

# The relationship between mindfulness and childhood trauma with suicide: The mediating role of cognitive bias

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## Abstract

The purpose of this study is to investigate the relationship between mindfulness, childhood trauma, and suicide, specifically focusing on the mediating role of cognitive bias. Suicide is a pressing issue that poses a significant threat to public health in society, and understanding the factors that contribute to it is crucial. The research design employed in this study is a correlation-based structural equation model. A total of 370 students from the second level of secondary school in Iran city were selected as participants using an available sampling method during the academic year of 2023. To gather data, several questionnaires were utilized, including the Kentucky Mindfulness Questionnaire, Bernstein et al.'s Childhood Trauma Questionnaire (1994), Hammachi and Ozturk's Cognitive Bias Questionnaire (2004), and the Multi-attitude Suicidal Tendency Questionnaire (MAST). Data analysis was conducted using SPSS-23 and Amos software, encompassing both descriptive and inferential levels. The findings of this research revealed several significant relationships. Firstly, there is a positive and significant direct path from childhood trauma to cognitive bias. Secondly, mindfulness has a negative and significant direct path to cognitive bias. Thirdly, childhood trauma has a direct and significant path to suicide. Additionally, cognitive bias has a positive and significant path to suicidality, while mindfulness has a negative and significant path to suicide. Moreover, there are positive and significant indirect paths from suicide to childhood trauma and negative and significant indirect paths from suicide to mindfulness. In conclusion, this study highlights the importance of mindfulness and cognitive bias as variables related to adolescent suicide. Adolescents who have experienced childhood trauma are more likely to consider suicide as a solution when faced with life problems. These findings emphasize the need for interventions and support systems that address mindfulness, cognitive bias, and childhood trauma to prevent and mitigate the risk of suicide among adolescents.

**Keywords:** Mindfulness, Childhood Trauma, Adolescent Suicide, Cognitive Bias, Structural Equation Model (SEM)

## Abstrak

Tujuan dari penelitian ini adalah untuk menyelidiki hubungan antara mindfulness, trauma masa kanak-kanak, dan bunuh diri, dengan fokus khusus pada peran mediasi bias kognitif. Bunuh diri adalah masalah mendesak yang menimbulkan ancaman signifikan terhadap kesehatan masyarakat, dan memahami faktor-faktor yang berkontribusi terhadapnya sangat penting. Desain penelitian yang digunakan adalah model persamaan struktural berbasis korelasi. Sebanyak 370 siswa dari tingkat kedua sekolah menengah di kota Iran dipilih sebagai partisipan menggunakan metode sampling yang tersedia selama tahun akademik 2023. Untuk mengumpulkan data, beberapa kuesioner digunakan, termasuk Kuesioner Mindfulness Kentucky, Kuesioner Trauma Masa Kanak-kanak oleh Bernstein et al. (1994), Kuesioner Bias Kognitif oleh Hammachi dan Ozturk (2004), dan Kuesioner Multi-attitude

Suicidal Tendency (MAST). Analisis data dilakukan menggunakan software SPSS-23 dan Amos, mencakup tingkat deskriptif dan inferensial. Temuan penelitian ini mengungkapkan beberapa hubungan yang signifikan. Pertama, terdapat jalur langsung yang positif dan signifikan dari trauma masa kanak-kanak ke bias kognitif. Kedua, mindfulness memiliki jalur langsung negatif dan signifikan terhadap bias kognitif. Ketiga, trauma masa kanak-kanak memiliki jalur langsung dan signifikan terhadap bunuh diri. Selain itu, bias kognitif memiliki jalur positif dan signifikan terhadap keinginan bunuh diri, sementara mindfulness memiliki jalur negatif dan signifikan terhadap bunuh diri. Lebih lanjut, terdapat jalur tidak langsung yang positif dan signifikan dari trauma masa kanak-kanak ke bunuh diri serta jalur tidak langsung yang negatif dan signifikan dari mindfulness ke bunuh diri. Kesimpulannya, penelitian ini menyoroti pentingnya mindfulness dan bias kognitif sebagai variabel yang berhubungan dengan bunuh diri remaja. Remaja yang mengalami trauma masa kanak-kanak lebih cenderung mempertimbangkan bunuh diri sebagai solusi ketika menghadapi masalah hidup. Temuan ini menekankan perlunya intervensi dan sistem dukungan yang memperhatikan mindfulness, bias kognitif, dan trauma masa kanak-kanak untuk mencegah dan mengurangi risiko bunuh diri di kalangan remaja.

**Kata Kunci:** Mindfulness, Trauma Masa Kanak-kanak, Bunuh Diri Remaja, Bias Kognitif, Model Persamaan Struktural (SEM)



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## INTRODUCTION

In recent years, suicide among teenagers has increased at an alarming rate. Alarming, the suicide rate in the United States for adolescents and young adults aged 10 to 24 has become the second most common cause of death, jumping 56 percent 2007 and 2017 when compared to other causes of adolescent mortality (Curtin & Heron, 2019). This disturbing trend isn't limited to the US; Iran has also witnessed a significant rise, averaging 9.9 deaths per 100,000 people annually over the past two decades (Fakhari et al., 2021). These statistics underscore the devastating impact of suicidal thoughts and behaviors, not just on individuals, but on families and societies as a whole. Tragically, suicide claims over one million lives globally each year, making it the third leading cause of death among adolescents and young adults, following only accidents and homicide (Gibbons, 2013). The suicide rate in Iran is 20.5 percent (6.2% for men and 6.6% for women) (Organization, 2014). Suicide can occur for a variety of reasons, but the primary reason is frequently linked to mental illnesses like depression, bipolar disorder, schizophrenia,

emotional failure, alcoholism or drug addiction, as well as a history of child abuse. Additionally, stressful elements like financial hardships or issues with interpersonal communication frequently serve as a mediating factor in this (Sarchiapone et al., 2007). Suicide is viewed as an example of problem-solving behavior in psychological theory, which focuses on how individuals cope with extreme stress and life challenges. According to this theory, individuals who perceive their problems as insurmountable may view suicide as a viable solution to end their distress. This framework typically examines psychological and individual factors, such as cognitive distortions, emotional regulation issues, and personal history, to understand why some people consider suicide as a solution to their problems (Hawton et al., 2014; Leenaars, 2010).

### Childhood Trauma and Suicide

Adolescent suicide is most significantly influenced by childhood trauma (Huang & Hou, 2023). A traumatic event is one that threatens a child's life and can cause them to experience strong emotions as well as long-lasting physical

reactions (Betz et al., 2021). According to Finkelhor, Turner, Ormrod, Hamby, and Kracke (Finkelhor, 2009) and the World Health Organization (Organization), one in five women and one in thirteen men (or about 60% of children and a quarter of adults) have experienced childhood trauma. Both general and clinical populations have shown evidence of the link between childhood trauma and an elevated risk of suicidal behavior (Castellví et al., 2017). Extreme traumas encourage impulsivity, which has a number of negative effects, including a decrease in the brain's ability to maintain activities and control negative emotions. Due to this impulsiveness and inability to control unpleasant emotions, more people attempt suicide and engage in self-harm (Paulus et al., 2021). Suicide crisis is regarded as a distinct mental state that differs from depression and anxiety, and suicide is brought on by mental pain, which in turn mediates the impact of factors like childhood trauma on the path to suicide and ultimately each person's threshold. Suicidal tendencies are based on one's ability to endure pain (Pompili, 2022).

#### The Role of Mindfulness

In contrast to the negative impact of childhood trauma, mindfulness emerges as a powerful tool in reducing suicide risk. Defined as a state of focused awareness on present moment experiences without judgment (Kabat-Zinn, 2015; McGehee et al., 2017), mindfulness includes moment-to-moment awareness of mental states and perceptual processes in which there is no evaluation, bias or purpose, and it includes direct and continuous awareness of physical sensations, perception, emotional states, thoughts and imaginations (Simshäuser et al., 2022). According to Gardner and Moore, those who practice mindfulness are much better able to deal with a variety of both

good and bad thoughts, feelings, and experiences (Gardner & Moore, 2017). This enhanced awareness translates to reduced depressive symptoms, improved cognitive function, and a greater capacity to regulate emotions – all factors associated with a lower risk of suicide (Lyvers et al., 2014; Shorey et al., 2016; Song & Bae, 2020; Tomlinson et al., 2018).

Studies have demonstrated this protective effect in specific populations, with mindfulness linked to fewer suicidal thoughts in women with bipolar disorder (Ren et al., 2016) and a buffering effect against emotional instability and suicidal ideation in sexual minority women (Wedell et al., 2022). Ultimately, when practiced in a reciprocal manner, mindfulness can enhance mental and physical well-being and create a productive connection between cognitive, emotional, and physical processes (Marais et al., 2020; Pohan et al., 2024). A key component in achieving emancipation is mindfulness. It is a useful strategy for reducing and turning off external or internal pressures. Actually, those who practice mindfulness are better at identifying, handling, and resolving daily issues. They also have a greater awareness of uncomfortable emotions, which lowers their risk of contemplating suicide (Hanassabzadeh, 2011). The collective evidence strongly suggests that cultivating mindfulness can be a significant force in lowering suicide rates.

#### Cognitive Bias and Suicide

While childhood trauma can significantly increase suicide risk, research suggests that mindfulness and addressing cognitive biases can be powerful protective factors. Cognitive bias describes how individuals prioritize certain information in their environment, potentially overlooking positive aspects (Gawande et al.). Put

differently, according to Floyd et al., cognitive bias is a form of structured preference in attention and processing of environmental stimuli, and on the other hand, all cognitive theories hold that emotional disorders originate and persist due to bias in the information processing process (Wolf & Floyd, 2017).

Numerous studies have demonstrated that cognitive bias and mindfulness can reduce adolescent suicide. Gaweda et al. (2020) found that cognitive biases predicted the severity of suicidal behaviors in young adults. In contrast, mindfulness practices cultivate present-moment awareness and emotional regulation (Gawęda et al., 2020). According to a study conducted by de Aguiar and et al., mindfulness is proven to have the ability to elucidate suicidal ideation, as well as the two factors integral to it - the desire to commit suicide and the preparations made for it (de Aguiar et al., 2022). Similarly, Schmelefske et al.'s (2022) meta-analysis highlights the effectiveness of mindfulness-based interventions in reducing suicidal thoughts. This approach offers promise for mitigating the psychological challenges contributing to suicide risk (Schmelefske et al., 2022).

Despite the known relationship between childhood trauma and suicide risk, research examining the link between mindfulness and childhood trauma's impact on suicidal tendencies remains limited. Further studies are needed to explore how mindfulness can mediate the effects of childhood trauma and impulsivity on suicidal behavior, highlighting the importance of investigating psychological and behavioral interventions to reduce suicide rates among adolescents. Therefore, in this article, we investigated the mediating role of cognitive bias in the relationship

between mindfulness and childhood trauma with suicide.

## **METHOD**

### **Sample and Design**

This study employs structural equation modeling, cross-sectional research design, and descriptive correlation data collection. The entire student body enrolled in Iran's second secondary school during the academic year 2023 comprises the statistical population for this study. Sampling method in this research is available sampling, and 370 students were selected from all second secondary schools, and of course, 361 valid questionnaires were collected. The desire to participate in the research and mental health were the entrance requirements for the second secondary period's education study, while the absence of cooperation from the students and incomplete questionnaire responses were the exit criteria.

### **Instruments**

**Mindfulness Scale:** In order to measure the variable of mindfulness, the Kentucky Mindfulness Questionnaire was used. This questionnaire was designed by Bear and his colleagues, which has 39 questions with four dimensions with a 5-point Likert scale. Questions (3, 4, 14, 18, 22 and 23) are reverse scored. In this questionnaire, questions (1, 5, 9, 13, 17, 21, 25, 29, 30, 33, 37, and 39) of the observation subscale, questions (2, 6, 10, 14, 18, 22, 26, and 34) below Describing scale, questions (3, 7, 1, 15, 19, 23, 27, 31, 35, and 38) Performance subscale with awareness and questions (4, 8, 12, 16, 20, 24, 28, 32, and 36) The subscale measures non-judgmental acceptance. Respondents' scores range from 39 to 125, with higher scores indicating higher levels of acceptance and

mindfulness. The internal correlation of this scale is 0.82 (Baer et al., 2004).

**Childhood trauma scale:** The childhood trauma questionnaire of Bernstein et al. was used to measure the variable of childhood trauma. This questionnaire was designed by Bernstein et al. with 25 items. This questionnaire is scored with five dimensions based on the Likert scale. The range of scores for each sub-scale is from 5 to 25 and for the whole questionnaire is from 25 to 125. In this questionnaire, questions (9, 11, 12, 1, and 15) subscale of physical abuse, questions (20, 21, 23, 24, and 27) subscale of sexual abuse, questions (3, 8, 14, 18, and 25) Emotional abuse subscale, questions (1, 2, 6, 4, and 26) measure physical neglect subscale and questions (5, 7, 13, 19, and 28) measure emotional neglect subscale (Bernstein et al., 1998). The reliability of this test with Cronbach's alpha is in the range of 0.79 to 0.94 (Bernstein et al., 1994).

**Cognitive bias scale:** In order to measure the variable of cognitive bias, interpersonal cognitive distortion questionnaire was used. This scale was created by Hammachi and Ozturk to evaluate cognitive distortions in interpersonal relationships based on Aaron T. Beck's cognitive theory. The scale has 19 items that form three subscales with a Likert scale. The first subscale is called rejection in interpersonal relationships and contains 8 items. The second subscale is unrealistic expectations in relationships and includes 8 items. The third subscale of misunderstanding of interpersonal relationships, and includes three 3 items, which gives a total score from the lowest 19 to the highest 95. Its reliability through internal consistency by Cronbach's alpha and also through retesting after two weeks for the whole scale  $r=0.67$  and  $0.74$

respectively and for its subscales respectively 0.7, 0.76 and 0.74 was obtained. Its validity was obtained through correlation with irrational beliefs scale, automatic thoughts scale and conflict tendency scale in interpersonal relationships, respectively 0.45, 0.53, 0.53, all of which were significant at 0.99 confidence level (Hamamci & Büyüköztürk, 2004).

**Suicide Scale:** Multi-attitude Suicidality Questionnaire (MAST) is used to measure the variable of suicide. This scale was developed by Auerbach et al. The scale has 30 items, four subscales of life attraction (1, 5, 6, 13, 18, 25, and 28), non-acceptance of life (2, 9, 14, 16, 21, and 30), death attraction (8, 17 and 19, 22, 23, 26, and 27, are not accepting death (3, 4, 7, 10, 12, 20, 24, and 29). The scoring of the questionnaire is in the form of a 5-point Likert scale. The lowest score is 30 and the highest score is 150. Cronbach's alpha of this scale is 0.76 (Orbach et al., 1991).

#### Implementation of the research

The research was carried out in stages during the period of face-to-face education, taking into account the corona era and the limitations in face-to-face and online education. The necessary arrangements with the principals of the schools were made after multiplying the questionnaires among the existing schools in Damghan city to the necessary number. After that, groups and individuals were chosen at random from the second-high school students in Damghan City in order to select the sample, and various fields and questionnaires were distributed. The sample group was asked to complete the questionnaire completely and accurately. Following completion, the questionnaires were gathered, the data was entered into the

software, and the structural equation model was used to analyze the data.

## RESULT

The participants who partook in the study fell within the age range of 16 to 18 years. Among the participants, 153 individuals were 16 years old, 107 individuals were 17 years old, and 100 individuals were 18 years old. The mean and standard deviation of the participants' age were equal to 16.85 and 0.825, respectively. In terms of gender distribution, there were 104 male participants and 257 female participants. The participants represented different grade levels, namely 10th grade with a count of 122, 11th grade with a count of 109, and 12th grade with a count of 129.

The descriptive statistics (mean and standard deviation) of the students in the variables are shown in the table 1. According to the table 1, the scores of the subjects in the research variables are distributed within the normal range. Additionally, the establishment of multivariable normality was confirmed based on the critical ratio of the Mardia coefficient (critical ratio < 5). The presence of outliers was also examined, and it was determined that there were no outliers.

Based on the table 2, a significant correlation exists between all the research variables, except for the correlation between mindfulness and cognitive bias, which is not statistically significant. Conversely, the correlation value between mindfulness variables and childhood trauma components (-0.514) indicates the absence of multiple collinearity among exogenous variables. Consequently, the AMOS software was utilized for the purpose of modeling structural equations.

The model's degree of freedom was found to be 202, with CMIN measuring 367.286 and a CMIN/DF ratio of 1.863. Additionally, the RMSEA value was determined to be 0.049. Consequently, the aforementioned model exhibits a highly favorable fit, enabling the examination of the structural equation model's path coefficients within Table 3.

Based on the data presented in figure one and table three, all paths exhibit statistical significance. The direct relationship between childhood trauma and cognitive bias (0.323) is positive and statistically significant. Similarly, the association between mindfulness and cognitive bias (-0.201) is negative and statistically significant. Furthermore, the direct impact of childhood trauma on suicide (0.254) is positive and significant. In addition, the link between cognitive bias and suicidality (0.228) is positive and significant, whereas the connection between mindfulness and suicide (-0.223) is negative and significant. In order to explore the potential mediation effects, the Bootstrapping method was employed, as presented in Table 3. The results indicate that the effect of childhood trauma on suicide through cognitive bias is 0.210, which is positive and statistically significant. Moreover, the effect of mindfulness on suicide through cognitive bias is -0.142, indicating a negative and statistically significant relationship. In the mediation model depicted in Figure 1, the squared multiple correlation for the cognitive bias variable is denoted as R<sup>2</sup>: 0.207, while for suicide it is R<sup>2</sup>: 0.305.

Table1. Descriptive statistics

	Kurtosis		Skewness		Std. Deviation	Mean	N
	Std. Error	Statistic	Std. Error	Statistic	Statistic	Statistic	Statistic
Cognitive bias	.256	.974	.128	.069	8.94791	54.7922	361
Mindfulness	.256	.072	.128	-.016	17.48641	125.9751	361
Suicide	.256	2.966	.128	.431	11.27900	79.2188	361
Trauma	.256	-1.177	.128	.670	19.20865	44.2410	361

Table2. Correlation matrix between research variables

Variable	Cognitive bias	Mindfulness	Suicide	Trauma
Cognitive bias	1			
Mindfulness	-0.066	1		
Suicide	0.226**	0.013	1	
Trauma	0.154**	-0.514**	0.025	1

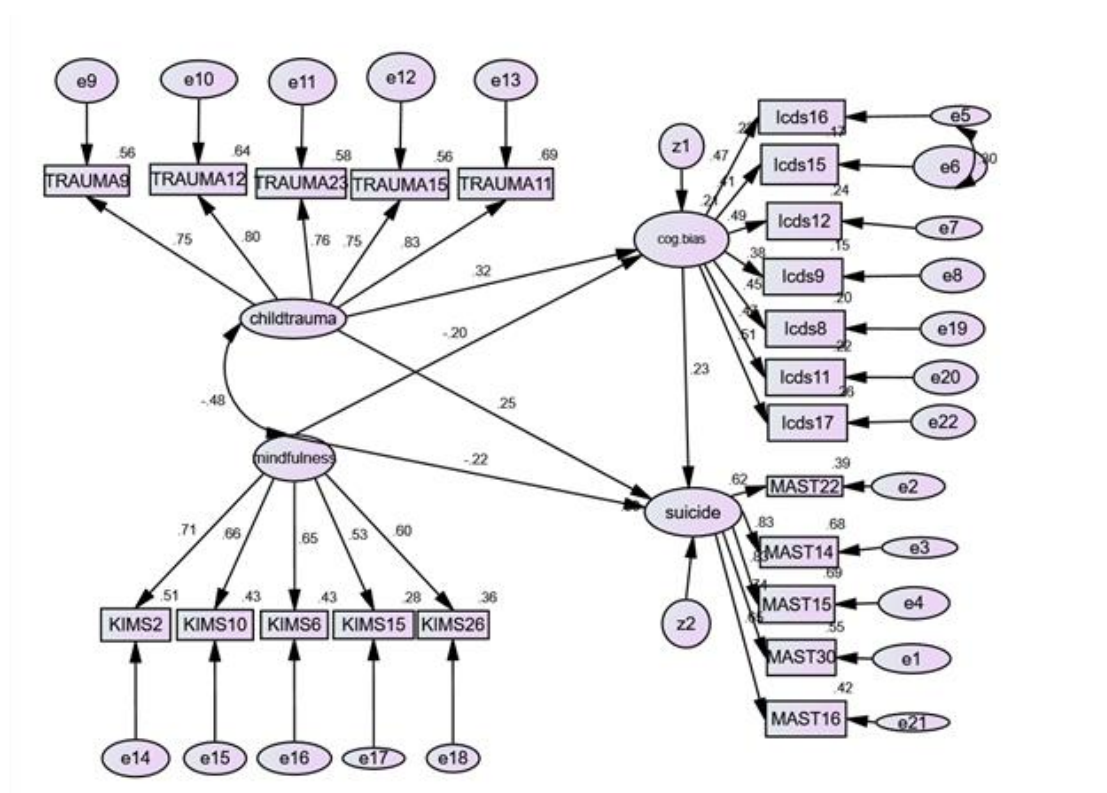


Figure1. Pattern of structural relationships between childhood trauma variables and suicidal ideation: the mediating role of cognitive bias

**Table 3. Path coefficients of the structural equation model**

Way	Coefficient Not standardized	Standard coefficient	standard error	T	P
Trauma→ Cognitive bias	0/247	0/323	0/068	3/643	0/001
Mindfulness→ Cognitive bias	-0/157	-0/201	0/069	-2/283	0/022
Trauma→ Suicide	0/358	0/254	0/098	3/663	0/004
Cognitive bias→ Suicide	0/420	0/228	0/146	2/877	0/002
Mindfulness→ Suicide	-0/320	0/223	-0/103	-3/103	0/001
Trauma→ Cognitive bias→ Suicide	0/298	0/210	0/064	upper bound 0/362	lower bound 0/098 0/001
Mindfulness→ Cognitive bias→ Suicide	-0/205	-0/142	0/069	-0/018	-0/286 0/022

## DISCUSSION

The purpose of this study was to examine the relationship between mindfulness, childhood trauma, and suicide in secondary school students, focusing on the mediating effect of cognitive bias. This research emphasizes the important role of cognitive bias and shows that by decreasing these biases with mindfulness, it can greatly lessen the negative impact of childhood trauma on suicidal behavior. This research highlights how cognitive biases connect childhood trauma to higher suicide risk, underscoring the effectiveness of mindfulness interventions in enhancing emotional control and decreasing suicidal ideations in those impacted. The findings indicate that mindfulness significantly reduces suicide rates among students, while childhood trauma increases the risk of

suicide, with cognitive bias playing a crucial mediating role.

The findings demonstrated that mindfulness has a significant and detrimental impact on secondary school students' suicide rates. The results of Shahbazian Khonigh et al. (2018), Arslan, Kabasakal, and Taş, (2024), Chaplo et al. (2024), Lo (2024), Kostova and Semple (2024), and Cummins (2024) who found that mindfulness can help people break free from problematic thoughts, habits, and dysfunctional behavior patterns, it can be helpful in regulating behavior and reducing suicidal and self-destructive behaviors, concur with the findings of this study (Arslan et al., 2024; Chaplo et al., 2024; Cummins, 2024; Hamidi et al., 2023; Kostova & Semple, 2024; Lo, 2024). These results can be explained by saying that students who lead mindful lives become more aware of themselves and develop a positive outlook on their surroundings,

their skills, and themselves. Mindfulness fosters self-awareness and emotional regulation, which are keys in reducing suicidal thoughts. Students practicing mindfulness develop a heightened awareness of their thoughts and feelings, which helps them to manage negative emotions more effectively. This increased awareness reduces the frequency of self-harming thoughts and enhances overall mental resilience. By recognizing and accepting their emotions without judgment, students can better handle stress and avoid the negative thought patterns that often lead to suicidal ideation. This allows individuals to recognize automatic negative thoughts and replace them with more constructive ones, thereby reducing the likelihood of suicidal behavior. Addressing promoting mindfulness can effectively lower the likelihood of suicide among adolescents, underscoring the importance of early psychological support and intervention.

The results showed that childhood trauma has a positive effect on the suicide of secondary school students. The findings of this research are in line with the results of the researches of Andreo-Jover, et al 2024; Rogerson, O'Connor, and O'Connor, 2024; Núñez, Daniel, et al. 2024; Andreo-Jover et al., 2024; Núñez et al., 2024; Rogerson et al., 2024). This finding can be explained by the idea that childhood traumas have a negative impact on young people's developing brains. Childhood trauma, including physical and emotional abuse, sexual abuse, neglect, witnessing domestic violence, bullying, loss of a loved one, parental substance abuse, parental mental illness, natural disasters, war and conflict, and separation from a caregiver, can significantly impact a child's mental health. These experiences often lead to heightened impulsiveness, difficulty in emotional

regulation, and increased susceptibility to cognitive biases, making individuals more vulnerable to suicidal thoughts and behaviors. Childhood trauma increases the risk of suicidal behavior as well as early suicide onset, psychiatric disorders, and aggressive traits (Cheng et al., 2023). Suicidal attempters tend to have suicidal thoughts and behaviors, which are a sign that they are struggling with negative emotions that make it difficult for them to think clearly and make wise decisions about how to handle the situation. The lack of positive actions makes the stimuli that reminds the stressful event continue or intensify them, which ultimately causes the person to feel helpless and hopeless and believe that he has no control over He does not have his position, his life becomes empty and meaningless, and his suicidal thoughts become more intense in him (Williams et al., 2006).

The results showed that mindfulness has a negative and significant effect on the cognitive bias of secondary school students. In other words, mindfulness is effective in reducing cognitive biases. The findings of this research are in line with the results of Roudebush, Murray, Netschytailo, and Jensen (2024), Vo, Dzung, et al (2024), Firth, Sütterlin, and Lugo, 2023; Firth et al., 2023; Roudebush et al., 2024; Vo et al., 2024). As cognitive biases are mental errors that systematically result in tendencies, attitudes, illusions, or false beliefs and negatively affect people's decision-making, reasoning, evaluation, recall, perception, and cognition, mindfulness is said to assist individuals in recognizing the kinds of situations that elicit anxiety and tension, as well as in better understanding themselves and developing coping mechanisms to deal with them, and figure out how to make

fewer mistakes. In a study, Eysenck and Keane demonstrated how mindfulness can help people deal with a variety of situations and automatically trigger emotions by reversing cognitive biases and focusing attention on voluntary and voluntary thoughts (Eysenck & Keane, 2020).

Another finding demonstrated that secondary school students' cognitive bias is impacted by childhood trauma. In other words, adults who have a history of childhood trauma are more likely to exhibit cognitive bias. The research's conclusions concur with those of Meşel, Dagmara, et al (2019), Croft, Jazz, et al (2021), and Weiss, Nicole, et al (Croft et al., 2021; Meşel et al., 2019; Weiss et al., 2023). According to a study by Gawęda, Łukasz, et al (2020), students who exhibit signs of childhood trauma can predict their level of suicidal thoughts by looking at their cognitive biases (Gawęda et al., 2020; Pohan, Khadijah, et al., 2024). This finding can be explained by stating that cognitive biases are extreme, rigid, and irrational interpretations of reality about oneself, the future, and the world that make one vulnerable to unfavorable life events. Childhood trauma is one of the fundamental factors that contribute to the development of cognitive biases. As was previously mentioned, someone who has a history of trauma as a child will experience a negative effect on his beliefs and perspective as an adult, which will overshadow his communication, behavior, and thoughts. In this situation, it is possible that a setback or obstacle in life will be interpreted negatively, exaggeratedly, and on a personal level. Trauma experienced as a child can therefore worsen cognitive bias.

The findings of the study provide further evidence supporting the significant impact of childhood traumas on suicide

through cognitive bias. These results align with previous research conducted by Jager et al. and Gawęda et al. (Gawęda et al., 2020; Jager-Hyman et al., 2014). It is important to note that childhood trauma plays a crucial and influential role in individuals' lives, leading to unfortunate consequences during both their youth and adulthood. Specifically, individuals who have experienced traumas often struggle with identifying and understanding their own emotions and feelings, which can contribute to the development of cognitive biases. These biases, in turn, can serve as a foundation for suicidal behavior as they impair an individual's ability to think and reason accurately. Failing to recognize and address these cognitive biases can intensify suicidal thoughts and actions. It is crucial to acknowledge that suicide is a complex issue. Prior to engaging in suicidal behavior, individuals typically experience thoughts and emotions related to this act. By addressing and examining these thoughts and emotions, particularly among vulnerable young individuals, the likelihood of suicide attempts in adulthood can be reduced.

The research findings indicate that the impact of mindfulness on suicide through cognitive bias is both negative and statistically significant. This suggests that individuals with higher levels of mindfulness, who are able to recognize, focus on, and modify their cognitive biases, are better equipped to manage suicidal ideation, leading to a reduced likelihood of engaging in suicidal behavior. The results highlight the importance of enhancing conscious awareness (mindfulness), as it enables individuals to utilize their mindfulness in making decisions and responding to situations, thereby influencing cognitive biases. Essentially,

suicidal thoughts stemming from cognitive bias can be recognized by the conscious mind and mitigated through increased mindfulness.

## CONCLUSION

The current research emphasizes the crucial importance of mindfulness in reducing suicide rates through the improvement of self-awareness and emotional regulation. The heightened risk of suicide linked to childhood trauma highlights the pressing need to address these early negative emotional states and psychological complexes, which distort rational thinking and promote suicidal thoughts. By recognizing and lessening cognitive biases through mindfulness, the research proposes a feasible approach to significantly reduce suicidal behavior. The results stress the need for specific mental health interventions that integrate mindfulness practices, particularly in educational environments. The implementation of these approaches could greatly decrease the risk of suicide and enhance overall mental health outcomes. This study underscores the transformative potential of mindfulness-based interventions in suicide prevention, advocating for their widespread adoption to cultivate healthier, more resilient communities.

The findings indicate the importance of incorporating mindfulness-based interventions into school programs to strengthen students' emotional resilience. Conducting regular workshops on emotion regulation and coping strategies can significantly reduce suicide risk among adolescents. Additionally, training educators and school counselors to identify signs of trauma and cognitive biases can enable timely interventions. Establishing

school-wide initiatives that foster a supportive and inclusive atmosphere can help alleviate the effects of childhood trauma. Mental health professionals should also integrate mindfulness practices into therapy to address cognitive biases and enhance emotional regulation in those affected.

Regarding the research's limitations, it should be noted that the study relied solely on a few self-report questionnaires: the Kentucky Mindfulness Scale, Bernstein and colleagues' Childhood Trauma Questionnaire (1994), Hamamchi and Ozturk's Cognitive Bias Questionnaire, and the Multi-Attitude Suicide Tendency (MAST) Questionnaire. No other tools were employed, which may limit the scope and depth of the findings. Consequently, caution should be exercised when extrapolating the results to other educational levels and grade levels. To enhance the external validity of the findings, it is essential to conduct similar studies across various statistical communities, different educational levels, and with additional instruments. Future research should also consider using longitudinal designs to better understand the long-term effects of childhood trauma and mindfulness on suicide risk. The findings suggest the necessity of regular training workshops and specialized classes on emotion regulation and coping strategies at different educational levels, with a focus on early intervention in childhood to promote mental health. Additionally, implementing mindfulness-based stress reduction programs for various societal groups, including students, is recommended due to the demonstrated effectiveness of mindfulness in reducing suicidal tendencies.

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## CREDIT

## AUTHORSHIP

## CONTRIBUTION STATEMENT

**Seyed Mosa Tabatabaee:** Conceptualization, Data curation, Formal analysis. **Mohammadamin Abdolahi:** Methodology, Visualization, Writing - review & editing. **Reza Matvaei:** Resources, Writing - original draft. **Parniyan Khalili:** Project administration, Supervision, Writing - review & editing.

## DECLARATION OF COMPETING INTEREST

The Authors Declare No Conflict of Interest in This Paper.

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## REFERENCES

Andreo-Jover, J., Ramos, J. C., Bobes, J., Bravo-Ortiz, M., Cebria, A., Crespo-Facorro, B., . . . Garrido-Torres, N. (2024). The mediating role of reflective functioning in the association between childhood trauma and suicide attempt. *Journal of psychiatric research*, 171, 30-  
<https://doi.org/10.1016/j.jpsychires.2024.01.005>

Arslan, G., Kabasakal, Z., & Taş, B. (2024). Childhood Psychological Maltreatment, Mindful Awareness, Self-Transcendence, and Mental Well-Being in Emerging Adults. *Emerging Adulthood*, 12(1), 18-28.  
<https://doi.org/10.1177/216769682312082>

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Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11(3), 191-206.  
<https://doi.org/10.1177/1073191104268029>

Bernstein, D. P., Fink, L., Handelsman, L., & Foote, J. (1998). Childhood trauma questionnaire. *Assessment of family violence: A handbook for researchers and practitioners*.

Bernstein, D. P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., . . . Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American journal of psychiatry*, 151(8), 1132-1136.  
<https://doi.org/10.1176/ajp.151.8.1132>

Betz, L. T., Penzel, N., Rosen, M., & Kambeitz, J. (2021). Relationships between childhood trauma and perceived stress in the general population: a network perspective. *Psychological medicine*, 51(15), 2696-2706.  
<https://doi.org/10.1017/S003329172000135X>

Castellví, P., Miranda-Mendizábal, A., Parés-Badell, O., Almenara, J., Alonso, I., Blasco, M., . . . Lagares, C. (2017). Exposure to violence, a risk for suicide in youths and young adults. A meta-analysis of longitudinal studies. *Acta psychiatrica scandinavica*, 135(3), 195-211. <https://doi.org/10.1111/acps.12679>

Chaplo, S. D., Abdulahad, L. D. S., & Keeshin, B. R. (2024). Utilizing screening as a trauma-responsive approach in pediatric health care settings. *Current Problems in Pediatric and Adolescent Health Care*, 101548.  
<https://doi.org/10.1016/j.cppeds.2023.101>

- 548
- Cheng, F., Shi, L., Wang, S., Jin, Q., Xie, H., Wang, B., & Zhang, W. (2023). The relationship between childhood traumatic experience and suicidal tendency in non-suicidal self-injury behavior patients. *BMC psychiatry*, 23(1), 1-11. <https://doi.org/10.1186/s12888-023-04863-0>
- Croft, J., Martin, D., Madley-Dowd, P., Strelchuk, D., Davies, J., Heron, J., . . . Zammit, S. (2021). Childhood trauma and cognitive biases associated with psychosis: A systematic review and meta-analysis. *Plos one*, 16(2), e0246948. <https://doi.org/10.1371/journal.pone.0246948>
- Cummins, C. A. (2024). Examining the Impact of Parental Adverse Childhood Experiences on the Relationships Between Mindful Parenting, Parental Mental Health, and Children's Emotion Regulation Alliant International University].
- Curtin, S. C., & Heron, M. P. (2019). Death rates due to suicide and homicide among persons aged 10–24: United States, 2000–2017.
- de Aguiar, K. R., Bilhalva, J. B., Cabelleira, M. D., Guimarães, G. O., Madureira, T., Agako, A., . . . Souza, L. D. d. M. (2022). The impact of mindfulness on suicidal behavior: a systematic review. *Trends in psychiatry and psychotherapy*, 44. <https://doi.org/10.47626/2237-6089-2021-0316>
- Eysenck, M. W., & Keane, M. T. (2020). *Cognitive psychology: A student's handbook*. Psychology press. <https://doi.org/10.4324/9781351058513>
- Fakhari, A., Farahbakhsh, M., Esmaili, E. D., & Azizi, H. (2021). A longitudinal study of suicide and suicide attempt in northwest of Iran: incidence, predictors, and socioeconomic status and the role of sociocultural status. *BMC Public Health*, 21(1), 1486. <https://doi.org/10.1186/s12889-021-11527-9>
- Finkelhor, D. (2009). *Children's exposure to violence: A comprehensive national survey*. Diane Publishing.
- Firth, A., Sütterlin, S., & Lugo, R. (2023). The role of trait and state mindfulness in cognitive performance of male adolescents. *Psychology Research and Behavior Management*, 3939-3948. <https://doi.org/10.2147/PRBM.S409737>
- Gardner, F. L., & Moore, Z. E. (2017). Mindfulness-based and acceptance-based interventions in sport and performance contexts. *Current opinion in psychology*, 16, 180-184. <https://doi.org/10.1016/j.copsyc.2017.06.001>
- Gawande, M. S., Memon, S. A., & Yadav, M. A. AN IMPACT OF BEHAVIOURAL FINANCE ON INVESTMENT DECISIONS: AN OVERVIEW STUDY.
- Gawęda, Ł., Pionke, R., Krężolek, M., Frydecka, D., Nelson, B., & Cechnicki, A. (2020). The interplay between childhood trauma, cognitive biases, psychotic-like experiences and depression and their additive impact on predicting lifetime suicidal behavior in young adults. *Psychological medicine*, 50(1), 116-124. <https://doi.org/10.1017/S0033291718004026>
- Gibbons, R. D. (2013). The statistics of suicide. *Shanghai archives of psychiatry*, 25(2), 124. <https://doi.org/10.3969/j.issn.1002-0829.2013.02.011>
- Hamamci, Z., & Büyükköztürk, Ş. (2004). The interpersonal cognitive distortions scale: development and psychometric

- characteristics. *Psychological Reports*, 95(1), 291-303. <https://doi.org/10.2466/pr0.95.1.291-303>
- Hamidi, S., Khodadadi Sangdeh, J., & Kalantar Hormozi, A. (2023). Analysis of the Moral Intelligence concept from the point of view of the Conselling PhD Candidates: A qualitative study. *Psychological Achievements*, 30(2), 203-222.
- Hanassabzadeh, M. (2011). Group Mindfulness Based Cognitive Therapy (MBCT) Protocol on Suicidal Depressed Patients: A Qualitative Assessment. *International Journal of Behavioral Sciences*, 5(1), 33-38.
- Hawton, K., Linsell, L., Adeniji, T., Sariaslan, A., & Fazel, S. (2014). Self-harm in prisons in England and Wales: an epidemiological study of prevalence, risk factors, clustering, and subsequent suicide. *The Lancet*, 383(9923), 1147-1154. [https://doi.org/10.1016/S0140-6736\(13\)62118-2](https://doi.org/10.1016/S0140-6736(13)62118-2)
- Huang, M., & Hou, J. (2023). Childhood maltreatment and suicide risk: The mediating role of self-compassion, mentalization, depression. *Journal of Affective Disorders*, 341, 52-61. <https://doi.org/10.1016/j.jad.2023.08.112>
- Jager-Hyman, S., Cunningham, A., Wenzel, A., Mattei, S., Brown, G. K., & Beck, A. T. (2014). Cognitive distortions and suicide attempts. *Cognitive therapy and research*, 38, 369-374. <https://doi.org/10.1007/s10608-014-9613-0>
- Kabat-Zinn, J. (2015). Mindfulness. *Mindfulness*, 6(6), 1481-1483. <https://doi.org/10.1007/s12671-015-0456-x>
- Kostova, Z., & Semple, R. J. (2024). Cultivating mindfulness, social-emotional resilience, and mental health with children and adolescents. In *Mindfulness for Child and Adolescent Well-Being* (pp. 91-109). Routledge. <https://doi.org/10.4324/9781003314882-7>
- Leenaars, A. A. (2010). Edwin S. Shneidman on suicide. *Suicidology online*, 1(1), 5-18.
- Lo, H. H. M. (2024). Mindfulness-Based Program for Children Facing Mental Health and Sociocultural Challenges. In *Mindfulness for Children, Adolescents, and Families: Integrating Research into Practice* (pp. 87-114). Springer. [https://doi.org/10.1007/978-3-031-51943-7\\_6](https://doi.org/10.1007/978-3-031-51943-7_6)
- Lyvers, M., Makin, C., Toms, E., Thorberg, F. A., & Samios, C. (2014). Trait mindfulness in relation to emotional self-regulation and executive function. *Mindfulness*, 5, 619-625. <https://doi.org/10.1007/s12671-013-0213-y>
- Marais, G. A., Lantheaume, S., Fiault, R., & Shankland, R. (2020). Mindfulness-based programs improve psychological flexibility, mental health, well-being, and time management in academics. *European Journal of Investigation in Health, Psychology and Education*, 10(4), 1035-1050. <https://doi.org/10.3390/ejihpe10040073>
- McGehee, P., Germer, C., & Neff, K. (2017). Core values in mindful self-compassion. *Practitioner's guide to ethics and mindfulness-based interventions*, 279-293. [https://doi.org/10.1007/978-3-319-64924-5\\_11](https://doi.org/10.1007/978-3-319-64924-5_11)
- Mętel, D., Arciszewska, A., Daren, A., Frydecka, D., Cechnicki, A., & Gawęda, Ł. (2019). Resilience and cognitive biases mediate the relationship between early exposure to traumatic life events and depressive symptoms in young adults. *Journal of Affective Disorders*, 254, 26-33. <https://doi.org/10.1016/j.jad.2019.05.008>

- Núñez, D., Gaete, J., Guajardo, V., Libuy, N., Araneda, A. M., Contreras, L., . . . Mundt, A. P. (2024). Brief report: the association of adverse childhood experiences and suicide-related behaviors among 10th-grade secondary school students. *Archives of suicide research*, 28(1), 399-410.  
<https://doi.org/10.1080/13811118.2022.2134067>
- Orbach, I., Milstein, I., Har-Even, D., Apter, A., Tiano, S., & Elizur, A. (1991). A Multi-Attitude Suicide Tendency Scale for adolescents. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 3(3), 398.  
<https://doi.org/10.1037/1040-3590.3.3.398>
- Organization, W. H. World Health Organization Depression Fact sheet No 369.(2012). In.
- Organization, W. H. (2014). Preventing suicide: A global imperative. World Health Organization.
- Paulus, F. W., Ohmann, S., Möhler, E., Plener, P., & Popow, C. (2021). Emotional dysregulation in children and adolescents with psychiatric disorders. A narrative review. *Frontiers in psychiatry*, 12, 628252.  
<https://doi.org/10.3389/fpsy.2021.628252>
- Pohan, R. A., Husni, A., Delima, M., Pohan, P. B. A., Astuti, R. D., & Marhaban, M. (2024). Spiritual Integration in Counseling for Student Suicide Prevention in Higher Education in Indonesia. *Asian Journal of Psychiatry*, 104287.  
<https://doi.org/10.1016/j.ajp.2024.104287>
- Pohan, R. A., Khadijah, K., Astuti, R. D., Pohan, P. B. A., Amalia, R., Saputra, R., & Ramadhani, E. (2024). The role of psychological and cultural interventions in the prevention of IPV and PTSD among Haitian adolescents: Letter to the editor. *Psychiatry Research*, 341, 116167.  
<https://doi.org/10.1016/j.psychres.2024.116167>
- Pompili, M. (2022). Unmet Needs in the Management of Suicide Risk: Psychological Pain as the Main Ingredient of Suicide Risk. In *Suicide Risk Assessment and Prevention* (pp. 1-12). Springer.  
[https://doi.org/10.1007/978-3-030-41319-4\\_11-1](https://doi.org/10.1007/978-3-030-41319-4_11-1)
- Ren, Z., Pribiag, H., Jefferson, S. J., Shorey, M., Fuchs, T., Stellwagen, D., & Luscher, B. (2016). Bidirectional homeostatic regulation of a depression-related brain state by gamma-aminobutyric acidergic deficits and ketamine treatment. *Biological psychiatry*, 80(6), 457-468.  
<https://doi.org/10.1016/j.biopsych.2016.02.009>
- Rogerson, O., O'Connor, R. C., & O'Connor, D. B. (2024). The effects of childhood trauma on stress-related vulnerability factors and indicators of suicide risk: An ecological momentary assessment study. *Journal of Affective Disorders*.  
<https://doi.org/10.1016/j.jad.2024.02.029>
- Roudebush, M., Murray, D. W., Netschytailo, H., & Jensen, T. M. (2024). Patterns and predictors of adolescent engagement in a mindfulness-based social-emotional learning program. *Journal of Adolescence*.  
<https://doi.org/10.1002/jad.12294>
- Sarchiapone, M., Carli, V., Cuomo, C., & Roy, A. (2007). Childhood trauma and suicide attempts in patients with unipolar depression. *Depression and anxiety*, 24(4), 268-272.  
<https://doi.org/10.1002/da.20243>
- Schmelefske, E., Per, M., Khoury, B., & Heath, N. (2022). The effects of mindfulness-based interventions on suicide outcomes: a meta-analysis.

- Archives of suicide research, 26(2), 447-464.  
<https://doi.org/10.1080/13811118.2020.1833796>
- Shorey, R. C., Elmquist, J., Wolford-Clevenger, C., Gawrysiak, M. J., Anderson, S., & Stuart, G. L. (2016). The relationship between dispositional mindfulness, borderline personality features, and suicidal ideation in a sample of women in residential substance use treatment. *Psychiatry research*, 238, 122-128.  
<https://doi.org/10.1016/j.psychres.2016.02.040>
- Simshäuser, K., Pohl, R., Behrens, P., Schultz, C., Lahmann, C., & Schmidt, S. (2022). Mindfulness-based cognitive therapy as migraine intervention: a randomized waitlist controlled trial. *International Journal of Behavioral Medicine*, 1-13.  
<https://doi.org/10.1007/s12529-021-10044-8>
- Song, H. S., & Bae, S. M. (2020). The moderating effects of the facets of mindfulness on the relationship between daily life stress and suicidal ideation among Korean college students. *International Journal of Mental Health and Addiction*, 1-16.  
<https://doi.org/10.1007/s11469-020-00345-6>
- Tomlinson, E. R., Yousaf, O., Vittersø, A. D., & Jones, L. (2018). Dispositional mindfulness and psychological health: A systematic review. *Mindfulness*, 9, 23-43.  
<https://doi.org/10.1007/s12671-017-0762-6>
- Vo, D. X., Tabi, K., Bhullar, M., Johnson, A., Locke, J., Wang, S., . . . Marshall, S. K. (2024). Mindful awareness and resilience skills for adolescents (MARS-A): a mixed-methods study of a mindfulness-based intervention for a heterogeneous adolescent clinical population. *International Journal of Adolescent Medicine and Health*(0).  
<https://doi.org/10.1515/ijamh-2023-0112>
- Wedell, E., Tuthill, S. D., Herchenroeder, L., Prince, M. A., Bravo, A. J., & Team, C.-C. A. S. (2022). Sexual minority status, affect lability, and suicide ideation: Buffering role of trait mindfulness. *Archives of suicide research*, 26(4), 1926-1943.  
<https://doi.org/10.1080/13811118.2021.1950587>
- Weiss, N. H., Goncharenko, S., Forkus, S. R., Ferguson, J. J., & Yang, M. (2023). Longitudinal investigation of bidirectional relations between childhood trauma and emotion-driven impulsivity in the adolescent brain cognitive development study. *Journal of Adolescent Health*, 73(4), 731-738.  
<https://doi.org/10.1016/j.jadohealth.2023.05.027>
- Williams, J. M. G., Duggan, D. S., Crane, C., & Fennell, M. J. (2006). Mindfulness-Based cognitive therapy for prevention of recurrence of suicidal behavior. *Journal of clinical psychology*, 62(2), 201-210.  
<https://doi.org/10.1002/jclp.20223>
- Wolf, C., & Floyd, S. W. (2017). Strategic planning research: Toward a theory-driven agenda. *Journal of management*, 43(6), 1754-1788.  
<https://doi.org/10.1177/0149206313478185>