



Vol. 5, Issue 1, 35-42, 2016

## Academic Journal of Psychological Studies

ISSN: 2333-0821

ajps.worldofresearches.com

### Investigate the Role of Behavioral Inhibition System (BIS), Behavioral Activation System (BAS) and Psychological Distance in Adolescent Depression

Farideh-Sadat Hoseini<sup>\*</sup>, Amene Almasi  
Persian Gulf University, Boushehr, Iran.

#### A B S T R A C T

This study aims to analyze the role of behavioral inhibition system, behavioral activation system and psychological distance in adolescent's depression. The statistical society of this research includes grade one and two of high school students in Baghmalek (Iran) during the academic year of 1393-1394. 486 students were selected by use of accidental cluster sampling. In order to analyze the research variables, all of the participants completed mood and feeling questionnaire (Angold, Costello & Worthman, 1987), Behavioral inhibition system, behavioral activation system (BIS, BAS, Carver & white, 1994) questionnaire and Psychological distance questionnaire (social dominance orientation, Sidanius and Pratto 1999, the circle of moral regard, Reed and Aquino, 2003). The research data was analyzed by means of Pirson's coefficient and regression method. The results show that the behavioral inhibition system and Drive response are positive and significant predictor for adolescent's depression. But psychological distance couldn't predict depression in adolescent. According to the results of present study, behavioral inhibition system and drive response have an important role in predicting adolescent's depression.

**Keywords:** Adolescent, Depression, Behavioral inhibition system (BIS), Behavioral activation system (BAS), Psychological distance.

#### INTRODUCTION

Adolescence is a transition from childhood to adulthood typically characterized by increased demands for coping with multiple social, biological, and psychological changes and the emergence of the cognitive precursors of adulthood<sup>1</sup>. Adolescence emotions and the spiritual and mental consequences of this period are so huge that the expert of the behavioral science describe these years by using terms such as storm and pressure, negative periods and convulsive life. They believe provided that the adolescence survives this period without difficulty, they turn into a healthy adult and consequently they perform their role well. If they face hardship in this passing period, the mental health of the

<sup>\*</sup>. Corresponding Author: fsadathoseini@yahoo.com

To cite this article: Hoseini, F. S., Almasi, A. (2016). Investigate the Role of Behavioral Inhibition System (BIS), Behavioral Activation System (BAS) and Psychological Distance in Adolescent Depression. *Academic Journal of Psychological Studies*, 5 (1), 35-42.

adolescence will go awry. Adolescence is the period of sudden change. These changes that happen suddenly and simultaneously in the physical condition, mental status and the mentalities of the adolescent will cause new and often transient qualities and traits in them. It is natural that the outbreak of these mental states and its consequent new qualities that appear in every adolescent with a strong and weak rhythm and sometimes sounds paradoxical turn the adolescent into a nonconforming person. Considering the qualities that we mentioned, the adolescents pass a period of their lives that are more apt to suffer from mental disorders. One of these disorders is depression. Depression is the most prevalent internalizing problem among adolescents<sup>2</sup>. Depression is a complex disorder and a number of risk factors and causal mechanisms (e.g. psychosocial ,neurocognitive, and gene environment interplay) are likely to be involved<sup>3</sup>. The heightened vulnerability to depression among adolescents likely reflects the difficulties in negotiating a complex developmental period that is marked by significant physical, psychological and social transitions. A variety of theories have been proposed to account for the depression and many dysfunctional tendencies have been linked to depression. One prominent theory refer one's vulnerability to depression is that proposed by Gray<sup>4</sup>. Since Gray proposed the BIS and the BAS as major neurobehavioral systems at the base of personality, a number of authors have proposed the relevance of these systems for psychopathology<sup>5</sup>. And, numbers of theorists have proposed that the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS) could be abnormal in subjects with depression.

Gray<sup>4</sup> conceptualized two neural motivational systems that regulate the intensity of approach and withdrawal behavior in response to environmental stimuli: the Behavioral Activation System (BAS) and the Behavioral Inhibition System (BIS). BAS is hypothesized to control approach behavior in response to cues of reward via dopaminergic activity in the mesolimbic system<sup>6</sup>, whereas BIS is hypothesized to be sensitive to cues of threat and punishment and to activate responses of inhibition and avoidance via noradrenergic and serotonergic activity in the sept hippocampal system<sup>5, 6</sup>. Recently, Gray's theory has been adapted, viewing the BIS being distributed among a number of neural structures controlled by the septo-hippocampal system and the amygdala and regarding the BIS as sensitivity to conflicts in general<sup>5, 7</sup>.

Also, the structure of psychological distance can play an important role in depression, Psychological distance is a classic idea in social psychology (e.g. Lewin, 1951) that continues to receive a considerable amount of theoretical and empirical attention. The premise that underlies the psychological distance construct is that people do not interact with other objects as external in some objective sense, but rather in terms of how these objects are comparatively oriented in one's own psychological space. Thus, individuals and groups perceived to be socially proximal versus distal are viewed and treated differently. Psychological distance is typically reflected in socially-defined group boundaries and increased psychological

## **Investigate the Role of Behavioral Inhibition System (BIS), Behavioral ...**

distance has been linked to various antisocial behaviors including aggression<sup>8</sup>, intergroup hostility and conflict<sup>9</sup>, and political violence as well as decreased helping<sup>10</sup>. Psychological distance is also a powerful determinant of whether people demonstrate moral regard towards others. In fact, experimental manipulations that reduce psychological distance increase prosocial behaviors. Therefore, we focus on two aspects of psychological

Social dominance orientation reflects the extent to which a person is willing to endorse ideologies that rationalize group hierarchies in other words, thoughts, ideas and rationalizations that allow a person to believe that some groups "deserve" to have and maintain superiority and dominance over other groups within a social system. This superior status confers upon those groups a disproportionate privilege over resources within society<sup>1</sup>. Social dominance orientation thus reflects perceptions of other groups as psychologically distant, and has been shown to be related to a wide range of prejudicial attitudes<sup>4</sup> and other forms of aggression.

The second aspect of psychological distance has been called the "circle of moral regard". The circle of moral regard is the boundary that defines the individuals and groups for whom a person is willing to exhibit moral concern. This boundary could range from pure self-interest and focus on one's own needs to inclusion of all humanity and anywhere in between<sup>11</sup>. Hence the size of the circle of moral regard varies across people. A person with a relatively expansive circle of moral regard defines his or her in-group broadly, rather than focusing on intergroup differences. Accordingly, that person finds even "outsiders" (people of different backgrounds or group affiliations, or even strangers) to be worthy of moral care. The circle of moral regard construct therefore measures perceptions of other individuals as psychologically proximal with highly (ex)clusive group definitions being linked to (less) sharing of limited resources and exhibiting other (anti) prosocial behaviors<sup>12</sup>.

According to what have been said, the present research attempts to analyze personality variables (behavioral inhibition system and behavioral activation system) and psychological distance in adolescent's depression. So, the hypothesis that are the basis of this research includes:

- 1- The behavioral inhibition system and behavioral activation system can predict the adolescent's depression.
- 2- The psychological distance (social dominance orientation, the circle of moral regard) can predict adolescent's depression.

## **METHODOLOGY**

Population of this study consist of high school student of Baghmalek town (Iran), where four-hundred- and eighty- six students (207 female, 279 male) participant in this study. The participants had a mean age of 15.22 and a standard deviation of 0.98. Students were selected by multistage cluster sampling.

Instruments:

Mood and feeling questionnaire (MFQ) Scale

The Mood and Feelings Questionnaire (MFQ), long form, was developed as a screening tool for detecting clinically meaningful signs and symptoms of depressive disorders in children and adolescents (6–17 years of age) by self-report (Angold et al., 1995; Costello & Angold, 1988). MFQ items were designed to cover DSM diagnostic criteria for major depressive disorder (APA, 1994). Over the past decade, the long form consisting of 33 items has been used extensively in both epidemiological and clinical research (Costello et al., 1996a, 1996b; Goodyer, Herbert, Tamplin, & Altham, 2000; Kent, Vostanis, & Feehan, 1997; Park, Goodyer, & Teasdale, 2002; Wood, Kroll, Moore, & Harrington, 1995). Criterion-related validity (ability to predict clinical diagnosis) has been established for the long form (Wood et al., 1995). Wood & et. Al (1995) report alpha reliability .94.

#### Measures BIS/BAS scales

The BIS/BAS scales are a 20-item questionnaire designed to measure the sensitivity of these two motivational systems. Response options ranged from 1 (strongly disagree) to 4 (strongly agree). The questionnaire includes a 7-item BIS scale (e.g., “If I think something unpleasant is going to happen I usually get pretty ‘worked up’”), and three short scales for facets of BAS: reward responsiveness (5 items; e.g., “When good things happen to me, it affects me strongly”), drive (4 items; e.g., “If I see a chance to get something I want I move on it right away”), and fun seeking (4 items; e.g., “I will often do things for no other reason than that they might be fun”). Psychometric properties (internal consistency, test–retest reliability) have been reported to be adequate (Carver & White, 1994; Jorm et al., 1999). Alphas for the two scales were BIS, .69 and BAS, .61, which is adequate reliability for questionnaires of such length.

#### Psychological Distance

##### Social dominance orientation (SDO)

Sidanius and Pratto’s 16-item measure was used to assess social dominance orientation (a  $\frac{1}{4}$ .90; reliability). Respondents indicated, using a 7-point scale from 1 (very negative) to 7 (very positive), their attitudes towards various statements that reflect either support for group-based hierarchies (e.g., “Superior groups should dominate inferior groups,” “It’s okay if some groups have more of a chance in life than others”) or the endorsement of hierarchy attenuating goals (e.g., “Group equality should be our ideal,” “No one group should dominate society”).

##### Circle of moral regard (CMR)

Using procedures outlined by Reed and Aquino (2003), the degree of expansiveness of an adolescent’s circle of moral regard was assessed by asking participants to report the extent to which they believed they had “a moral or ethical obligation to show concern for the welfare and interests” of four different out groups (a  $\frac{1}{4}$ .84; reliability): “People from another country,” “Strangers,” “People who practice a different religion than you,” and “People of different ethnicities than you.” Participants rated each item using a 7-point Likert scale from 1 (absolutely no obligation) to 7 (very strong obligation).

## Investigate the Role of Behavioral Inhibition System (BIS), Behavioral ...

### Procedure:

In general, research method was in a way that after we select a class, students of the class were studied. Before distributing the questionnaires, we explain for students on how to respond to the questions of the questionnaire, the aim of research and cooperation sincerely. In addition, we state that they don't need mention their name and personal information. so their response will remain confidential. The time spent answering questions was about 30 minutes.

## RESULTS

We consider descriptive data such as Minimum, Maximum, Mean and Standard deviation. Results will be show in table 1

**Table 1.** Descriptive index, Psychological distance, BIS, BAS & Depression

variable	Number	Minimum	Maximum	Mean	Std. Deviation
<b>Depression</b>	486	0.00	58.00	20.73	13.65
<b>BIS</b>	486	11.00	25.00	18.62	2.70
<b>BAS DR</b>	486	4.00	16.00	10.29	2.32
<b>BAS RR</b>	486	8.00	20.00	17.06	2.43
<b>BAS FS</b>	486	5.00	50.00	11.63	2.70
<b>Social dominance orientation</b>	486	31.00	76.00	52.96	8.32
<b>The circle of moral regard</b>	486	4.00	20.00	10.40	3.37

Note: BIS: Behavioral inhibition system, BAS DR: Behavioral Activation system (drive responsiveness), RR: Reward responsiveness, FS: Fun seeking.

**Table 2.** Correlations among All Study index, depression, BIS, BAS Dimension & Psychological distance.

variable	Mood and feeling	BIS	BAS DR	BAS RR	BAS FS	Social dominance orientation
Mood and feeling	1					
BIS	0.14**	1				
BAS DR	0.11*	0.13**	1			
BAS RR	0.6	0.28**	0.25**	1		
BAS FS	0.6	0.6	0.29**	0.24**	1	
Social dominance orientation	-0.3	0.7	-0.8	0.8	0.2	1
The circle of moral regard	0.8	-0.7	-0.2	-0.8	-0.7	-0.14**

*Note.*  $N = 486$ . BIS = Behavior Inhibition System; BAS-RR = Behavioral Activation System - Reward Responsiveness; BAS-DR = Behavioral Activation System - Drive; BAS-FS = Behavioral Activation System - Fun Seeking. \*\* $p < .01$ ; \* $p \leq .005$ .

In order to analyze the first hypothesis in present research, indicative of the existence of the relationship between prediction of behavioral activation system and behavioral inhibition system with adolescent's depression, the stepwise regression has been used. The results of this analysis are shown in table 3.

**Table3.** The results of analyzing regression behavioral activation and behavioral inhibition system with adolescent's depression.

	<b>B</b>	<b><math>\beta</math></b>	<b>t</b>	<b>R</b>	<b><math>R^2</math></b>	<b>Sig</b>
<b>The first step</b> ( behavioral inhibition system)	0.72	0.14	3.16	0.014	0.02	<b>0.002</b>
<b>The second step</b> ( behavioral inhibition system)	0.66	0.13	2.87	0.17	0.03	<b>0.004</b>
(behavioral activation systemDR)	0.56	0.10	2.10			<b>0.03</b>

The results of above table show that in first step among behavioral activation and behavioral inhibition, the behavioral inhibition ( $\beta= 0.14$ ,  $P<0.002$ ) system has the highest predictor capability for adolescent' depression. In second step we can see that after behavioral inhibition system ( $\beta= 0.13$ ,  $P< 0.004$ ), the drive response ( $\beta= 0.10$ ,  $P< 0.03$ ) has the highest predictor capability for adolescent's depression. For the second hypothesis in present study that there is a relationship between the predictive psychological distance and in adolescent's depression, the entrance regression was used. The results of this analysis are shown in Table 4.

Table4, the results of analyzing regression psychological distance with adolescent's depression.

	<b>B</b>	<b><math>\beta</math></b>	<b>t</b>	<b>R</b>	<b><math>R^2</math></b>	<b>Sig</b>
<b>Social dominance orientation</b>	0.01	0.08	0.18	0.08	0.006	<b>0.85</b>
<b>The circle of moral regard</b>	0.31	0.08	1.70			<b>0.09</b>

The results of above table show that the psychological distance dimension (social dominance orientation, the circle of moral regard) can predict adolescent's depression.

## CONCLUSION

The purpose of present research was analyzing the relationship between behavioral activation system and behavioral inhibition system and psychological distance with depression in adolescent. The first hypothesis states that the behavioral activation system and behavioral inhibition system can predict adolescent's depression. The results of regression analysis showed that in the first step, the behavioral inhibition system has the most prediction ability. In the second step, the results showed that the dimension of drive response has the most prediction ability among the behavioral activation system dimension. Concerning the finding of the data, the meaningful relationship between among of drive response and seeking fun of behavioral activation system with depression, we can say that readiness for negative emotional experience can be determined by various factors. And, because of the complexity of physicality basis of emotion, relating behavioral activation system with sadness states run into considerable problems.

## **Investigate the Role of Behavioral Inhibition System (BIS), Behavioral ...**

Also, concerning the meaningful relationship between behavioral inhibition system with depression we can say that, according to Gray's theory<sup>5</sup>, behavioral inhibition system is a neurological system which is activated by disgusting stimulus symptoms (the lack of reward, the lack of punishment) and its activity can cause inhibition and ultimately experience of anxiety. The sensitivity of the behavioral inhibition system can cause the increasing anxiety state and tendency to the behavioral inhibition and it can increase the person's readiness for depression disorder. The second hypothesis states that psychological distance can predict adolescent's depression. The results of regression analysis state that psychological distance can't predict depression in adolescent. Social dominance orientation reflects the extent to which a person is willing to endorse ideologies that rationalize group hierarchies in other words, thoughts, ideas and rationalizations that allow a person to believe that some groups "deserve" to have and maintain superiority and dominance over other groups within a social system. This superior status confers upon those groups a disproportionate privilege over resources within society<sup>13</sup>. Social dominance orientation thus reflects perceptions of other groups as psychologically distal, and has been shown to be related to a wide range of prejudicial attitudes and other forms of aggression. Despite an aggressive, violent and inconsiderate that they have, it seems that they can communicate with people in their group and acquire social support that is necessary for healthy mind, and are less likely to disorders such as depression.

The second aspect of psychological distance has been called the "circle of moral regard". The circle of moral regard is the boundary that defines the individuals and groups for whom a person is willing to exhibit moral concern. This boundary could range from pure self-interest and focus on one's own needs to inclusion of all humanity and anywhere in between. Hence the size of the circle of moral regard varies across people. A person with a relatively expansive circle of moral regard defines his or her in-group broadly, rather than focusing on intergroup differences. So these people are less suffer from depression.

### **Limitations**

Some limitations of this study are listed below: since this study was conducted on adolescents a city, in generalizing the result to another teenager should be caution.

As in this research questionnaire is used, limitations related to these tools should be considered. The other limitations of this study are that the study was conducted on a sample of non-clinical and we cannot generalize the result to clinical sample.

### **Acknowledgement**

The first author would like to thank Amin Kiani, Vali Almasi and Yousef Almasi for their encouragement and support throughout this project.

## REFERENCES

1. Patterson, J., & McCubbin, H. I. (1987). Adolescent coping style and behaviors. Conceptualization and measurement. *American Journal of Community Psychology*, 18, 793–824.
2. Brian R. McFarland , Stewart A. Shankman , Craig E. Tenke , Gerard E. Bruder , Daniel N. Klein, Behavioral activation system deficits predict the six-month course of depression, *Journal of Affective Disorders* 91 (2006) 229–234.
3. Marion R.M. Scholten, Jack van Honk, Andre´ Aleman, Rene´ S. Kahn, Behavioral inhibition system (BIS), Behavioral activation system (BAS) and schizophrenia: Relationship with psychopathology and physiology, *Journal of Psychiatric Research* 40 (2006) 638–645.
4. Gray, J.A., 1994. Framework for a taxonomy of psychiatric disorder. In: van Goozen, S.H.M., Van de Poll, N.E. (Eds.), *Emotions: Essays on Emotion Theory*. Lawrence Erlbaum Associates, Inc., pp. 29–59.
5. Gray JA, McNaughton N. *The neuropsychology of anxiety: an enquiry into the functions of the septo-hippocampal system*. 2nd ed. Oxford: Oxford University Press; 2000.
6. Depue, R.A., Iacono, W.G., 1989. Neurobehavioral aspects of affective disorders. *Annu. Rev. Psychol.* 40, 457–492.
7. McNaughton N, Corr PJ. A two-dimensional neuropsychology of defense: fear/anxiety and defensive distance. *Neuroscience and Biobehavioral Reviews* 2004;28:285–305.
8. William Mellick, Carla Sharp, Candice Alfano ,The role of BIS/BAS in the vulnerability for depression in adolescent girls, *journal of the Personality and Individual Differences*, 69 (2014) 17–21.
9. Kasch, K. L., Rottenberg, J., Arnow, B. A., & Gotlib, I. H. (2002). Behavioral activation and inhibition systems and the severity and course of depression. *Journal of Abnormal Psychology*, 111, 589–597.
10. Brian R. McFarland, Stewart A. Shankman, Craig E. Tenke, Gerard E. Bruder, Daniel N. Klein, Behavioral activation system deficits predict the six-month course of depression, *Journal of Affective Disorders* 91 (2006) 229–234.
11. Jose´ Salavert, Xavier Caseras, Rafael Torrubia, Sandra Furest, Bele´n Arranz, Rosa Duen˜as and Luis San, The functioning of the Behavioral Activation and Inhibition Systems in bipolar I euthymic patients and its influence in subsequent episodes over an eighteen-month period, *the Journal of Personality and Individual Differences* 42 (2007) 1323–1331.
12. Alejandra Pinto-Meza, Dolors Puigdemont, Vıctor Perez, Rafael Torrubia, Xavier Caseras, Joaquim Soler Behavioral Inhibition and Behavioral Activation Systems in current and recovered major depression participants, *Journal Personality and Individual Differences* 40 (2006) 215–226.
13. Sam A. Hardy , Amit Bhattacharjee, Americus Reed, II, Karl Aquino, Moral identity and psychological distance: The case of adolescent parental socialization, *Journal of Adolescence* 33 (2010) 111–123.