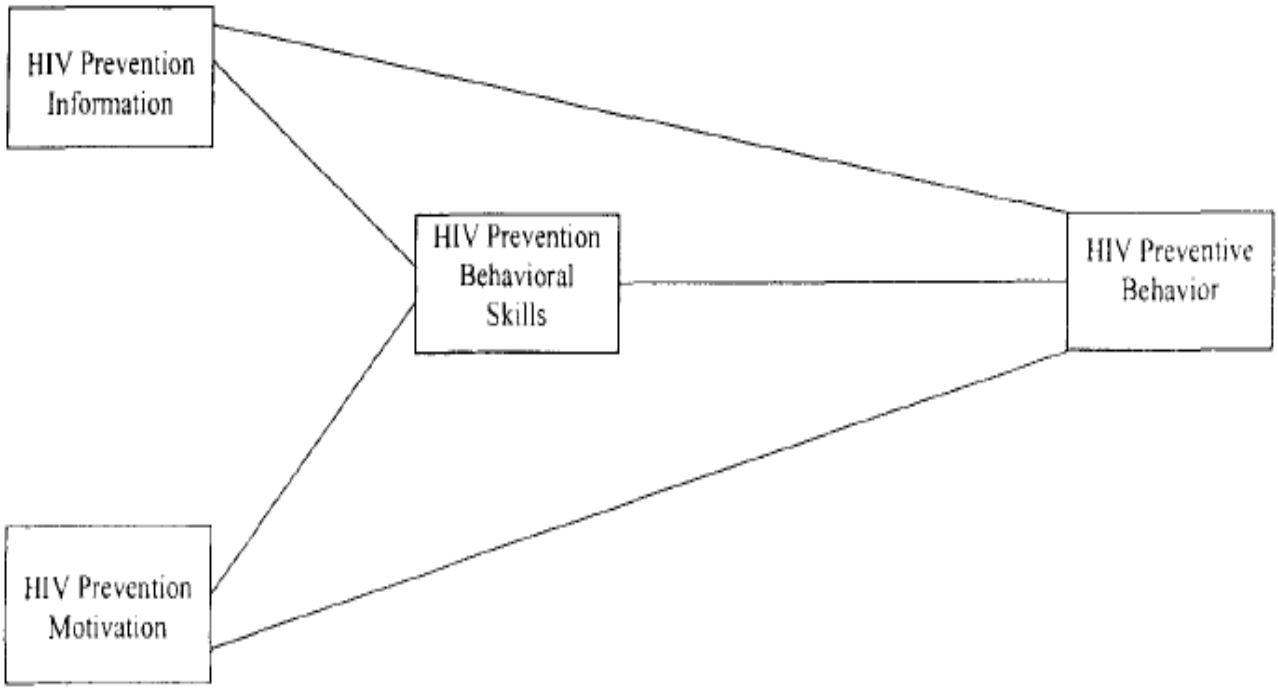


Figure 7: *Dual Systems Model of Youth Decision-Making*

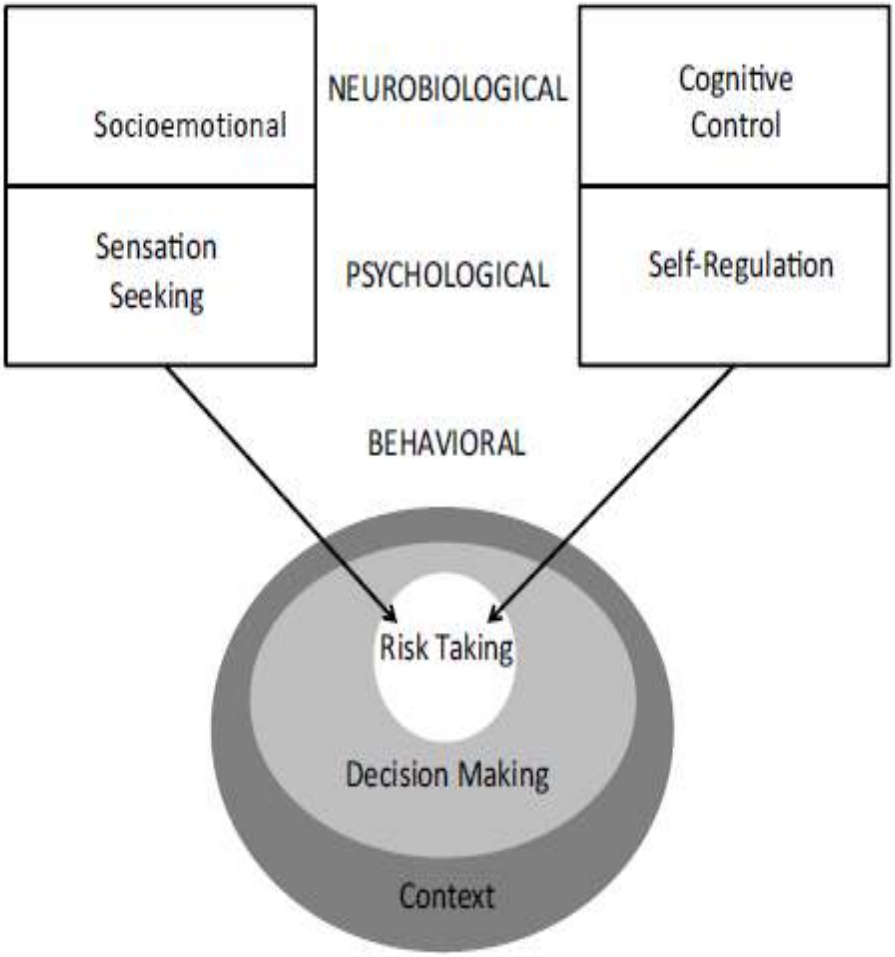


Figure 8. *Structural Summary Model*

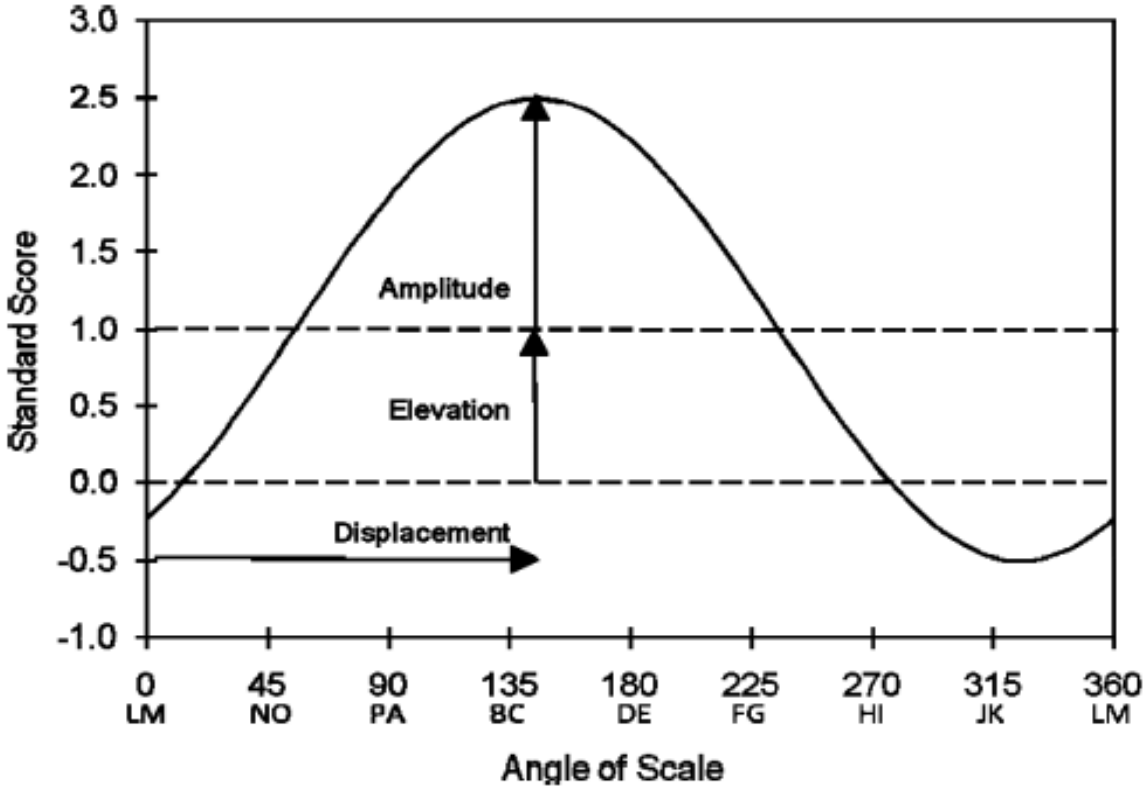
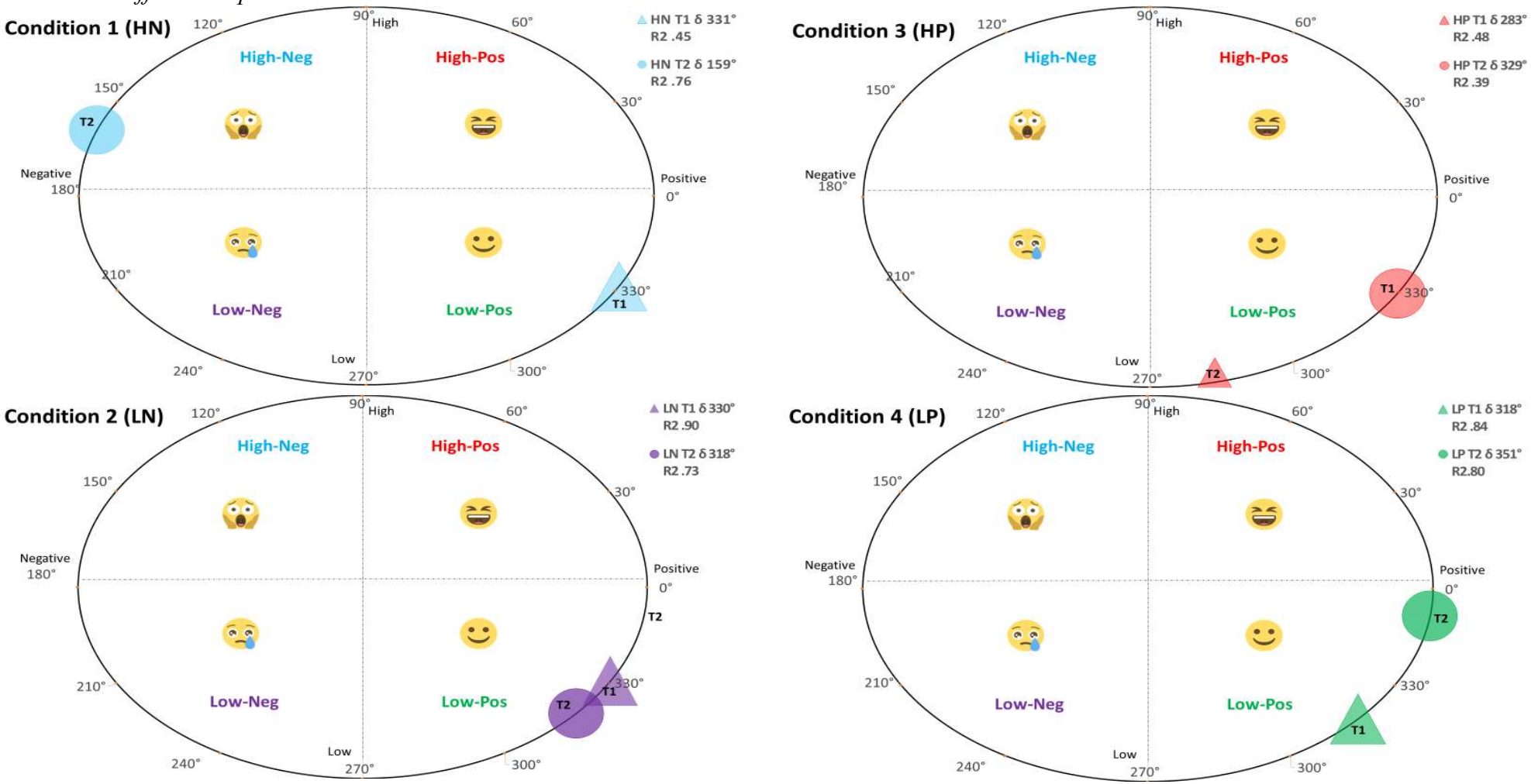


Figure 9

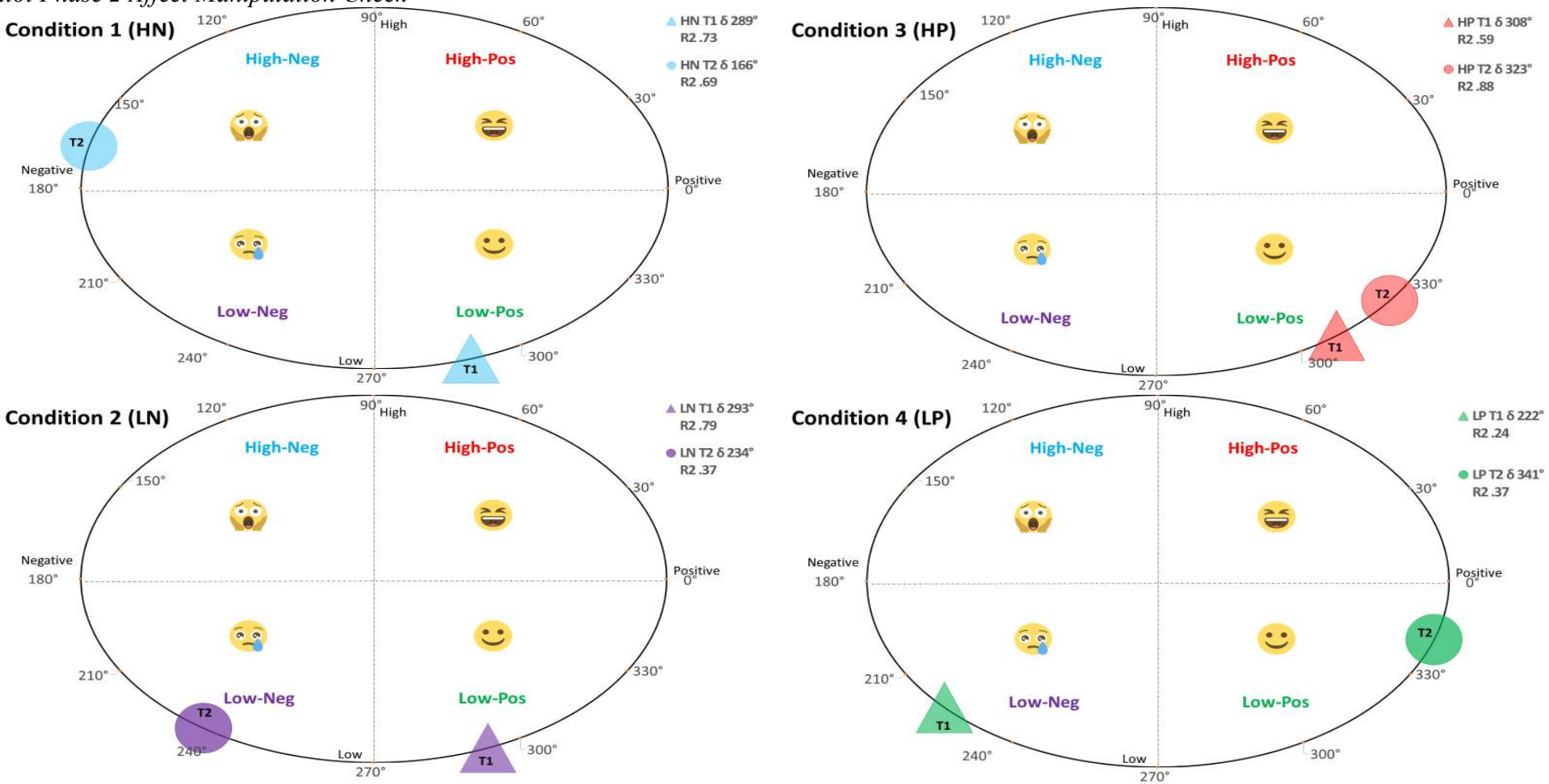
Pilot Phase 1 Affect Manipulation Check



Note: Total *N*s = 2 or 3; HN = High-Arousal Negative Valence; HP = High-Arousal Positive-Valence; LN = Low-Arousal Negative-Valence; LP = Low-Arousal Positive-Valence T1 = Time 1; T2 = Time 2; CI = 95% Confidence Interval; δ = Angular Displacement (Circular Mean); R2 = R^2 (Goodness-of-fit)

Figure 10

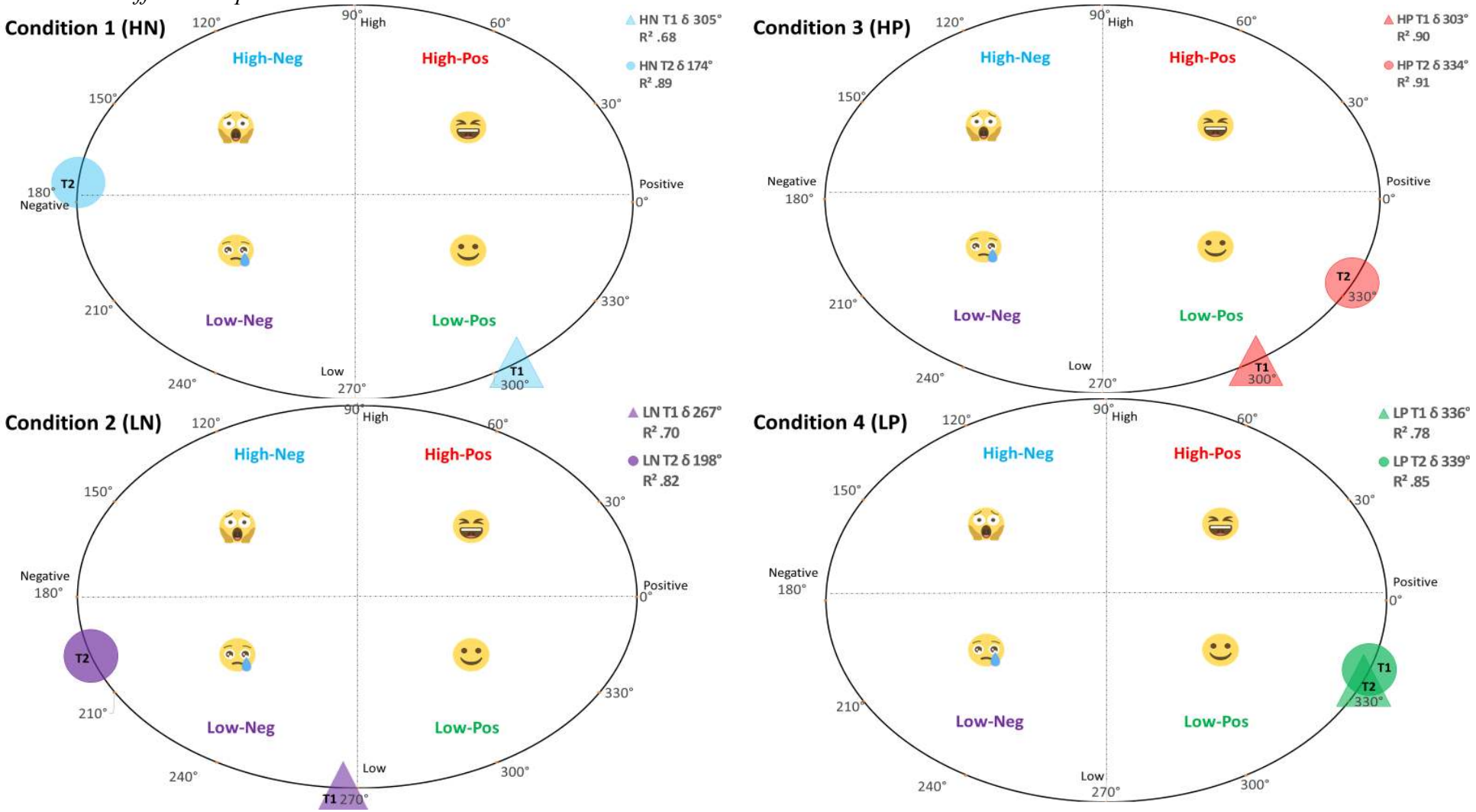
Pilot Phase 2 Affect Manipulation Check



Note: Total *N*s = 3 or 4; HN = High-Arousal Negative Valence; HP = High-Arousal Positive-Valence; LN = Low-Arousal Negative-Valence; LP = Low-Arousal Positive-Valence T1 = Time 1; T2 = Time 2; CI = 95% Confidence Interval; δ = Angular Displacement (Circular Mean); R2 = R^2 (Goodness-of-fit)

Figure 11

Pilot Phase 3 Affect Manipulation Check



Note: Total *N*s = 5-7; HN = High-Arousal Negative Valence; HP = High-Arousal Positive-Valence; LN = Low-Arousal Negative-Valence; LP = Low-Arousal Positive-Valence T1 = Time 1; T2 = Time 2; CI = 95% Confidence Interval; δ = Angular Displacement (Circular Mean); R2 = R^2 (Goodness-of-fit)

Figure 12

Experimental Session Procedures Flow Diagram

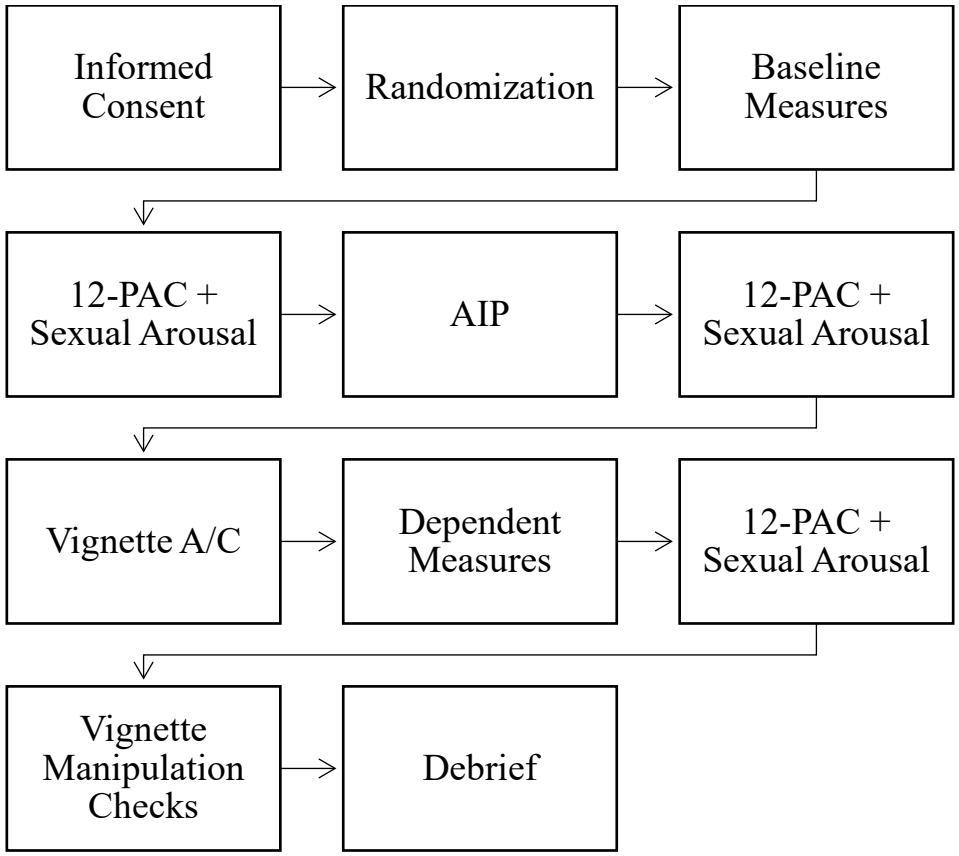
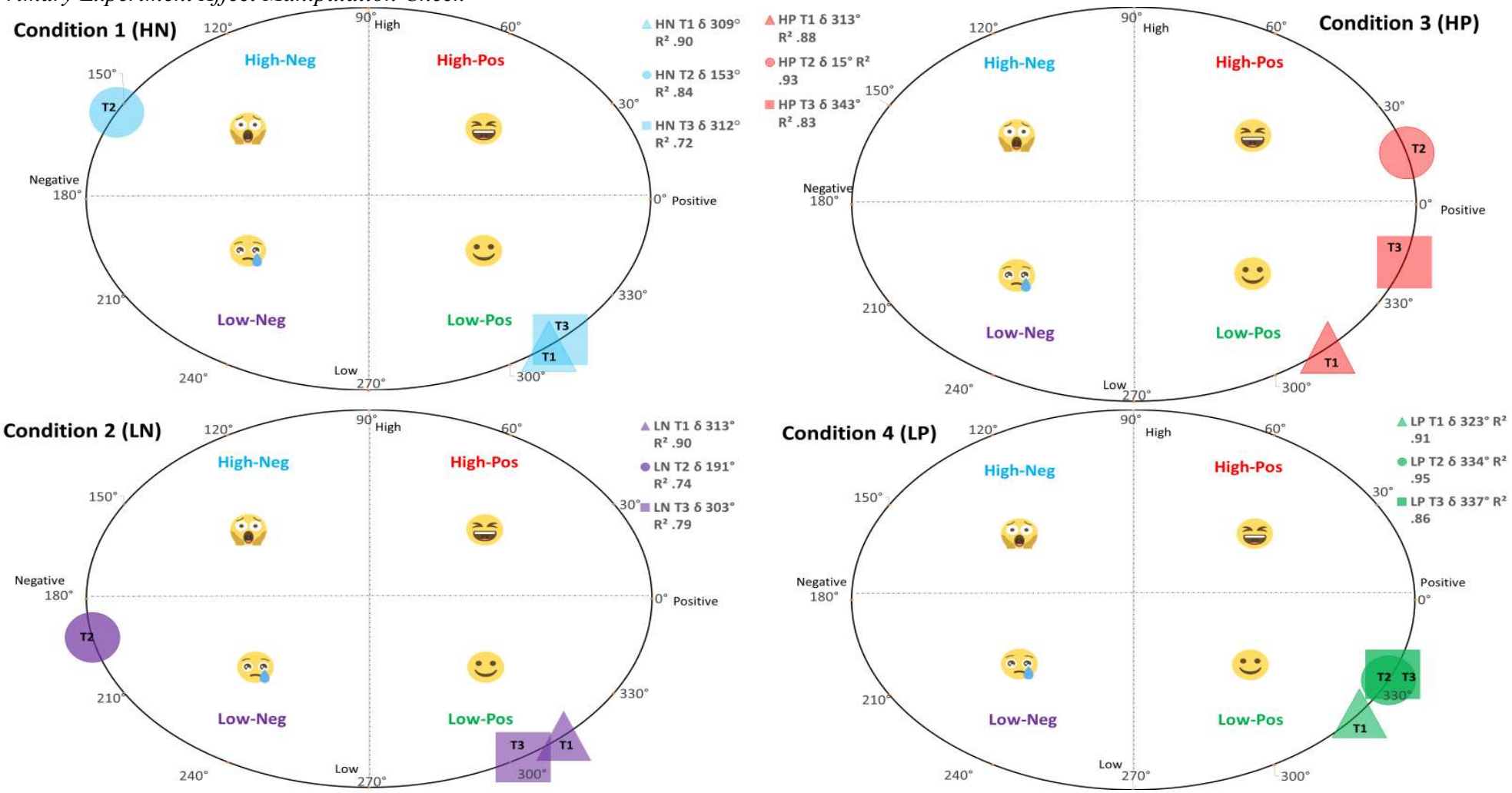


Figure 13

Primary Experiment Affect Manipulation Check



Note: Total *N*s = 34; HN = High-Arousal Negative Valence; HP = High-Arousal Positive-Valence; LN = Low-Arousal Negative-Valence; LP = Low-Arousal Positive-Valence T1 = Time 1; T2 = Time 2; T3 = Time 3; CI = 95% Confidence Interval; δ = Angular Displacement (Circular Mean); R2 = R^2 (Goodness-of-fit)

Appendix: Materials & Measures

A. Affect Induction Procedure Video Clip Selections

B. Sexual Vignettes

C. Sexual Behavior Questionnaire (SBQ)

D. 12-Point Affect Circumplex (12-PAC) Scales

E. Sexual Sensation Seeking Scale (SSSS)

F. Difficulty in Emotion Regulation Scale (DERS-16)

G. Condom Use Self-Efficacy Scale – Modified (MCUSES)

H. UPPS Negative Urgency Scale

I. UPPS-P Positive Urgency Scale

J. REDCap Depiction of Sexual Vignettes and Dependent Variable

Appendix A

Affect Induction Procedure Video Clip Selections

Condition	Pilot Phases	Database	Clip Title	Description
High-Arousal Negative-Valence	1, 2, 3	Schaefer et al. (2010)	*Misery*	Annie (Kathy Bates) breaks Paul's legs (James Caan) while he is strapped to a bed
	2, 3	Schaefer et al. (2010)	*Saving Private Ryan*	Graphic war scene: combat on D-Day in World War II
	2, 3	Schaefer et al. (2010)	*American History X*	A neo-Nazi (Edward Norton) kills an African-American man by smashing his head on the curb
	3	Gabbert-Quillen et al. (2015)	*The Ring*	A man's TV turns itself on, a girl crawls out and she pulls her hair out of her face.
Low-Arousal Negative-Valence	1, 2, 3	Gabbert-Quillen et al. (2015)	*The Shawshank Redemption*	An old man leaving prison narrates how hard he finds adjusting to the outside world and then hangs himself
	2, 3	Schaefer et al. (2010)	*A Perfect World*	Butch (Kevin Costner) is gunned down in front of a young boy
	2, 3	Schaefer et al. (2010)	*Dangerous Minds*	Students in a school class are told that one of their classmates has died
	2, 3	Schaefer et al. (2010)	*The Piano*	One of the characters gets her finger cut off by a man with an axe, causing blood to spray onto a young girl
High-Arousal Positive-Valence	1, 2, 3	Gabbert-Quillen et al. (2015)	*Remember the Titans*	A football team mounts a comeback to wins its final football game and then celebrates the victory
	2	Schaefer et al. (2010)	*Dead Poet's Society*	All the students climb on their desks to express their solidarity with Mr. Keating (Robin William), who has just been fired
	2, 3	Bednarski (2012)	*The Lottery*	A young man watches the television as winning lottery numbers are reported. He discovers he has won and celebration ensues
	3	Li et al. (2017)	*Speed Flying*	A speed wing pilot glides past mountains
	3	Li et al. (2017)	*Mega Coaster*	Viewer takes the perspective of someone riding a rollercoaster

Low-Arousal Positive-Valence	1	Schaefer et al. (2010)	*Dead Poet's Society*	All the students climb on their desks to express their solidarity with Mr. Keating (Robin William), who has just been fired
	2, 3	Gabbert-Quillen et al. (2015)	*The Hangover*	Four men wake up to a bizarre scene after a night of heavy drinking
	2	Schaefer et al. (2010)	*When Harry Met Sally*	Sally simulates an orgasm in a restaurant
	2, 3	Schaefer et al. (2010)	*Benny & Joon*	Benny (Johnny Depp) plays the fool in a coffee shop
	2, 3	Pucinelli et al. (2007)	*Big*	Tom Hanks and Robert Loggia play a giant piano with their feet

Appendix B

Sexual Vignettes

Vignette A*	One night, a "friend" contacts you and asks if he/she may come over. You and this person both have a mutual understanding that your relationship is not monogamous and that you meet up just to have sex. You feel a strong physical attraction to this person and you both begin kissing passionately. As things get more intense, it becomes clear that you both are very interested in having sex. At that point you realize that neither of you have a condom, and your partner suggests that you go ahead and have sex anyways.
Vignette B	An attractive male/female friend of one of your friends is visiting and you two seem to have a lot of sexual chemistry. You and a group of friends, including the attractive visitor, get together to hang out. As the night winds down, you take him/her to your dorm room where you begin to make out and fool around. Things start "heating up" and get more intense. You can tell that you both are interested and proceed to have sex.
Vignette C*	You and your friends are out at a party. An attractive man/woman approaches and you begin dancing together. He/She is a friend of a friend and you have met a couple of times before. Over the course of the night you continue to flirt with each other and dance together. At the party, your flirting progresses to kissing, and you decide to leave together. At your place, you immediately begin making out. Kissing progresses to stroking and the removal of some clothing. It is clear you both want to have sex, but neither of you have a condom.
Vignette D	You are out on a date with someone you recently met. Over the course of the evening, things are going well, and you are getting along great. You're laughing together and flirting with each other. After dinner, your date invites you up to his/her apartment. After talking for some time, you begin kissing and take off each other's clothing. It is clear your date is very interested in having sex.

Note: *Denotes Vignettes that were used in the primary experiment

Appendix C

Sexual Behavior Questionnaire (SBQ)

The next set of questions asks about your sexual behavior. It is extremely important that you be truthful. Remember, your name does not appear anywhere on this survey. Please answer these questions honestly to the best of your knowledge.

"Having sex" means performing oral sex on a partner; receiving oral sex from a partner; insertive/receptive vaginal sex; and insertive/receptive anal sex.

1. IN YOUR ENTIRE LIFE: How many different partners have you had sex with?

2. IN THE PAST YEAR: How many different partners have you had sex with?

3. In the past year, when you had sex, how often have you used condoms?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

Now, think back carefully over the past 3 months. Think of places you've been, people you've met, and things you've done. Please answer these questions about the past 3 months.

4. How many partners have you had sex with in the past 3 months?

5. How many times did you have sex while using a condom in the past 3 months?

6. How many times did you have sex without using a condom in the past 3 months?

7. How many times in the past month did you have sex using a condom?

8. How many times in the past month did you have sex without using a condom?

Appendix D

12-Point Affect Circumplex (12-PAC) Scales

Measures of the 12-PAC consist of three separate questionnaires, each in a different format. Hence, there are 36 scales in all. Here we give the "Remembered Moments" instruction for each format and its items. These instructions would be followed by all items for that format in a random order. An individual's score on each scale is calculated as the mean of that individual's responses to the items of that scale; thus, the potential range corresponds to the range of the response format. Psychometric properties of the 36 scales in Studies 1, 2, 3, and 4 are given in Table A2.

Instructions for Three Response Formats

The Adjective Format

This scale consists of a number of words that describe feelings, mood, and emotions. Please indicate to what extent you felt each of these at the REMEMBERED MOMENT.
Use the following scale to record your answers.

1	2	3	4	5
Not at all	A little	Moderately	Quite a bit	Extremely

The "Agree-Disagree" Format

This questionnaire contains 61 statements about how you felt at the REMEMBERED MOMENT. Please indicate how much you agree or disagree with each statement.
Please use the following scale to record your answer.

1	2	3	4	5
Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree

The "Describes Me" Format

Please use the following response options to indicate how well each phrase describes your feeling at the REMEMBERED MOMENT.

1	2	3	4
Not at all	Not very well	Somewhat	Very Well

		Response format		
Hypothetical angle	Segment	ADJECTIVE	AGREE	DESCRIBE
0°	III. Pleasure	Happy Content Satisfied Pleased	I was satisfied. I was happy I felt content.	My mood was positive. Overall, I was satisfied. Everything felt comfortable.
30°	II. Activated Pleasure	Proud Enthusiastic Euphoric	Right then, life felt terrific. I felt pretty enthusiastic about my life right then. I was feeling energetic and positive. I was feeling lively and cheerful. I was enthused about what I was doing. I was feeling inspired. I was feeling elated.	I felt elated. I felt very inspired. I felt enthusiastic.
60°	I. Pleasant Activation	Energetic Full of pep Excited Wakeful Attentive Wide awake Active Alert Vigorous	I was full of pep and energy. I felt energetic and vigorous. My mind was quick and alert.	I felt active and peppy. I felt alive and active. I felt very lively. Right then, I was sharp and attentive. I felt full of energy. Right then, I was brimming with vigor.
90°	XII. Activation	Aroused Hyperactivated	My body felt activated. I was in a state of frenzied excitement.	I was keyed up. I was full of energy and tension.

Cont'd.		Intense	I was filled with energy and tension. I was feeling stirred up.	I was stirred up. My mind was racing.
120°	XI. Unpleasant Activation	Anxious Frenzied Jittery Nervous	For some reason, I was feeling stirred up and jittery. I was feeling "jittery." For some reason, I had been feeling sort of nervous. I felt frenzied.	I felt jittery for some reason. I was anxious. My body was trembling with tension. At that moment, I felt nervous. My tension was quite intense. My mind was frantically agitated. I felt a lot of tension.
150°	X. Activated Displeasure	Scared Upset Shaky Fearful Clutched up	I felt tense. I was annoyed by something. I felt "clutched up". I was feeling pretty fearful at that moment. I felt on edge.	I felt guilty about something that I had said or done. For some reason, I felt scared and afraid. I felt ashamed of myself. I felt angry. I felt distressed.
		Tense	I felt worried.	I felt irritated at something.
		Ashamed	I felt agitated.	I felt disturbed and upset.
		Guilty	Right then, life felt like one big stress.	
		Agitated	Right then, life felt like one big struggle.	
		Hostile	I was bothered by something.	
			I was feeling pretty angry at that moment.	
180°	IX. Displeasure	Troubled	I was dissatisfied.	I was feeling troubled.
		Miserable	I was unhappy.	My mood was NOT good.
		Unhappy	I was miserable.	I felt unhappy.
		Dissatisfied	I was in agony.	My mood was negative.
210°	VIII. Deactivated Displeasure	Sad	I felt sad and blue.	I was surrounded with gloom and doom.
		Down	I was sadly slow.	My mood was melancholy and down.
		Gloomy	Everything seemed depressing.	I was weighed down with depression.
		Blue		
		Melancholy		
240°	VII. Unpleasant Deactivation	Droopy	Everything seemed boring.	I was so tired.
		Drowsy	I felt tired.	I felt drowsy.
		Dull	My body was sluggish.	Things were dull and boring.
		Bored	Things seemed pretty dull right then.	I felt sluggish and slow.
		Sluggish	I felt droopy and drowsy.	
		Tired	I was having trouble staying awake.	

270°	VI. Deactivation	Quiet	I was feeling quiet.	I was feeling placid, low in energy.
		Still	My body felt still.	My mind and body were resting, near sleep.
			I felt placid, near sleep.	My body was in a quiet, still state.
				My internal engine was running slowly and smoothly.
300°	V. Pleasant Deactivation	Placid	I was feeling placid.	My body was at rest.
		Relaxed	All of me felt at rest.	I was relaxed.
		Tranquil	My pace was leisurely and quiescent.	My body was tranquil.
		At rest	I was floating in a sea of tranquility.	Right then, I was calm about things.
		Calm	I was too calm to worry about anything.	
330°	IV. Deactivated Pleasure	Serene	I was blissfully at ease.	My mind was soothed and unperturbed.
		Soothed	I was feeling calm and rested.	My mind was pleasantly at ease.
		Peaceful	I was serenely at peace.	My mind was at peace with the world.
		At ease	My body felt soothed and comforted.	
		Secure		

Appendix E

Sexual Sensation Seeking Scale (SSSS)

1	2	3	4
Not at all like me	Slightly like me	Mainly like me	A lot like me

1. I like wild "uninhibited" sexual encounters
2. The physical sensations are the most important thing about having sex
3. I enjoy the sensation of intercourse without a condom
4. My sexual partners probably think I am a "risk taker"
5. When it comes to sex, physical attraction is more important to me then how well I know the person
6. I enjoy the company of "sensual" people
7. I enjoy watching "X-rated" videos
8. I have said things that were not exactly true to get a person to have sex with me
9. I am interested in trying out new sexual experiences
10. I feel like exploring my sexuality
11. I like to have new and exciting sexual experiences and sensations

Appendix F

Difficulty in Emotion Regulation Scale (DERS-16)

1	2	3	4	5
Almost Never	Sometimes	About Half the Time	Most of the Time	Almost Always

1. I have difficulty making sense out of my feelings
2. I am confused about how I feel
3. When I'm upset, I have difficulty getting work done
4. When I'm upset, I become out of control
5. When I'm upset, I believe that I will remain that way for a long time
6. When I'm upset, I have difficulty focusing on other things
7. When I'm upset, I feel out of control
8. When I'm upset, I feel ashamed with myself for feeling that way
9. When I'm upset I feel like I am weak
10. When I'm upset, I have difficulty controlling my behaviors
11. When I'm upset, I believe that there is nothing I can do to make myself feel better
12. When I'm upset, I become irritated with myself for feeling that way
13. When I'm upset, I start to feel very bad about myself
14. When I'm upset, I have difficulty thinking about anything else
15. When I'm upset, my emotions feel overwhelming

Appendix G

Condom Use Self-Efficacy Scale – Modified (MCUSES)

1	2	3	4	5
Strongly agree	Slightly agree	Undecided	Slightly disagree	Strongly disagree

1. I feel confident in my ability to put a condom on myself or my partner
2. I feel confident I could purchase condoms without feeling embarrassed
3. I feel confident in my ability to discuss condom usage with any partner I might have
4. I feel confident in my ability to suggest using condoms with a new partner
5. I feel confident I could suggest using a condom without my partner feeling "diseased"
6. I feel confident in my own or my partner's ability to maintain an erection while using a condom
7. I would feel embarrassed to put a condom on myself or my partner
8. I feel confident in my ability to use a condom correctly
9. I feel confident I could gracefully remove and dispose of a condom after sexual intercourse
10. I feel confident in my ability to incorporate putting a condom on myself or my partner into foreplay
11. I feel confident in my ability to put a condom on myself or my partner quickly
12. I feel confident that I would remember to use a condom even after I have been drinking
13. I feel confident I would remember to use a condom if I were high
14. I feel confident I could stop to put on a condom myself or my partner even in the heat of passion

Appendix H

UPPS Negative Urgency Scale

1	2	3	4
Not at all like me	Slightly like me	Mainly like me	A lot like me

1. I have trouble controlling my impulses
2. I have trouble resisting my cravings (for food, cigarettes, etc.)
3. I often get involved in things I later wish I could get out of
4. When I feel bad, I will often do things I later regret in order to make myself feel better now
5. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse
6. When I am upset I often act without thinking
7. When I feel rejected, I will often say things that I later regret
8. It is hard for me to resist acting on my feelings
9. I often make matters worse because I act without thinking when I am upset
10. In the heat of an argument, I will often say things that I later regret
11. Sometimes I do things on impulse that I later regret
12. I am always able to keep my feelings under control

Appendix I

UPPS-P Positive Urgency Scale

1	2	3	4
Strongly agree	Slightly agree	Slightly disagree	Strongly disagree

1. When I am very happy, I can't seem to stop myself from doing things that can have bad consequences
2. When I am in a great mood, I tend to get into situations that could cause me problems
3. When I am very happy, I tend to do things that may cause problems in my life
4. I tend to lose control when I am in a great mood
5. When I am really ecstatic, I tend to get out of control
6. Others would say I make bad choices when I am extremely happy about something
7. Others are shocked or worried about the things I do when I am feeling very excited
8. When I get really happy about something, I tend to do things that can have bad consequences
9. When overjoyed, I feel like I can't stop myself from going overboard
10. When I am really excited, I tend not to think of the consequences of my actions
11. I tend to act without thinking when I am really excited
12. When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with
13. When I am very happy, I feel like it is OK to give in to craving or overindulge
14. I am surprised at the things I do while in a great mood

Appendix J

REDCap Depiction of Sexual Vignettes and Dependent Variable

You are about to read a series of scenarios that describe a romantic encounter between you and a hypothetical partner. Please imagine how you might feel or react if you were to find yourself in the various situations depicted in the scenarios. It is understandable that you might be tempted to answer some of the following questions based on what seems to be the "right" answer. However, in order to do a meaningful study, we need to know what you would do, not what you think you should do. There are no right or wrong answers. In each scenario you/your partner is taking oral contraceptives for birth control (i.e., "on the pill").

One night, a "friend" contacts you and asks if she may come over. You and this person both have a mutual understanding that your relationship is not monogamous and that you meet up just to have sex. You feel a strong physical attraction to this person and you both begin kissing passionately. As things get more intense, it becomes clear that you both are very interested in having sex. At that point you realize that neither of you have a condom, and your partner suggests that you go ahead and have sex anyways.

1) How likely are you to have sex in this scenario?

1=Not at all likely — 3=Neither likely nor unlikely — 5=Very likely

(Place a mark on the scale above)

2) How likely are you to perform oral sex on your partner?

1=Not at all likely — 3=Neither likely nor unlikely — 5=Very likely

(Place a mark on the scale above)

3) How likely are you to rub your genitals against your partner's genitals?

1=Not at all likely — 3=Neither likely nor unlikely — 5=Very likely

(Place a mark on the scale above)

4) How likely are you to have vaginal sex with your partner?

1=Not at all likely — 3=Neither likely nor unlikely — 5=Very likely

(Place a mark on the scale above)

5) How realistic do you think this scenario was?

- ◯ Not realistic at all
- ◯ A little realistic
- ◯ Somewhat realistic
- ◯ Very realistic

6) How serious do you perceive the relationship to be?

- ◯ Not serious at all
- ◯ A little serious
- ◯ Somewhat serious
- ◯ Very serious

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Yik, M., Russell, J. A., & Steiger, J. H. (2011). A 12-point circumplex structure of core affect. *Emotion*, 11(4), 705-731.

CURRICULUM VITAE

Alan Z Sheinfil

EDUCATION

Syracuse University, Syracuse, New York
Clinical Psychology Doctoral Program, August 2016 - present
Advisor: Sarah E. Woolf-King Ph.D., M.P.H.

CUNY Queens College, Flushing, New York
Bachelor of Arts in Psychology, May 2014

HONORS AND AWARDS

2011 – 2014 – Dean's List, Queens College
2014 – Graduated with Highest Honors in Psychology, Psychology Department, Queens College
2014 – Graduated Suma Cum Laude, Queens College
2017 – 2018 – Research Travel Award, Dept. of Psychology, Syracuse University
2018 – Research Travel Grant, Graduate Student Organization, Syracuse University

RESEARCH EXPERIENCE

Syracuse University, Psychology and Health Laboratory, Syracuse, NY
Graduate Research Assistant, August 2016 - present
Supervisor: Dr. Sarah E. Woolf-King, Ph.D., M.P.H.
Conduct research on a pilot comparative effectiveness randomized clinical trial of Acceptance and Commitment Therapy for HIV-infected hazardous drinkers, and an event-level examination of the relationship between alcohol consumption and high-risk behavior among HIV-infected men who have sex with men entitled *Brief Acceptance and Commitment Therapy for HIV-Infected At-Risk Drinkers (NIAAA 1R34AA026246-01A1); Alcohol Use and High Risk Behavior Among HIV-Positive Men (NIAAA 5K01AA021671-06)*

New York State Psychiatric Institute and Columbia University, HIV Center for Clinical and Behavioral Studies, New York, NY
Research Assistant, October 2014 - August 2016
Supervisors: Dr. Alex Carballo-Diéguez, Ph.D.
Conducted research on an international study examining the safety and acceptability of a rectal-microbicide for HIV prevention and a randomized control trial examining the efficacy of HIV self-tests as a biomedical HIV prevention intervention for high-risk men who have sex with men entitled *MTN-017: A Phase 2 Randomized Sequence Open Label Expanded Safety and Acceptability Study of Oral Emtricitabine/Tenofovir Disoproxil Fumarate Tablet and Rectally-Applied Tenofovir Reduced-Glycerin 1% Gel; Rapid Home Test to Reduce Sexual Risk Behavior in MSM and Transgender Women (NICHD 5R01HD076636-05)*

CUNY Queens College, Applied Behavior Analysis Laboratory, Flushing, NY
Research Assistant, September 2013 - September 2014
Supervisor: Bruce L. Brown, Ph.D.
Conducted research on a study in which the effects of emotion on time perception were tested.

CLINICAL EXPERIENCE

Syracuse University, Psychological Services Center, Syracuse, New York
Student Clinician, June 2018 - Present
Provide individual therapies in a university-based outpatient training facility to adults with diverse psychiatric conditions and conduct clinical/neuropsychological assessments (e.g., ADHD assessment) with adults and adolescents.

Queens College Psychological Services Center, Flushing, NY
Student Volunteer, August 2013 - May 2014
Supervisor: Yvette Caro, Ph.D.
Provided administrative and clinical support to advanced graduate students in a clinical doctoral program who were practicing in a university-based outpatient training facility.

PEER-REVIEWED MANUSCRIPTS

Woolf-King, S. E., **Sheinfil, A. Z.,** Babowitch, J. D., Siedle-Khan, B., Loitsch, A., Maisto, S. A. (2018). Acceptance and Commitment Therapy (ACT) for HIV-infected Hazardous Drinkers: A Qualitative Study of Acceptability. *Alcohol Treatment Quarterly.* https://doi.org/10.1080/07347324.2018.1539630

Babowitch, J. D., **Sheinfil, A. Z.,** Woolf-King, S. E., Vanable, P. A., & Sweeney, S. M. (2018). Association of Depressive Symptoms with Lapses in Antiretroviral Medication Adherence Among People Living with HIV: A Test of an Indirect Pathway. *AIDS and Behavior*, *22*(10), 3166–3174.

Brown III, W., Giguere, R., **Sheinfil, A.,** Ibitoye, M., Balan, I., Ho, T., ... & Carballo-Diéguez, A. (2018). Challenges and solutions implementing an SMS text message-based survey CASI and adherence reminders in an international biomedical HIV PrEP study (MTN 017). *Journal of Biomedical Informatics*, *80*, 78-86. PMCID: PMC5920551.

Giguere, R., Rael, C. T., **Sheinfil, A.,** Balán, I. C., Brown, W., Ho, T., ... & Lama, J. R. (2018). Factors Supporting and Hindering Adherence to Rectal Microbicide Gel Use with Receptive Anal Intercourse in a Phase 2 Trial. *AIDS and Behavior*, *22*(2), 388-401. PMCID: PMC5818328.

Iribarren, S. J., Ghazzawi, A.[*], **Sheinfil, A. Z.[*],** Frasca, T., Brown, W., Lopez-Rios, J., ... & Giguere, R. (2018). Mixed-Method Evaluation of Social Media-Based Tools and Traditional Strategies to Recruit High-Risk and Hard-to-Reach Populations into an HIV Prevention Intervention Study. *AIDS and Behavior*, *22*(1), 347-357. PMCID: PMC5760436.
[*]*authors contributed equally to the work*

Giguere, R., Brown III, W., Balán, I. C., Dolezal, C., Ho, T., **Sheinfil, A.,** ... & Carballo-Diéguez, A. (2017). Are participants concerned about privacy and security when using short message service to report product adherence in a rectal microbicide trial?. *Journal*

of the American Medical Informatics Association, *25*(4), 393–400. PMCID: PMC5885798.

Rael, C. T., **Sheinfil, A.,** Hampanda, K., Carballo-Diéguez, A., Pala, A. N., & Brown, W. (2017). Examining the Unique Characteristics of a Non-Probability Sample of Undocumented Female Sex Workers with Dependent Children: The Case of Haitians in the Dominican Republic. *Sexuality & Culture*, *21*(3), 680-691. PMCID: PMC5612487.

Rael, C. T., Carballo-Diéguez, A., Norton, R., Thorley, E., Giguere, R., **Sheinfil, A.,** & Rios, J. L. (2016). Identifying Strategies to Cope with HIV-Related Stigma in a Group of Women Living with HIV/AIDS in the Dominican Republic: A Qualitative Study. *AIDS and Behavior*, *21*(9), 2589-2599. PMCID: PMC5673588.

Sheinfil, A. Z., Foley, J. D., Ramos, J. M., Antshel, K. M., Woolf-King, S. E. (Under Review). Psychotherapeutic Depression Interventions Adapted for Sexual and Gender Minority Youth: A Systematic Review of an Emerging Literature. *Journal of Gay and Lesbian Mental Health.*

PRESENTATIONS

Listed in reverse chronological order

Sheinfil, A. Z., Loitsch, A., Babowitch, J. D., Muyindike, W., Kusasira, A., Emenyonu, N., Hahn, J., Woolf-King, S. E. (2018, June). Alcohol-Related Barriers to Condom Use Among People Living with HIV in Rural Uganda: A Qualitative Analysis. *Alcoholism: Clinical and Experimental Research, Vol. 42, No. 6,* June 2018.

Babowitch, J.D., **Sheinfil, A.Z.,** Ramos, J., Vanable, P.A., & Sweeney, S.M. (2018, April). Pre-Exposure Prophylaxis to Prevent HIV Transmission for Serodiscordant Couples: Perspectives of People Living with HIV. Poster presented at the annual meeting of the Society of Behavioral Medicine, New Orleans, LA.

Sheinfil, A. Z., Loitsch, A., Siedle-Khan, B., Maisto, S. A., Woolf-King, S. (2017, June) Preliminary Reactions to Brief Acceptance and Commitment Therapy for Alcohol Use Among HIV-Infected Men Who Have Sex with Men (MSM). *Alcoholism: Clinical and Experimental Research*, Vol. 41, No. 6, June 2017

Dolezal, C., Rael, C., Balan, I., Giguere, R., Leu, C. S., Brown III, W., **Sheinfil, A.,** Lama, J., Cranston, R. D., McGowan, I., & Carballo- Diéguez, A. (2016, October). The Association between Sexual Behavior and Acceptability of Oral PrEP and a Rectal Microbicide Gel to Prevent HIV Transmission. In *AIDS RESEARCH AND HUMAN RETROVIRUSES* (Vol. 32, pp. 377-377). 140 HUGUENOT STREET, 3RD FL, NEW ROCHELLE, NY 10801 USA: MARY ANN LIEBERT, INC.

Brown III, W., Giguere, R., **Sheinfil, A.,** Balan, I., Ibitoye, M., Dolezal, C., ... & Carballo-Diéguez, A. (2016, October). Feasibility and Acceptability of an International SMS Text Message-based Adherence and Survey System in a Biomedical HIV Prevention Study

(MTN-017). In *AIDS RESEARCH AND HUMAN RETROVIRUSES* (Vol. 32, pp. 386-386). 140 HUGUENOT STREET, 3RD FL, NEW ROCHELLE, NY 10801 USA: MARY ANN LIEBERT, INC.

Rael, C., **Sheinfil, A.,** Hampanda, K., Brown III, W. (2016, October). Depression and health consciousness in undocumented female sex workers: The case of Haitians in the Dominican Republic. Poster session presented at the meeting of the American Public Health Association (APHA), Denver, CO.

TEACHING EXPERIENCE

Guest Lecturer, Health Psychology, Affect and Sexual Risk Behavior, Fall 2018
Guest Lecturer, Health Psychology, HIV: Epidemiology, Transmission, Treatment, & Prevention, Summer 2018
Undergraduate Teaching Assistant, Psychology of Personality, Spring 2014

PROFESSIONAL MEMBERSHIP

Syracuse University
2017 – Undergraduate Student Mentor
2017 – Graduate Student Assistant, Intersection of Alcohol & HIV Risk-Behavior Conference

Professional Society Membership
2014 – Psi Chi Honor Society Member
2016 – Graduate Student Member, Psychology Action Committee, Syracuse University
2018 – Student Member, Society of Behavioral Medicine (SBM)