



## T Structural Equation Modeling of Suicidal Ideation Based on Victimization and Cyberbullying: The Mediating Role of Psychological Distress

Majid Azizi<sup>1\*</sup>, Elham Kishi<sup>2</sup>

<sup>1</sup>PhD student in health psychology, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran.

<sup>2</sup>Msc student in clinical psychology, Faculty of Psychology and Educational Sciences, University of Tabriz, Tabriz, Iran.

### Article Info

**Received:** August 02, 2024

**Accepted:** August 05, 2024

**Published:** August 10, 2024

**\*Corresponding author:** Majid azizi, PhD student in health psychology, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran.

**Citation:** Azizi M, Kishi E. (2024) "Structural Equation Modeling of Suicidal Ideation Based on Victimization and Cyberbullying: The Mediating Role of Psychological Distress". *International Journal of Epidemiology and Public Health Research*, 5(2); DOI: 10.61148/2836-2810/IJEPHR/071

**Copyright:** © 2024 Majid azizi. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### Abstract:

The present study aimed to investigate the mediating role of mental distress in the relationship between victimization, cyberbullying, and suicidal ideation in adolescents. This descriptive-correlation study employed structural equation modeling. The statistical population included all the teenagers living in Bandar Abbas, Iran. Using the available sampling method, 300 of them were selected. We collected data using the Beck Suicidal Ideation Questionnaire (BSSI), the Depression Anxiety and Stress Scale (DASS-21), and the Cyberbullying/Victim Scale (CBVEQ). The data was analyzed using SPSS 23 and Lizrel software. Structural equation modeling showed that mental distress, victimization, and cyberbullying, directly and indirectly, affect suicidal ideation in adolescents. The evaluation of the hypothetical research model using fit indices revealed a good fit between the model and the measurement (CFI = 0.98, NFI = 0.99, RMSEA = 0.055). The results of this research align with the dual control model, demonstrating that mental distress influences suicidal thoughts. These findings underscore the importance of both the victim and cyberbullying, in addition to an individual's mental distress for suicidal thoughts.

**Keywords:** suicidal ideation; bullying; victim; cyber; mental distress

### Introduction

Adolescence is a critical timeframe for social-cognitive and neurodevelopmental processes that set the stage for later growth, development, and adjustment[1]. It is a time of vulnerability and change, during which physical and emotional transformations occur, identities and social perspectives are formed, relationships are shaped, and worldviews are built [2]. Adolescence is the beginning of building a personal meaning system[3]. Teenagers should be able to create a comprehensive picture of the world around them and integrate conflicting information to achieve identity [4]. Teenagers turn to various sources to answer many questions that revolve around identity. Family, peers, educational institutions, society, mass media, and virtual space are only some of the sources of identity[5]

In today's digital world, technology plays a pivotal role in shaping our daily lives, including how we communicate and socialize. However, alongside its numerous benefits, it introduces new avenues for harmful conduct, such as cyberbullying. In the last decade, cyberbullying has become a public health issue, especially among adolescents[6]. It represents one of the less desirable effects of technological evolution, negatively impacting mental health and quality of life. It is "an aggressive, intentional act carried out by a group or individual using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend himself or herself [7].

Cyberbullying includes but is not limited to harassment of others through text messages, email, or social media, posting or sharing harmful content about others, or even creating fake social media profiles meant to impersonate other people. With the rapid emergence of different online platforms, social media has become the most common vehicle for cyberbullying and its perpetration [8].

There are common elements between traditional bullying and cyberbullying, such as repetition, lack of power resistance between aggressor and victim, intentionality, and aggression. However, the classic form of bullying, cyberbullying, is characterized by anonymity, lack of need for things to cause harm, and, in addition, uninterrupted access to victims through electronic platforms[9]. Cyberbullying has occurred; unlike the classic form of bullying, this phenomenon has the potential to reach a larger potential audience. Additionally, cyberbullies have been shown to feel less remorse because they cannot see their victims' reactions[10]

Today, suicidal ideation among teenagers has been raised as a global public health problem[9, 11]. Suicidal ideation is a condition that implies the occurrence of self-destructive thoughts and includes a range of vague thoughts about ending life to complete suicide [12, 13].

There is strong and consistent evidence that there is a close relationship between cyberbullying and suicidal behavior (thinking, planning, or attempting). Victims are more likely to commit suicide than those who have never experienced cyberbullying [14].

Psychological distress can be defined as a non-specific set of psychological symptoms, including, for example, depression, anxiety, or stress[15, 16]. Although psychological distress is a multifaceted construct that has been applied to undifferentiated combinations of psychological symptoms, disability, and behavioral problems, it is most commonly defined as a state of emotional suffering characterized by symptoms of depression and anxiety[16]. This concept refers to the general concept of maladaptive psychological functioning in a situation that refers to stressful life events and when experiencing stressful situations that cause feelings of insecurity and insecurity, psychological distress and disrupt daily life [17].

There is evidence that levels of psychological distress among adolescents have increased significantly over the past decade [17]Pratt et al. (2020), through a longitudinal study involving 2,120 adolescents, concluded that adolescents who experienced cyberbullying were significantly more likely to exhibit severe suicidal thoughts and attempts[18].

Pert et al. (2020), through a longitudinal study that included 2120 adolescents, concluded that adolescents who experienced cyberbullying were significantly more likely to show severe suicidal thoughts and attempts[18]. According to the results of Alavi et al.'s study. (2017), both victims and bullies were at higher risk for depression, suicidal ideation, and suicide attempts compared to their peers who had not experienced cyberbullying, especially females[19]. Hong et al. (2016) found a high level of

interaction between bullying, depression, and risk of suicidal ideation in a sample of 20,511 students[20]. Their results showed that depression can act as a moderator of the effect of bullying on the risk of suicidal thoughts. Depression is a risk factor for adolescent suicide [21]

Screening for general psychological distress may be a pivotal approach to identifying at-risk adolescents or those needing further support, as high psychological distress can indicate a range of potential mental health problems, particularly anxiety and mood disorders[22, 23].

## Method

This descriptive research employed a structural equation correlation method. The statistical population included male and female high school students in Bandar Abbas, Iran, in 2023-2024. Online questionnaires and available sampling methods were employed because it was impossible to administer paper-and-pencil questionnaires to the sample population. In this way, the questionnaires were shared through social networks in groups formed by students in each school with their classmates. After preliminary data refinement and removing distorted and incomplete samples, including missing data, 300 people were finally analyzed. The criteria for entering the study included studying at the secondary level and being willing to participate. The criteria for leaving the study included not wanting to cooperate and completing the questionnaires incompletely or incorrectly. In this research, some ethical principles were observed, including the participants being assured that their information would be confidential and would be analyzed as a group.

The response rate was close to 90%. Pearson's correlation coefficient and structural equation modeling (for model fitting) were used to investigate the relationships between variables. The data were analyzed using SPSS 23 and Lizrel.

## Data Collection Tools

Cyber Bullying-Victim Experience Questionnaire (CBVEQ)  
This questionnaire was designed and created by Antiado et al. in 2016. It contains 24 items, including two subscales of cyberbullying (items 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13) and 12 items measuring cyber victimization (items 12, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1). The questionnaire is scored on a 5-point scale (1 = never, 2 = once or twice, 3 = sometimes, 4 = most of the time, and 5 = every day). The lowest score is 24, and the highest is 120. Antiado et al. used Cronbach's alpha to determine the questionnaire's reliability. They calculated the coefficients for cyberbullying and cyber victimization to be 0.89 and 0.80, respectively. They assessed the questionnaire's factor validity and found a substantial root mean square estimation error of 0.031 [24]. In Iran, the reliability of the questionnaire was checked using Cronbach's alpha, revealing a coefficient of 0.75 for cyberbullying, 0.78 for cyber victimization, and a total of 0.79 for the questionnaire. The questionnaire's reliability was also checked using the retest method. The correlation coefficient after a 1-week interval for cyberbullying was 0.63; for cyber victimization, it was 0.69, which is significant at a 0.01 level [25].

The present research has obtained Cronbach's alpha of cyberbullying at 0.87 and cyber victimization at 0.91.

### Beck Suicidal Ideation Questionnaire (BSSI)

This questionnaire was compiled by Aaron Beck in 1961 and contains 19 questions. The first five questions are screening items, and if active or passive suicide is diagnosed in a person, the next 14 questions must be answered. This questionnaire is scored on a 3-point scale from zero to two. Participants' scores are examined based on their total score, with no suicidal thoughts (score 0-3), low suicidal thoughts (score 4-11), and high-risk suicide thoughts (score 12 or more). This questionnaire consists of three factors: desire to die (the first five questions), readiness to commit suicide (questions 6 to 12), and actual desire to commit suicide (questions 13 to 17). Questions 18 and 19 are related to deterrents for suicide or suicide concealment and are not calculated for any of the three factors mentioned. The validity of this test has been reported as 0.87 to 0.97 using Cronbach's alpha method (Khodabandeh et al., 2011). In Iran, Anisi et al. (2004), with a study on soldiers, reported the concurrent validity of the scale to be 0.76 [26] and its validity using Cronbach's alpha method to be 0.95.

### Reaction, stress, stress (DASS-21)

Stress and Stress was developed by Lavibond in 1995 to measure the psychological constructs of anxiety and stress. The original version of this has 42 questions that measure anxiety, worry, and tension. Later, a shortened version of this result called DASS-21 was developed by Lavibond. The psychological characteristics of this result have been investigated in several studies, among which Henry and Crawford's (2005) study is mentioned, which was conducted using an English sample (1794) people. In this study, Cronbach's alpha of total damage and three risks, stress, and stress were reported as 0.93, 0.88, 0.82, and 0.90, respectively [27]. The factor analysis results have also confirmed the existence of three negative results, stress, and stress, each in 7 terms. In the study of Asghari Moghadam et al. (2009), the coefficients of internal similarity of three stress, stress and stress were respectively: 0.93, 0.90, 0.92, and the retest coefficient (with an interval of three weeks) of injury, distress, and stress were respectively. From: 0.84, 0.89, 0.90. In addition, the intraclass correlation between the two times implemented is equal to 0.78, 0.87, and 0.80 [28]. All these findings indicate the desired reliability of the study.

### Data Analysis

Data was analyzed using SPSS 23 and AMOS software.

### Results

This study's sample included 150 boys (50%) and 150 girls (50%). The participants' average age and standard deviation were 15.32 and 3.20, respectively.

Descriptive statistics indicators are given in Table 1.

**Table 1:** Descriptive indices of research variables

	Variables	Average	The standard deviation	crookedness	Elongation
Suicidal ideation	1. Thoughts	2.78	2.88	0.86	-0.46
	2. Preparation	3.51	5.08	0.03	0.52
	3. Intention	1.80	3.27	0.73	0.566
Cyberbullying victim	4. Bullying	18.53	3.51	1.51	1.18
	5. Victimization	22.16	3.15	-1.007	0.40
Psychological distress	6. Anxiety	6.18	5.64	0.80	-0.84
	7. Depression	7.64	4.40	0.42	-1.27
	8. Stress	8.40	4.18	0.85	-1.17

Table 1 shows the descriptive indices of the current variables, mean, standard deviation; The skewness and elongation of the research variables. Among the components of suicidal thoughts, preparedness with an average and standard deviation of 3.51 and 5.08; Sacrifice with mabangin, and standard deviation of 22/16 and 3/15; Stress with an average and standard deviation of 8.40 and 18.4 accounted for the highest average.

**Table 2:** Correlation matrix of research variables

Variables	1	2	3	4	5	6	7	8
1. Thoughts	1							
2. preparation	0.91	1						
3. intention	0.86	0.86	1					
4. Bullying	0.22	0.18	0.24	1				
5. victimization	0.24	0.27	0.27	0.49	1			
6. Anxiety	0.65	0.68	0.56	0.23	0.26	1		
7. Depression	0.66	0.66	0.67	0.30	0.27	0.83	1	
8. Stress	0.64	0.65	0.54	0.28	0.27	0.85	0.87	1

Table 2 shows the correlation matrix of research variables. As the table shows, all correlations include significant values ( $0.91 \geq r \geq -0.23$ ). Meanwhile, suicide readiness and suicide intention showed the highest correlation ( $r=0.91$ ), and avoidance and facing responsibility showed the lowest correlation ( $r=0.23$ ).

Table 2 shows the correlation matrix of research variables. As the table shows, all correlations include significant values ( $0.91 \geq r \geq -0.23$ ). Meanwhile, suicide readiness and suicide intention showed the highest correlation ( $r=0.91$ ), and avoidance and facing responsibility showed the lowest correlation ( $r=0.23$ ).

Before evaluating the measurement and structural models, the important assumptions of structural equation modeling, including univariate and multivariate normality and the absence of multiple collinearity, were examined. Calculating the skewness and kurtosis of each visible variable is a common way to evaluate the normality of a single variable. In this study, the skewness of observable variables was in the range of -0.004 to 0.86, and their kurtosis was from -0.088 to 0.56. Chu and Bentler (1995) consider the cutoff point of  $\pm 3$  appropriate for the skewness value. Although there is little agreement about the kurtosis cut-off point, values greater than  $\pm 10$  are generally problematic for this index, and values greater than  $\pm 20$  make the obtained results invalid

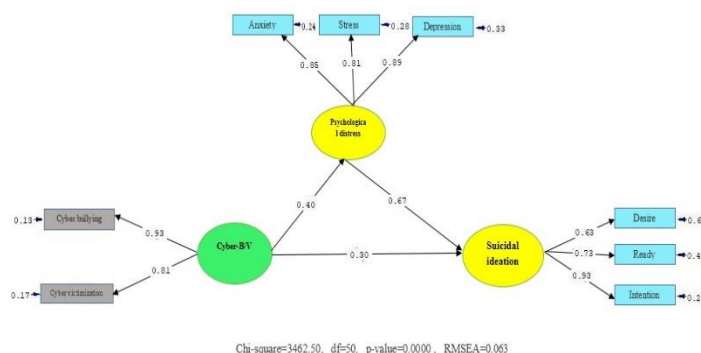
(Klein, 2015).

This study checked the multivariate normality assumption by calculating the relative multivariate elongation index, which was 1.378. Bentler (1995) believes that multivariate normality can be achieved if the value of this index is not more than 3. Therefore, the distribution of all combinations of variables is normal. The correlation matrix between the observed variables revealed a lack of multicollinearity. The correlation coefficients were in the range of  $0.549 \geq r \geq 0.357$ . The measurement model determines the relationship between visible variables and latent variables. The evaluation of this model is done using the confirmatory factor analysis method. The fit indices of the measurement model presented in Table 3 show the optimal fit of this model. Therefore, visible variables have the necessary ability to operationalize immanent variables.

**Table 3:** The fit indices of the measurement model and the structural model of the research.

Models	Chi-Square	df	$\chi^2/df$	RMS R	SRM	GF	CFI	NFI
Measurement model	346.205	50	3.732	0.080	0.063	0.991	0.993	0.994
Structural model	346.205	50	3.732	0.080	0.063	0.991	0.993	0.994

Also, the evaluation of the structural model using the structural equation modeling method showed that the fit indices of this hypothetical model are within the range of the desired fit. The fit index of this model is shown in Table 3. Figure 1 depicts the conceptual structural model along with standardized coefficients. As can be seen, cyber victimization/harassment as an exogenous variable has an effect on psychological distress and suicidal ideation with a standard standard of 0.40 (T-values = 4.05) and 0.30 (T-values = 3.74), respectively. Psychological distress also affects suicidal thoughts with a standard coefficient of 0.67 (T-values = 7.06). If the t value is greater than 1.96, the relationship between the two constructs is significant, indicating that all paths are significant.



**Figure 1:** The structural model of the research

**Table 4:** Bootstrap test results for mediation relationships

Independent variable	Mediating variable	Dependent variable	bootstrap limits		Estimate	Effect size	Significance level
			upper	lower			
Cyberbullying/victimization	Psychological distress	Suicidal ideation	0.374	0.423	0.061	0.423	0.005

The present study used the bootstrap test to evaluate mediating relationships. When the number of samples is not very large, the bootstrap provides the most powerful and logical method for obtaining indirect effects (Preacher and Hayes, 2008). In this method, if the upper and lower limits of this test are positive or negative and the zero value is not placed between these two limits, then the indirect causal path will be significant. Table 4 presents the results of this test. As the contents of Table 4 show, the path of victimization/cyberbullying to suicidal ideation is significant with the mediation of psychological distress with a standard coefficient of 0.423 at the  $p < 0.05$  level.

**Discussion**

The present study aimed to model suicidal ideation based on the experience of cyberbullying/victimization through the mediation of psychological distress among teenagers. The results of the correlation coefficient and structural equation modeling showed that psychological distress and victimization/cyberbullying both directly and indirectly affect suicidal thinking in teenagers. In explaining the experience of cyberbullying/victimization and psychological vulnerability, it can be said that those who are prone to inconsistencies and mental disorders may suffer from disorders in the face of cyber harassment through common technology tools and other consequences related to this social network harassment. Traumatic experiences can disrupt an individual's position in socially important groups by creating negative emotions such as anger, mistrust, and pessimism and make him sensitive to the future of these relationships. According to the researchers' belief that physical health affects mental development and improving mental health is based on the prevention and treatment of emotional tensions; therefore, with a decrease in the level of mental health, people in other areas of quality of life are also at risk [29]. The results of the research showed that cyberbullying/victimization has a positive and significant relationship with suicidal thoughts and the sub-component of suicide readiness. This finding is consistent with the results of Tohmi et al.'s (2023) studies, which concluded in their study that cyberbullying with high levels Depression, anxiety, and stress are related in adolescents[30, 31]. Cyber victimization leads to depressive symptoms, and depressive symptoms, in turn, increase the risk of cyber victimization [32]. From the point of view of the vulnerability-stress model, cyber

victimization is an important stressful factor in the life of adolescents and increases the risk of developing depression. In other words, adolescent victimization experiences can activate and strengthen their negative cognitive patterns and thus increase the risk of depression. According to Al-Bakaoui's research (2023), a significant relationship has been observed between students' anxiety levels and cyberbullying.

In summary, the findings suggest that more anxious students are more likely to engage in cyberbullying. At the same time, those with lower levels of anxiety are less likely to be victims of cyberbullying. Therefore, anxiety appears as a key factor in understanding how these students behave online. The evaluation of the structural model using the structural equation modeling method showed that all the fit indices of this hypothetical model are within the optimal fit range. The study showed that cyber victimization/harassment as an exogenous variable has a standard coefficient of 0.40 (T-values = 4.05) and 0.30 (T-values = 3.74) on psychological distress and suicidal thoughts, respectively. Psychological distress also had an effect on suicidal thoughts with a standard coefficient of 0.67 (T-values = 7.06).

In explaining the results of the research, it can be said that mental distress is a complex condition characterized by symptoms of depression, including loss of interest, sadness, and symptoms of anxiety, including discomfort and apprehension [33]. Cyberbullying can be done anonymously without the bullies facing any consequences [34]. This makes the victim feel powerless. As a result, victims of cyberbullying experience high levels of anxiety, depression, and stress, even to the extent of suicidal thoughts and behavior [30, 35]. The study by Chang et al., 2019; Martinez-Montegudo et al., 2020, also supports the argument that experiencing cyberbullying increases the likelihood of depression and suicidal thoughts, as suicidal thoughts are often associated with depression [36, 37], some even claim that cyber victimization is one of the main reasons for suicide (WHO, 2021).

In general, due to the increase in media and social networks, victim bullying is one of the most important issues for teenagers and young people in the world today. As The present study showed that cyber bullying has a mediating role in suicidal thoughts. Therefore, according to this finding, it is suggested that students deal with their negative emotions, anxiety, stress, and depression symptoms through expert counselors. Schools should be informed and, if necessary, be identified and treated. It is also necessary to prevent the prevalence of bullying among teenagers, to inform them about the dangers and correct methods of dealing with it, which should be taken more seriously by counselors be noted.

### Ethical Approval

The ethical principles in writing this article have been observed according to the instructions of the National Ethics Committee and the COPE regulations.

### Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

### Funding

This study was not funded and supported by external research partners/organizations.

### References

1. Heen EM. Philosophy of Education: Aim, Theory, Common Sense, and Research—Richard Pring. *Teaching Theology & Religion*. 2006;9(3):195-7.
2. Cahill M, Illback R, Peiper N, editors. Perceived racial discrimination, psychological distress, and suicidal behavior in adolescence: secondary analysis of cross-sectional data from a statewide youth survey. *Healthcare*; 2024: MDPI.
3. Yeen-Ju HT, Neo M, Neo TK, Hew SH, Abd Aziz MS. The DARE Project: Exploring Creative Multimedia Students' Acceptance Towards Augmented Reality-enhanced Learning Environments. *International Journal of Creative Multimedia*. 2020;1(SI 1):82-95.
4. Kroger J, Marcia JE. The identity statuses: Origins, meanings, and interpretations. *Handbook of identity theory and research*: Springer; 2011. p. 31-53.
5. Nazemian S. The Effectiveness of Teaching Self-regulatory Strategies on Academic Achievement in 11th Grade Chemistry Students. *Research in Chemistry Education*. 2020;1(4):5-18.
6. Azizi M, Tayyari Dehbarez E, Abdulpour G, Nouri M, Afshari A, Salari Pak S. Investigate the Mediating Role of Coping Skills in the Relationship between Cognitive Schemas Activated in Sexual Context and Marital Satisfaction. *Psychological Achievements*. 2023;30(Special Issue):25-36.
7. Predescu E, Calugar I, Sipos R. Cyberbullying and non-suicidal self-injury (NSSI) in adolescence: exploring moderators and mediators through a systematic review. *Children*. 2024;11(4):410.
8. Giumetti GW, Kowalski RM. Cyberbullying via social media and well-being. *Current Opinion in Psychology*. 2022;45:101314.
9. Azizi M, Zarei I. The effectiveness of dialectical behavioral therapy on self-harmful and distress tolerance in adolescents with a history of self-harmful behaviors. *Psychological Achievements*. 2023;30(1):145-62.
10. Kowalski RM, Morgan CA, Limber SP. Traditional bullying as a potential warning sign of cyberbullying. *School Psychology International*. 2012;33(5):505-19.
11. Brereton A, McGlinchey E. Self-harm, emotion regulation, and experiential avoidance: A systematic review. *Archives of suicide research*. 2020;24(sup1):1-24.
12. Azizi M, Salari Pak S. Predicting quality of life based on personality traits (five major factors) in people with a history of self-harm. *Journal of psychology new ideas*. 2021;9(13):1-8.
13. Large M, Corderoy A, McHugh C. Is suicidal behaviour a stronger predictor of later suicide than suicidal ideation? A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*.

- 2021;55(3):254-67.
14. Núñez C, Gómez Tabares AS, Moreno Méndez JH, Muñoz Arbeláez AC, Cardona Vélez I, Caballo VE. Análisis cuantitativo sobre tendencias de investigación del riesgo suicida en la infancia y la adolescencia. *Ciencias Psicológicas*. 2024;18(1).
  15. Kraiss JT, Ten Klooster PM, Chrispijn M, Stevens A, Doornbos B, Kupka RW, et al. A multicomponent positive psychology intervention for euthymic patients with bipolar disorder to improve mental well-being and personal recovery: A pragmatic randomized controlled trial. *Bipolar disorders*. 2023;25(8):683-95.
  16. Viertiö S, Kiviruusu O, Piirtola M, Kaprio J, Korhonen T, Marttunen M, et al. Factors contributing to psychological distress in the working population, with a special reference to gender difference. *BMC public health*. 2021;21:1-17.
  17. Rega V, Gioia F, Boursier V. Problematic media use among children up to the age of 10: a systematic literature review. *International Journal of Environmental Research and Public Health*. 2023;20(10):5854.
  18. Turliuc MN, Măirean C, Boca-Zamfir M. The relation between cyberbullying and depressive symptoms in adolescence. The moderating role of emotion regulation strategies. *Computers in Human Behavior*. 2020;109:106341.
  19. Bannink R, Broeren S, van de Looij-Jansen PM, de Waart FG, Raat H. Cyber and traditional bullying victimization as a risk factor for mental health problems and suicidal ideation in adolescents. *PloS one*. 2014;9(4):e94026.
  20. Hong W-J, Jia H, Ma W-L, Sinha RK, Moon H-B, Nakata H, et al. Distribution, fate, inhalation exposure and lung cancer risk of atmospheric polycyclic aromatic hydrocarbons in some Asian countries. *Environmental science & technology*. 2016;50(13):7163-74.
  21. Bilsen J. Suicide and youth: risk factors. *Frontiers in psychiatry*. 2018;9:540.
  22. Batterham P, Sunderland M, Slade T, Calear A, Carragher N. Assessing distress in the community: psychometric properties and crosswalk comparison of eight measures of psychological distress. *Psychological Medicine*. 2018;48(8):1316-24.
  23. Batterham PJ, Werner-Seidler A, O'Dea B, Calear AL, Maston K, Mackinnon A, et al. Psychometric properties of the Distress Questionnaire-5 (DQ5) for measuring psychological distress in adolescents. *Journal of Psychiatric Research*. 2024;169:58-63.
  24. Tawadrous M, Antiado D, Castillo F. Mobile platform in the workplace: The next generation practice in human resource. *Procedia-Social and Behavioral Sciences*. 2016;219:152-8.
  25. Bayat F, Kiani Q, Asadi M. The Role of Personality Traits in Predicting Cyber-Bullying in Second-Year High School Students. *Preventive Counseling*. 2021;2(2):1-13.
  26. Anisi J. Making and determination the validity and reliability the scale for assessing being bound to prayer. *International Journal of Behavioral Sciences*. 2011;4(4):313-8.
  27. Henry JD, Crawford JR. The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British journal of clinical psychology*. 2005;44(2):227-39.
  28. Aghazadeh N, Mogaddam AA. Investigation of hydrochemical characteristics of groundwater in the Harzandat aquifer, Northwest of Iran. *Environmental monitoring and assessment*. 2011;176(1):183-95.
  29. Devries K, Watts C, Yoshihama M, Kiss L, Schraiber LB, Deyessa N, et al. Violence against women is strongly associated with suicide attempts: evidence from the WHO multi-country study on women's health and domestic violence against women. *Social science & medicine*. 2011;73(1):79-86.
  30. Martínez-Monteaudo MC, Delgado B, Díaz-Herrero Á, García-Fernández JM. Relationship between suicidal thinking, anxiety, depression and stress in university students who are victims of cyberbullying. *Psychiatry Research*. 2020;286:112856.
  31. Gohal G, Alqassim A, Eltyeb E, Rayyani A, Hakami B, Al Faqih A, et al. Prevalence and related risks of cyberbullying and its effects on adolescent. *BMC psychiatry*. 2023;23(1):39.
  32. Albikawi ZF. Anxiety, depression, self-esteem, internet addiction and predictors of cyberbullying and cybervictimization among female nursing university students: a cross sectional study. *International journal of environmental research and public health*. 2023;20(5):4293.
  33. Belay ED, Abrams J, Oster ME, Giovanni J, Pierce T, Meng L, et al. Trends in geographic and temporal distribution of US children with multisystem inflammatory syndrome during the COVID-19 pandemic. *JAMA pediatrics*. 2021;175(8):837-45.
  34. Beeston J, Power C, Cairns P, Barlet M. Characteristics and motivations of players with disabilities in digital games. *arXiv preprint arXiv:180511352*. 2018.
  35. Maurya VK, Shakya A, Bashir K, Kushwaha SC, McClements DJ. Vitamin A fortification: Recent advances in encapsulation technologies. *Comprehensive Reviews in Food Science and Food Safety*. 2022;21(3):2772-819.
  36. Mitchell SM, Seegan PL, Roush JF, Brown SL, Sustaíta MA, Cukrowicz KC. Retrospective cyberbullying and suicide ideation: The mediating roles of depressive symptoms, perceived burdensomeness, and thwarted belongingness. *Journal of interpersonal violence*. 2018;33(16):2602-20.
  37. Van Geel M, Vedder P, Tanilon J. Relationship between peer victimization, cyberbullying, and suicide in children and adolescents: a meta-analysis. *JAMA pediatrics*. 2014;168(5):435-42.