Impulsive Behavior as a Mediator Between Childhood Maltreatment and Emotional Disorders

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Abstract

**Background:** Impulsive behavior plays an important role in mediating the relationship between childhood maltreatment and emotional disorders.

**Objectives:** This study aimed to determine the relationship between childhood maltreatment and emotional disorders, considering the mediating role of impulsive behavior.

**Methods:** This descriptive cross-sectional study was conducted on a statistical population, including all students of Azarbaijan Shahid Madani University, Tabriz, Iran. A total of 316 students were selected randomly and completed the Inventory of depression and anxiety symptoms (IDAS), Impulsive Behavior Scale (UPPS-P), and Childhood Trauma Questionnaire (CTQ). The collected data were analyzed in SPSS version 22 and LISREL.

**Results:** The correlation coefficient showed a significant relationship between childhood maltreatment and emotional disorders, and the structural equation model exhibited a good fit to the data (GFI = 0.9, AGFI = 0.86, CFI = 0.99, and RMSEA = 0.07).

**Conclusions:** The results showed that impulsive behavior played an important role in mediating the relationship between childhood maltreatment and emotional disorders.

**Keywords:** Childhood Abuse, Impulsivity, Psychological Distress

1. Background

Psychological disorders, as the most common group of mental disorders, involves high levels of anxiety, depression, and somatic symptoms (1). These disorders are extremely common and debilitating, resulting in significant cost and social burden on individuals, as they affect their personal, professional, and social performance (2). According to statistics, they affect a large proportion of the population in different societies (3). Generally, exposure to adverse life events is associated with life-long psychological trauma (4). A wide range of mental disorders, including cognitive, behavioral, emotional, and social problems, affect children and adolescents and continue into adulthood, causing various comorbidities in these individuals (3). These disorders can disrupt the lives of young people and their families and have significant impacts during adulthood.

The triple vulnerability theory for anxiety and depression claims that biological vulnerabilities, general psychological vulnerabilities, and specific psychological vulnerabilities play a role in creating and maintaining emotional disorders (5). Experience of emotional problems results in the person’s engagement in impulsive behaviors to boost his/her mood. Impulsivity, as maladaptive behaviors, are significantly associated with or caused by emotional disorders (6). The importance of impulsivity has been recognized in everyday life, given its effects on the decision-making process and many psychiatric conditions. Moreover, it is recognized as a diagnostic criterion for several personality disorders, such as borderline and antisocial personality disorders, eating disorders, attention-deficit/hyperactivity disorder, and substance or alcohol abuse (7).

Childhood abuse is a traumatic experience, associated with various types of abuse and neglect (physical, sexual, and emotional) (8). It leads to altered physiological responses to stressful stimuli, adversely affecting the future socialization of children (9). Childhood maltreatment experiences seem to be associated with impulsive behaviors, such as inappropriate affect, negativity, and reduced emotional adjustment. Evidence suggests that childhood abuse is a major threat to the person’s impulsive control system and leads to the development of antisocial behaviors (10). In other words, childhood abuse may be an environmental risk factor for the development of impulsivity.
in depressed adults (11).

Considering the clinical problems associated with high impulsivity, besides the relationship between psychological disorders and childhood maltreatment, it is important to understand the mechanisms involved in the development of impulsivity and explore the relationship between these phenomena.

2. Objectives

This study aimed to determine the relationship between childhood maltreatment and emotional disorders, with impulsive behavior as a mediator, and to examine their causes and consequences.

3. Methods

The statistical population consisted of all second-semester students of Azarbaijan Shahid Madani University, Tabriz, Iran, in the academic year 2018-2019. According to the number of cases in Morgan table, a total of 316 students were selected via multistage cluster sampling. For this purpose, some classes were selected randomly from random university faculties. The questionnaires were distributed among the students after obtaining informed consent. The inclusion criterion were willingness to participate in the study and as age > 18 years and < 30 years, whereas the exclusion criterion were unwillingness to participate and incomplete questionnaires. In this study, the students were asked to complete the inventory of depression and anxiety symptoms (IDAS), the short form of Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Urgency (UPPS-P) scale, and Childhood Trauma Questionnaire (CTQ).

3.1. Inventory of Depression and Anxiety Symptoms (IDAS)

IDAS was first designed to evaluate the specific symptom dimensions of major depression and anxiety disorders. It was developed by conducting principal factor analysis among three large samples (college students, psychiatric patients, and community adults). It contains ten specific symptom scales: suicidality, lassitude, insomnia, appetite loss, appetite gain, ill temper, well-being, panic, social anxiety, and traumatic intrusions. The scales are all rated on a five-point Likert scale (from 1 = "never" to 5 = "too much"). Also, the scales are internally consistent and define a single underlying factor. Abdi et al. evaluated the factor structure and the psychometric properties of this scale in an Iranian population. They showed strong short-term stability, in addition to good convergent and discriminant validity with other measures of depression and anxiety (Cronbach’s α = 0.79-0.93) (12).

3.2. Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Urgency (UPPS-P)

This scale was first developed by Whiteside and Lynam in 2001 by performing a factor analysis of self-report scales, measuring different aspects of impulsive personality, that is, perseverence, premeditation, negative urgency, and sensation seeking (lack of perseverance and premeditation). Later, a fifth dimension, called positive urgency, was added, based on a study by Cyder et al. (13). According to their study, although immediate action is marked by severe negative emotions in the model, there are also immediate actions under intense positive emotions that are not well thought out or measured. Therefore, they developed a positive urgency scale, which was incorporated in the impulsive behavior scale (UPPS-P). The items of this scale are all rated on a four-point Likert scale (ranging from 1 = "strongly agree" to 4 = "strongly disagree"). Jebraeili et al. evaluated the psychometric properties of this scale in an Iranian population in Tehran, Iran and reported an internal consistency reliability of 0.52-0.75 (14).

3.3. Childhood Trauma Questionnaire (CTQ)

This questionnaire, as a self-report tool for evaluating childhood abuse, was designed by Bernstein in 1994. In 1995, a second 53-item version of this questionnaire was developed, and its short form with 28 items (25 clinical questions and three validation questions) was finalized in 2003. Each item of the questionnaire is categorized into five levels (“never”, “rarely”, “sometimes”, “often”, and “always”) and is scored on a five-point Likert scale. This questionnaire assesses the extremity of emotional abuse, physical abuse, emotional neglect, physical neglect, and sexual abuse. It has been used in samples of psychiatric patients and substance users for psychological evaluation (15). The validity and reliability of this questionnaire are relatively high. In Iran, Garrusi and Nakhaee measured the reliability of various scales of this questionnaire in Iranian drug addicts, psychiatric patients, and college students and reported Cronbach’s alpha coefficients of 78-93% (16).

3.4. Data Analysis

All statistical analyses were performed in SPSS version 22 and LISREL version 8.80. Descriptive statistics, Pearson’s correlation coefficient, and structural equation modeling were used for data analysis.

4. Results

The study population consisted of university students, including 178 females and 138 males. The participants’ mean age was 23.4 years, with a standard deviation of 2.5 (range: 18-30 years). The means and standard deviations of
the variables under study are presented in Table 1. The correlation matrix was calculated and examined for all variables, which are presented in Table 2.

The impulsive participants reported higher levels of emotional disorder, including suicidality (r = 0.47, P < 0.01) and lassitude (r = 0.45, P < 0.01). They also reported higher levels of childhood maltreatment (r = 44, P < 0.01). Besides, there was a significant relationship between childhood maltreatment and emotional disorders, including traumatic intrusions and suicidality (r = 0.60, P < 0.01). For maximum likelihood estimation, descriptive statistics and Pearson’s correlation coefficient were calculated for

| Table 1. Mean and Standard Deviation of Variables |
|-----------------|-----------------|-----------------|
| **Index**       | **Girls (178)** | **Boys (138)**  | **Total (316)** |
| Variables       | Mean ± SD       | Mean ± SD       | Mean ± SD       |
| Negative urgency| 2.95 ± 0.72     | 2.50 ± 0.90     | 2.57 ± 0.84     |
| Positive urgency| 3.25 ± 0.60     | 2.82 ± 0.78     | 3.06 ± 0.72     |
| Lack of perseverance| 2.26 ± 0.73 | 2.58 ± 0.81     | 2.40 ± 0.77     |
| Lack of premeditation| 1.96 ± 0.89 | 2.45 ± 0.87     | 2.18 ± 0.88     |
| Sensation seeking| 3.19 ± 0.62     | 2.66 ± 0.80     | 2.96 ± 0.75     |
| Emotional abuse | 1.57 ± 0.74     | 2.33 ± 1.04     | 1.82 ± 0.93     |
| Physical abuse  | 1.22 ± 0.45     | 1.73 ± 0.79     | 1.44 ± 0.66     |
| Sexual abuse    | 1.32 ± 0.63     | 1.14 ± 0.31     | 1.25 ± 0.31     |
| Emotional neglect| 3.43 ± 1.03     | 2.84 ± 0.95     | 3.17 ± 1.04     |
| Physical neglect| 2.53 ± 0.36     | 2.59 ± 0.36     | 2.55 ± 0.36     |
| Lassitude       | 1.87 ± 0.72     | 2.43 ± 0.93     | 2.12 ± 0.88     |
| Suicidality     | 1.67 ± 0.72     | 1.94 ± 0.80     | 1.76 ± 0.79     |
| Insomonia       | 1.43 ± 0.65     | 1.75 ± 0.79     | 1.57 ± 0.73     |
| Appetite loss   | 1.64 ± 0.72     | 2.07 ± 0.95     | 1.83 ± 0.87     |
| Appetite gain   | 1.64 ± 0.86     | 1.79 ± 0.87     | 1.70 ± 0.87     |
| Temper ill      | 1.96 ± 0.82     | 2.52 ± 1.02     | 2.20 ± 0.97     |
| panic           | 1.84 ± 0.80     | 2.42 ± 1.01     | 2.09 ± 0.98     |
| Social anxiety  | 1.59 ± 0.74     | 1.84 ± 0.72     | 1.70 ± 0.73     |
| Traumatic intrusions| 1.86 ± 0.84 | 1.96 ± 0.69     | 1.90 ± 0.78     |
| Well being      | 1.76 ± 0.91     | 2.17 ± 1.03     | 1.94 ± 0.98     |

*Values are expressed as mean ± standard deviation (SD)

| Table 2. The Correlation Matrix of Studied Variables |

| variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-----------|---|---|---|---|---|---|---|---|---|----|----|----|
| Total. impulsive behavior | 1 | | | | | | | | | | | |
| Total. Childhood maltreatment | 0.449** | 1 | | | | | | | | | | |
| Lassitude | 0.45** | 0.54** | 1 | | | | | | | | | |
| Suicidality | 0.478** | 0.504** | 0.844** | 1 | | | | | | | | |
| Insomonia | 0.377** | 0.507** | 0.707** | 0.79** | 1 | | | | | | | |
| Appetite loss | 0.258** | 0.353** | 0.577** | 0.653** | 0.954** | 1 | | | | | | |
| Appetite gain | 0.239** | 0.304** | 0.498** | 0.447** | 0.395** | 0.156** | 1 | | | | | |
| Temper ill | 0.438** | 0.544** | 0.835** | 0.85** | 0.777** | 0.586** | 0.448** | 1 | | | | |
| panic | 0.407** | 0.544** | 0.796** | 0.839** | 0.786** | 0.647** | 0.302** | 0.744** | 0.672** | 1 | | |
| Social anxiety | 0.358** | 0.485** | 0.509** | 0.513** | 0.378** | 0.522** | 0.255** | 0.447** | 0.352** | 0.752** | 1 | |
| Traumatic intrusions | 0.442** | 0.466** | 0.825** | 0.849** | 0.747** | 0.458** | 0.415** | 0.651** | 0.306** | 0.861** | 1 | |
| Well being | -0.034** | -0.042** | -0.0728 | -0.0786 | -0.0422 | -0.0401 | -0.0405 | -0.0756 | -0.048 | -0.0368 | -0.079** | 1 |

**P < 0.05; ***P < 0.01
abuse and maltreatment in childhood are associated with O'Mahen et al. (20-24). Evidence shows that different types of orders, which is in line with studies by Nelson et al., \textit{et al.}, Wanklyn et al., and Ga-
ship between childhood maltreatment and emotional dis-
pulsivity (8, 19).

adolescence, compared to other periods of development, is and the prefrontal cortex during adolescence. It is argued most affected part, that is, the hippocampus from birth un-
til the age of two years, the amygdala in early childhood, and emotional disorders. This finding is in line with the
results reported by Oshri et al. and Schaffer et al. (27, 28). Oshri et al. concluded that impulsivity played a mediat-
ing role in the relationship between substance use and
the experience of abuse and neglect. The negative ur-
gency dimension of impulsive behavior seems to reinforce
the relationship between childhood maltreatment and sub-
stance use. Childhood abuse influences the cognitive function and emotional desires of individuals, resulting in impul-
sive decision-making and subsequent drug use (27). Con-
versely, Schaffer et al. found that anxiety alone did not lead
to suicide, while impulsivity accelerated suicidal thoughts, eliminated intrinsic restraints, and encouraged individu-
als to quickly select easy mechanisms to avoid stressful sit-
uations (28).

Finally, the most important finding of this study was that
impulsive behavior had an indirect mediating effect on
the relationship between childhood maltreatment and emo-
tional disorders. This finding is in line with the re-
results reported by Oshri et al. and Schaffer et al. (27, 28).

In another study, it was concluded that all types of
child abuse are associated with high levels of psychologi-
problems and emotional reactions in the future (22). It
has been also reported that childhood maltreatment plays
an important role in causing depression, as negative attri-
butions for the future are associated with childhood mis-
behavior and interfere with the person’s enjoyment of posi-
tive events (23). Moreover, studies have shown that people
with a history of childhood maltreatment are highly vul-
nerable to the development of emotional failure and cannot
effectively deal with negative emotional stimuli (24).
Also, compared to sexual and physical abuse, the experi-
ence of emotional abuse in childhood is more significantly
related to severe depression. The significant positive re-
lation between emotional abuse and depression has been
reported in the literature (20).

Moreover, the present results indicated a significant re-
lation between emotional disorders and impulsive be-
havior, which is consistent with the results reported by Bel-
ani et al. (26). It should be noted that impulsivity is asso-
ciated with a wide range of personality traits, and there
is a strong positive relationship between impulsive behav-
ior and anxiety in impulse control disorders, such as gam-
bling, eating disorders, and behavioral disorders. In other
words, the risk of impulsivity increases in patients with
mood and personality disorders (26).

The present study also revealed a significant relation-
ship between childhood maltreatment and emotional dis-
orders, which is in line with studies by Nelson et al., O’Mahen et al., Heleniak et al., Wanklyn et al., and Ga-
er et al. (20-24). Evidence shows that different types of
abuse and maltreatment in childhood are associated with
poor mental health outcomes, including increased sever-
ity of depression and anxiety (25). Also, children’s living
environment is especially important in the early stages of
their development. Due to chronic exposure to stressful
events, children’s neurological development can be dis-
rupted, and as a result, their cognitive function or coping
strategies may be impaired in the future (9).

5. Discussion

The results of the present study revealed a significant
relation between childhood maltreatment and impul-
sive behavior. This finding is in line with the results re-
ported by Liu et al., Estevez et al., and Mirhashem et al. (8,
17, 18). Since children and adolescents are among the most
vulnerable groups in the society, the risk of aggression and
neglect of their needs can have long-term detrimental ef-
fects and lead to risky behaviors in the future.

There are several possibilities as to how childhood mal-
treatment can lead to impulsive behavior. The first possi-
bility is the presence of an exchange relationship between
the two phenomena. In other words, childhood maltreatment
increases the risk of impulsivity and behavioral prob-
lems and consequently increases the likelihood of future
emotional and physical abuse, especially when the par-
ents themselves are prone to impulsivity. Also, this possi-
bility is increased by the hereditary nature of impulsiv-
ity in children with impulsive parents. In other words,
parents who have been exposed to wrong parenting prac-
tices and maltreatment are more likely to have impulsive
children (8). Generally, in exposure to childhood maltreat-
ment and abuse, the developing part of the brain is the
most affected part, that is, the hippocampus from birth un-
til the age of two years, the amygdala in early childhood, and
the prefrontal cortex during adolescence. It is argued
that poor development of the frontal cortex during ado-
lescence, compared to other periods of development, is
strongly correlated with the experience of abuse and impul-
sivity (8, 19).

The present study also revealed a significant relation-
ship between childhood maltreatment and emotional dis-
orders, which is in line with studies by Nelson et al., O’Mahen et al., Heleniak et al., Wanklyn et al., and Ga-
er et al. (20-24). Evidence shows that different types of
abuse and maltreatment in childhood are associated with
Table 3. Model Fit Indices Presented in the Research

| Index of Fit | RMR  | RMSEA | AGFI | GFI  | CFI  | X2 /df | df  | X2  |
|--------------|------|-------|------|------|------|--------|-----|-----|
| Indicator values | 0.021 | 0.070 | 0.86 | 0.90 | 0.99 | 2.52   | 132 | 333.18 |

Figure 1. The finalized structural model (N = 316)

5.1. Conclusion

The present results confirmed our theoretical and empirical hypotheses. Sufficient evidence indicated the efficacy of our model for the interaction between child abuse, psychological distress, and impulsivity. In clinical practice, by relying on such findings, necessary measures can be taken to provide effective treatments and useful strategies for reducing these symptoms and increasing people’s awareness.

This study had some limitations. It only examined the students of Azarbaijan Shahid Madani University; therefore, generalization of the results to other individuals and age groups should be done with caution. It is also suggested that future research evaluate a wider geographical scope to provide coherent and consistent findings on the variables under study. Also, further research on other age and educational groups is recommended, as it this enables comparisons. Finally, according to the present results, educational workshops can be effective in raising the parents’ awareness and promoting proper parenting to overcome anger and impulsivity in children.

Footnotes

Authors’ Contribution: Study concept and design: R.A.; B.Sh.; E.A.; Collected the data: R.A.; Analysis and interpretation of data: R.A.; B.Sh.; Prepared and revised the manuscript: R.A

Conflict of Interests: The authors have no conflict of interest.

Ethical Approval: This research is not conducted as a clinical trial and it does not need any ethical code, also the identities of the participants in this investigation were ethically confidential and questionnaires were distributed among students with the consent of the subjects.

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