

The Relationship between Behavioral Activation/ Inhibition Systems (BAS/BIS) and Bullying/ Victimization Behaviors among Male Adolescents

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Objective: This research was conducted to investigate the relationship between behavioral activation-inhibition systems and bullying-victimization behaviors among adolescents.

Method: This was a correlational and cross-sectional study. Two hundred and thirty school boys were selected randomly by multistage cluster sampling method, and participated in this research. This sample responded to a demographic questionnaire, the Revised Olweus Bully/ Victim questionnaire and the child version of behavioral inhibition/activation systems Scale in their classrooms and in the presence of the researcher. The collected data were analyzed by Pearson's correlation and multiple regressions.

Result: The results showed that bullying and victimization were correlated with both behavioral activation and behavioral inhibition systems ($p < 0.01$). The results also showed that 18% of the variance in victimization and 31 % of the variance in bullying were explained by behavioral inhibition and behavioral activation systems respectively.

Conclusion: The results of this study implied that BAS and BIS may play a role in the manifestation of bullying in adolescents.

Key words: Behavioral activation system (BAS), behavioral inhibition system (BIS), bullying, victimization, adolescents

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Bullying behavior and peer victimization among adolescent school students have received increasing attention in the last years. Although some conflict and satirizing are normal among adolescents (1), bullying reveals a stable threat to children's psychosocial adjustment. Serious psychological, social, educational and behavioral outcomes of bullying have stimulated scientific investigations into the prevention and intervention of this problem. Bullying behavior is defined as an imbalance of power between two individuals, where the stronger individual repeatedly causes harm to the weaker individual (2). Adolescent bullying is a significant international problem (3) with as many as 100–600 million adolescents directly involved in bullying worldwide, each year (4). Moreover, bullying has been documented by anthropologists, studying modern hunter-gatherers (5) and historians, documenting past cultures (6).

The studies on bullying demonstrate that about 30% of the students are involved in bullying either as a bully or as a victim, or both a bully and victim (7, 8, 9). According to the data provided by the National Institute of Child Health and Human Development (NICHD), of the 30% of the students involved in bullying, 13% reported that they actually bullied other students; 11% experienced bullying and 6%

were involved in bullying either as a bully or as a victim (8). In another study, 8% of the students reported being bullied at least once a week. (10). In the different studies conducted in the United States, England, Germany, Finland and Australia, the frequency of bullying was reported to be in the region of 15% to 20% (11). On the other hand, in a study carried out by Greeff (2004), among 360 four to six grade students, 56.4% reported being bullied (12). In a study in Turkey, the results of Cartal (2009) on elementary school students showed that 79.6 % of students were bullied during the past month (13).

The causes of bullying are multiple; these causes relate to both personal factors as well as the social environment. It has been claimed that students who are physically stronger, more aggressive, more adventurous, and physically more active have an intrinsic tendency to bully. On the other hand, those students who are physically and emotionally weaker, more reserved, more unpretentious and not vindictive are likely to be the victims. When one investigates aggressiveness and family factors, it is easy to observe that the bullies come from families lacking role-models, problem solving skills and discipline and are exposed to violence and aggressive disciplinary techniques in their families (13). Unlike

the bullies, the victims have a tendency to be quiet and passive, and have only few friends. The victims are unable to effectively respond to the aggressive behavior of others and are inhibited and would not tell about being bullied to an adult or wait for a long time to do so (14). Some of the reasons for these are timidity, and fear that, if they do report, their families may not be able to protect them in places where they are bullied (in play grounds, school hallways and going to and from school) (15). It is reported that the male victims, when compared to male bullies, are physically weak and less skillful. Oliver et al. (1994) demonstrated that the bullied victims think that they are bullied due to their own incompetence, sentimentality and social incapability, and also think that they are themselves to blame for this (16).

However, relatively little research has directly studied the link between personality factors and bullying. Olweus (2) outlined the typical personality of bullies as being tolerant of violence, impulsive, and unempathic. Studies using the Eysenck Personality Inventory-Junior reported heightened levels of psychoticism and modest increases in extraversion and neuroticism amongst bullies (17, 18, 19).

Other studies regarding bullying and the Big Five personality factors have revealed that children who bullied tended to show a similar pattern of low Friendliness (Agreeableness) and higher Emotional Instability (Neuroticism) (20, 21). A study amongst American children again found a negative correlation with Agreeableness, but no relationship with Neuroticism and a significant negative relationship with Conscientiousness (22). Scholte and colleagues (2005) found that under controllers (moderate to high scores on extraversion, low scores on Agreeableness and Conscientiousness) were more likely to bully other children (23). Book, Volk and Hosker (2012) found that bullying negatively associates with such personality traits as fairness and modesty (Honesty–Humility), but is unrelated to such traits as forgiveness and tolerance (Agreeableness). In this study, bullying was related to instrumental, but not reactive, aggression (24). Bullying has also been linked to moderately higher levels of callous-unemotional (CU) traits that include lack of guilt, lack of empathy, poor affect, and use of another for personal gain (25, 26).

Based on a theoretical framework for the understanding of bullying behavior, provided by Grigsby and Stevens (27), bullies may lack the capability to inhibit their aggressive and inappropriate verbal and physical actions. In their study aimed to investigate the effects of the behavioral activation system (BAS) and behavioral inhibition system (BIS) on decision-making in a gambling task, Kim and Lee (28) found that the high BAS and low BIS group made the most risky decisions after a winning experience, while the low BAS and high BIS group made more non-risky

decisions after a losing experience. On the irrational belief scale, the high BAS groups bet larger amounts and had higher confidence levels in a losing condition. In their research aimed to study the relationship between components of the behavioral activation system and impulsivity, Leone and Russo (29) found that the drive component was uniquely connected with functional impulsivity, and fun seeking was linked to both impulsivities, but more weakly so to functional impulsivity compared with drive. Reward responsiveness was unrelated to impulsivity. High levels of BIS activity are thought to be linked to anxiety symptoms (30), whereas low levels of BIS activity have been proposed to be associated with attention-deficit and hyperactivity disorder (31) and psychopathy (32). In addition, high levels of BAS activity are hypothesized to be related to conduct disorder and antisocial personality disorder (33), whereas low levels of BAS activity have been regarded as a marker for depression (34). The results of Connolly and Mona O'Moore (17) indicated that children who bullied exhibited greater emotional inhibition and attributed significantly more negative statements to themselves than children who did not bully. The children who bullied also demonstrated an ambivalent relationship with their siblings, mothers and fathers. In the study of Cagnon (36), High BAS drive and low BIS were significant predictors of aggressive behavior, and BAS reward responsiveness predicted protective behavior.

Based on the results of these studies, it appears that the findings for bullying and personality are few, scattered in their measures, and largely a theoretical. Given Gray's assumption that the various types of psychopathology can be explained by different constellations of BIS and BAS and based on the importance of the functioning of brain systems in understanding different forms of psychopathology implied in previous researches, this research was conducted to investigate the relationship between Behavioral Activation-Inhibition Systems and bullying-victimization behaviors among adolescents.

Material and Methods

Using a cross-sectional analytic study, the relationship between BAS-BIS brain systems and bullying-victimization in adolescent students was explored.

Participants

All male students enrolled in secondary and high schools in Ardabil during 2011-2012 academic years made up the statistical population of this research. Two hundred and thirty students were selected randomly by multistage cluster sampling method, and participated in this research.

Measures

The following instruments were used to obtain the necessary data in this research :

1. A demographic questionnaire

A demographic questionnaire was administered to gather demographic information such as age, school grade, social and economical status of family. These data were used for descriptive purposes .

2. The Revised Olweus Bully-Victim Questionnaire

The Persian version of this scale developed by Olweus in 1996 and reviewed by Solberg and Olweus in 2003 was utilized. This questionnaire is based on a Likert rating scale and consists of 39 questions measuring 1. Exposure to various (physical, verbal, indirect, racial, sexual etc) forms of bullying. Harassment, (victimization: items 4-23) and 2. Various forms of bullying other students (bullying: items 24-39), for a period of the last 2 or 3 months (37). Internal consistency of this questionnaire was found to range between 0.80 and 0.90 in a large sample of more than 5000 students. The coefficients of convergent validity of this questionnaire with valid peer rating were reported to be moderate ranging from 0.40 to 0.6 (38). Cronbach's alpha for the victimization scale was 0.81, while alpha for the bullying scale was 0.78 .

3. The Children version of BIS. BAS scales

These scales were developed by Muris et al. (39) based on the Carver & White BIS. BAS scales. These researches changed and simplified the original items of the Carver & White BIS. BAS scales to make them more appropriate and understandable to children. These scales have been constructed to assess individual differences in sensitivity of the BIS and BAS. Each item had to be scored on a four-point Likert scale with 0 = not true, 1 = somewhat true, 2 = true, and 3 = very true. Previous factor analytic studies using the BIS. BAS scales in adults have consistently demonstrated that the 20 items can be allocated to four subscales: BIS; BAS Reward responsiveness; BAS Drive; and BAS Fun seeking (40). Muris et al. (39) reported Cronbach alpha of 0.78 for BIS and 0.81 for BAS. These coefficients ranged between 0.65 and 0.93 in this study. Both questionnaires used in this study were initially translated to Farsi and then back translated to English by a graduate student majoring in English translation. Next, the face validity of these questionnaires was confirmed by two psychologists and two psychiatrists. The internal consistency of these questionnaires was also estimated using Cronbach's alpha and the results have been reported for each questionnaire.

Data collection began after having secured permission from the educational department of city of Ardabil. In the first stage, one educational zone was selected randomly from the two Ardabil educational zones. Then, a secondary school and a high school for boys were selected from these areas. Finally, one class was selected from each educational level (first, second and third grades). The students were informed about the purpose of the study; and then, the demographic questionnaire, The Revised Olweus Bully/Victim Questionnaire and the children version of BIS/BAS scales were administered in groups in their classrooms and in the presence of the researcher. The collected

data were analyzed using Pearson's correlation and multiple regression analyses.

Result

Two hundreds and twelve male students with a mean age (\pm SD) equal to 15.06 (\pm 1.47) participated in this research.

Table 4 shows that 31% of the total variance in bullying is explained by BAS and BIS. Results BIS (punishment), was able to negatively predict bullying negatively and BAS (fun seeking) was able to predict it positively .

The result of table 2 shows demonstrates that that all components of BAS negatively correlated negatively with victimization and positively correlated with bullying. Conversely, BIS correlated positively correlated with victimization and negatively correlated with bullying .

Table 3 shows that 18 percent% of the total variance in victimization by bullying is explained by BAS and BIS. of the various indices of BAS and BIS, only two BAS indices, (reward responsiveness and drive), are predictive of victimization .

Table 1 shows the frequency and percentage of subjects participating in this research in terms of educational grade, socioeconomic status, parents' employment and educational status.

Discussion

The results of this research showed that all components of the BAS (reward responsiveness, drive and fun seeking) negatively correlated with victimization, but BIS (sensitivity to punishment) positively correlated with victimization. The results also showed that drive and reward responsiveness, two components of BAS, explain about 18% of the total variance in victimization. These results are consistent with the results of Cohn and Canter (13), Morano (14), relating to the characteristics of bullied children, and the results of Oliver et al., (16) and Kim and Lee (28), suggesting that bullied children believe that they are incompetent and socially incapable. The behavioral inhibition system (BIS), in which reactivity emerges as trait anxiety at the surface personality level (30), leads to passive reactions and avoidance when confronted with punishment cues and new stimuli. As a result, the person becomes vulnerable to victimization by peer bullying. Given the relationship between victimization and affective problems, these results support the results of studies, reporting the predictive role of BIS in affective disorders (41).

On the other hand, the behavioral activation system (BAS), activated by positive stimuli and signals of impending reward, activates the reward seeking behavior, feelings of pride and the expectancy for good events, despite the existence of threat and danger (30).

Table 1: Descriptive characteristics of participants

| variables | category | Frequency | percent |
|-----------------------------|---|-----------|---------|
| School grade | Junior high first grade | 32 | 15.1 |
| | Junior high second grade | 33 | 15.6 |
| | Junior high third grade | 39 | 18.4 |
| | Senior high first grade | 37 | 17.5 |
| | Senior high second grade | 33 | 15.6 |
| | Senior high third grade | 38 | 17.9 |
| Socio-economic status | low | 10 | 4.7 |
| | middle | 76 | 35.8 |
| | upper middle | 64 | 30.2 |
| | high | 60 | 28.3 |
| Father's employment status | Government employee | 44 | 20.8 |
| | Self-employed | 68 | 32.1 |
| | unemployed | 58 | 27.4 |
| | other | 42 | 19.8 |
| Mother's employment status | Government employee | 18 | 8.5 |
| | Self-employed | 10 | 4.7 |
| | unemployed | 180 | 84.9 |
| Father's educational status | Not completed high school | 140 | 66.0 |
| | Between high school and undergraduate studies | 60 | 28.3 |
| | Beyond graduation | 12 | 5.7 |
| Mother's educational status | Not completed high school | 132 | 62.3 |
| | Between high school and undergraduate studies | 74 | 34.9 |
| | Beyond graduation | 6 | 2.8 |

Table 2: Pearson correlations of BAS/BIS components and bullying/victimization

| Variables | M | SD | Bullying | BIS (Punishment) | BAS(Reward Responsiveness) | BAS (Drive) | BAS (Fun seeking) |
|---------------------------------|-------|-------|----------|------------------|----------------------------|-------------|-------------------|
| Victimization by other bullying | 24.45 | 9.72 | -0.13 | 0.22** | -0.37** | -0.35** | -0.15* |
| Bullying | 30.14 | 10.14 | | -0.47** | 0.30** | 0.30** | 0.36** |
| BIS (Punishment) | 8.98 | 3.90 | | | -0.27** | -0.26** | -0.22** |
| BAS(Reward Responsiveness) | 10.10 | 4.30 | | | | 0.49** | 0.29** |
| BAS (Drive) | 7.73 | 4.51 | | | | | 0.46** |
| BAS (Fun seeking) | 7.91 | 5.80 | | | | | |

Behavioral activation system (BAS), behavioral inhibition system (BIS)

Table 3: prediction of victimization by bullying on BAS and BIS

| Criterion | Predictors | R ² | B | B SE | β | T | p | Collinearity statistics | |
|---------------|----------------------------|----------------|-------|------|-------|-------|-------|-------------------------|------|
| | | | | | | | | tolerance | VIF |
| Victimization | (Constant) | 0.18 | 3.82 | 2.57 | | 11.97 | 0.001 | | |
| | BIS (Punishment) | | 0.25 | 0.16 | 0.10 | 1.55 | 0.12 | 0.89 | 1.18 |
| | BAS(Reward Responsiveness) | | -0.55 | 0.16 | -0.24 | -3.30 | 0.001 | 0.73 | 1.36 |
| | BAS (Drive) | | -0.48 | 0.16 | -0.22 | -2.87 | 0.004 | 0.64 | 1.56 |
| | BAS(fun seeking) | | 0.07 | 0.12 | 0.04 | 0.65 | 0.51 | 0.77 | 1.29 |

Behavioral activation system (BAS), behavioral inhibition system (BIS)

Table 4: prediction of bullying on BAS and BIS

| Criterion | predictors | R ² | B | B SE | β | T | p | Collinearity statistics | |
|-----------|----------------------------|----------------|-------|------|-------|-------|-------|-------------------------|------|
| | | | | | | | | tolerance | VIF |
| Bullying | Constant | 0.31 | 32.57 | 2.46 | | 13.21 | 0.001 | | |
| | BIS (Punishment) | | -1.00 | 0.15 | -0.38 | -6.29 | 0.001 | 0.89 | 1.11 |
| | BAS(Reward Responsiveness) | | 0.27 | 0.15 | 0.11 | 1.70 | 0.08 | 0.73 | 1.36 |
| | BAS (Drive) | | 0.08 | 0.16 | 0.03 | 0.51 | 0.60 | 0.63 | 1.56 |
| | BAS(fun seeking) | | 0.39 | 0.11 | 0.22 | 2.44 | 0.001 | 0.77 | 1.29 |

Behavioral activation system (BAS), behavioral inhibition system (BIS)

These personally traits prevent the person from being victimized by bullying .

The second result of this study was that bullying correlates with high activity of the behavioral activation system, but negatively correlates with the high activity of the behavioral inhibition system. The behavioral inhibition system (sensitivity to punishment) and behavioral activation system (fun seeking) were able to explain about 31% of the variance in bullying. These results are consistent with results of Olweus (2), Connolly and O'Moore (17), Mynard and Joseph (18), Slee and Rigby, Menesini et al (20), Tani (21), Volk and Hosker (24) in that personality correlates with bullying behavior. These results are also congruent with the correlation of high BAS and low BIS with making risky decisions, reported by Kim and Lee (28) and results of Quay (33) on relationships between high activity of BAS and conduct disorder. According to Gray's ideas (30), the BIS serves to alert the person to the possibility of danger or punishment, thereby enhancing avoidance behavior. High activity in the BIS is responsible for feelings of anxiety and incites the individual to stop whatever action is going on and to scan the environment for further cues. Low activity of this system in adolescents leads to impetuosity and bullying. On the other hand, high activity in the BAS produces impulsive behavior: the person will vigorously pursue any action that might result in reward, with little attention to the possibility of negative consequences. The important result of this study was that the components of BAS, only fun seeking in the regression model predicted variance in bullying. Based on this finding, it can be concluded that a lot of bullying behaviors among adolescent boys may be conducted for fun and excitement .

In conclusion, the results of this study demonstrate that temperamental traits such as BAS and BIS play an important role in manifestation of psychopathology, especially in adolescent bullying. An important limitation of this study is the use of correlational research as it provides no possibility for any causal inference between these variables. The use of self-report for the assessment of bullying and lack of precise control over certain intervening variables were further factors that limit the implications of this study. Other measures such as teacher, parent or peer reports could be used for assessment of bullying/ victimization in future research.

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