The Structural Model of Relationships Between Personality Pathology Dimensions and Cyberbullying Mediated by Contingent Self-Worth in Adolescent Girls

Maria. Poure[1], Mehrdad. Sabet[2*], Fariborz. Dortaj[3], Nasrin. Bagheri[2]

[1] PhD Student Educational Psychology, Department of Psychology, Roudehen Branch, Islamic Azad University, Roudehen, Iran
[2] Assistant Professor, Department of Psychology, Roudehen Branch, Islamic Azad University, Roudehen, Iran
[3] Professor, Department of Educational Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabatabai University, Tehran, Iran

* **Corresponding author email address**: mehrdadsabet@yahoo.com

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A B S T R A C T

Objective: The aim of the present study was to test the structural model of relationships between personality pathology dimensions and cyberbullying mediated by contingent self-worth in adolescent girls.

Methods: This study was tested using the structural equation modeling method. The statistical population of this research included all adolescent female students in District 2 of Tehran during the 2020-2021 academic year. According to the data obtained from the Tehran Department of Education, their total number was 145,398. Based on Michel's criteria (1993) and using multi-stage cluster sampling, 300 participants were selected as the sample. They responded to the Contingent Self-Worth Questionnaire by Crocker et al. (2003), the Cyberbullying Questionnaire by Antoniadou et al. (2016), and the short form of the Personality Inventory for DSM-5 (PID-5-BF). SPSS.22 and AMOS.22 software were used for data analysis.

Findings: The findings from testing the structural model showed that the direct effect of abnormal personality on contingent self-worth was (-0.33), on cyberbullying (0.26), and the direct effect of contingent self-worth on cyberbullying was (-0.40). Contingent self-worth mediated the relationship between abnormal personality and cyberbullying, with the indirect effect of this relationship being (0.13) (P<0.01). Overall, the results indicated that the tested model had a good fit with the conceptual model (RMSEA=0.06; GFI=0.91).

Conclusion: It can be concluded that contingent self-worth mediates the relationship between dimensions of abnormal personality and cyberbullying.

Keywords: Personality, Cyberbullying, Contingent Self-Worth.

1. Introduction

B ullying is recognized as an unpleasant and distressing behavior, continuously exerted by an individual or a group of individuals toward a weaker person (Olweus & Limber,

2010). Bullying behavior can manifest in various forms, including verbal, non-verbal, and even virtual. With the rise of the internet and the widespread use of online platforms, virtual bullying, commonly referred to as cyberbullying, has become more prevalent. The outbreak of COVID-19 led to an increased reliance on the internet and virtual learning environments by schools, families, and subsequently students (Benach, 2020). This shift resulted in families and adolescents encountering psychological, emotional, and social crises that may have long-lasting effects even after the pandemic (Gesi et al., 2020). Dealing with cyberbullying and harassment is one of these challenges, which can cause profound psychological, academic, and social harm (Ramos Salazar, 2021). Cyberbullying includes a wide range of behaviors such as online threats, blocking, restricting, expelling, or insulting and humiliating others (Madsen et al., 2024). Many factors contribute to the formation of bullying, with personality traits or neurotic, pathological personalities being among the most important (Lee et al., 2023; Mujidin et al., 2023).

Many psychologists agree that the Five-Factor Model (FFM) of personality is a comprehensive system for understanding individual personality differences (McCrae, 2010). These traits include neuroticism, extraversion, openness to new experiences, agreeableness, and conscientiousness. These five dimensions are considered the normal personality traits. However, the DSM-5 Personality and Personality Disorders Work Group developed a preliminary model of abnormal personality (Krueger et al., 2014), which stands in opposition to the normal dimensions (Krueger & Markon, 2014). Abnormal personality traits are classified into five broad domains. These five trait domains or dimensions include: negative affectivity versus emotional stability, detachment versus extraversion, antagonism versus agreeableness, disinhibition versus conscientiousness, and psychoticism versus lucidity. Abnormal personality dimensions or pathological traits have a negative relationship with mental health (Wright et al., 2013). Abnormal personality dimensions are also associated with behaviors such as self-harm, excessive mobile phone use and psychiatric symptoms (Scott et al., 2020), violence (Varley Thornton et al., 2010), antisocial behaviors (Fossati et al., 2013), and bullying (Romero Triñanes & Alonso Vilar, 2019). Despite these relationships, Krueger and Markon (2014) believe that abnormal personality dimensions can influence mental health and the emergence of harmful behaviors through intra-individual variables such as self-esteem (Krueger & Markon, 2014).

Self-esteem and self-worth are essential elements affecting healthy personality development. In his search for the roots of self-esteem, Crocker introduced a novel concept in psychology—contingent self-worth. According to this concept, the judgment of one's value is contingent on various conditions (Crocker et al., 2001). Given that adolescence is a period of competitiveness and self-expression (Hibbard & Buhrmester, 2010), adolescents seek validation from teachers or peers. If their psychological needs are not met, they may turn to violence and, subsequently, cyberbullying and harassment (Zaki, 2012). Although various studies (Fossati et al., 2013; Romero Triñanes & Alonso Vilar, 2019; Varley Thornton et al., 2010) have supported the relationship between abnormal personality dimensions and destructive behaviors such as bullying, studies (Landínez Martínez et al., 2021) suggest that the impact of abnormal personality dimensions on maladaptive behaviors like bullying is multidimensional. They propose that to understand such relationships, a multidimensional model must include intra-individual factors such as self-worth. In contrast, previous studies mentioned above have focused on the direct relationships between abnormal personality dimensions and harmful behaviors such as bullying, without examining the mediating role of contingent self-worth in these relationships (Landínez Martínez et al., 2021).

Moreover, previous studies have shown that traditional bullying rates are higher among boys than girls (Smith et al., 2019). However, with the expansion of online spaces and the widespread presence of girls and women on social networks, cyberbullying victimization among girls has increased (Chan & La Greca, 2016). In Iran, studies (Shohoudi Mojdehi et al., 2019) also describe the rising rates of cyberbullying among Iranian girls as concerning. Therefore, the present study seeks to test the mediating role of contingent self-worth in the relationship between personality pathology dimensions and cyberbullying among female secondary school students.

2. Methods

2.1. Study design and Participant

This research is fundamental in terms of its objective and descriptive-correlational in terms of data collection, using path analysis. The statistical population of this research includes all female second-year high school students in District 2 of Tehran during the 2020-2021 academic year. According to data obtained from the Tehran Department of Education, their total number was 145,398. The sampling

method of this study was multi-stage cluster sampling. Two districts from multiple districts of Tehran were selected, and from each district, three schools were chosen. Four classes were selected from these schools. In structural equation modeling, Stevens (1996) recommends a ratio of 15 subjects for each observed variable, and Michel (1993) suggests a ratio of 10 to 20 subjects per observed variable (cited in Myers, Gamst, & Guarino, 2006). Therefore, due to the small number of observed variables in this study (five abnormal personality dimensions, two cyberbullying dimensions, and one contingent self-worth dimension), the sample size was calculated as 180, 20 times the observed variables. However, since larger samples are preferable in structural models, a final sample of 300 participants was selected.

It should be noted that the main inclusion criteria for participation in the study were being female, enrolled in a secondary school in District 2 of Tehran, and studying in the second year of high school. The main exclusion criterion was voluntary withdrawal from the study. The study was conducted as follows: after obtaining the necessary permissions, the researcher visited the schools in person and, with the cooperation of the school principals and teachers, distributed the questionnaires to the classes. The researcher and teacher collected the questionnaires the same day, and students who preferred to complete them at home returned them to the school principal a few days later.

2.2. Measures

2.2.1. Contingent Self-Worth

Contingent Self-Worth Questionnaire by Crocker et al. (2001) scale consists of 35 items rated on a seven-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree) to assess participants' contingent self-worth. The reliability of the scale was reported as 0.82 with 1,345 participants, and 0.79 and 0.84 for men and women, respectively. Test-retest reliability (over three months) was calculated at 0.75. Crocker (2001) reported a reliability of 0.87 for the scale. Additionally, significant correlations were found between the Contingent Self-Worth Scale and social desirability (0.32), Rosenberg self-esteem (0.34), and collective self-esteem (0.37), indicating the scale's validity (Crocker et al., 2001). In a 2003 study by Crocker, the tool's validity was confirmed through confirmatory factor analysis, with all factors showing a factor loading above 0.70 (Crocker et al., 2001). In the present study, the scale's reliability was assessed using Cronbach's alpha, yielding a value of 0.78.

2.2.2. Cyberbullying

Cyberbullying Questionnaire questionnaire was designed and validated by Antoniadou et al. (2016) to assess cyberbullying experiences among adolescents. It uses a five-point Likert scale (1 = Never, 2 = Once or Twice, 3 = Sometimes, 4 = Most of the Time, 5 = Every Day). The questionnaire has two factors: cyberbullying victimization and cyberbullying, with 12 items each, for a total of 24 items. The reliability of the tool in the English version was reported by Antoniadou et al. (2016) as 0.89 for cyberbullying victimization and 0.78 for cyberbullying. The validity of the tool was confirmed in the initial study based on confirmatory factor analysis (CFI = 0.97, GFI = 0.85, RMSEA = 0.83) (Antoniadou et al., 2016). The psychometric properties of the Persian version of this tool were confirmed with reliability values of 0.89 for cyberbullying and 0.80 for victimization (Shohoudi Mojdehi et al., 2019). In the present study, only the questions related to cyberbullying were used.

2.2.3. Abnormal Personality

Short Form of the Personality Inventory for DSM-5 (PID-5-BF) was developed by Krueger et al. (2012) to assess the dimensional model of personality traits in DSM-5. This tool is designed to assess the five dimensions of abnormal personality, with the short form measuring 25 items across five domains. These domains include negative affectivity, detachment, antagonism, disinhibition, and psychoticism. Krueger et al. reported the psychometric properties and internal consistency of the scales as 0.91, 0.96, 0.97, 0.93, and 0.89, respectively. The factor structure of this questionnaire identified five factors: negative affectivity (e.g., anxiety, separation insecurity), detachment (e.g., isolation, anhedonia, avoidance of intimacy), antagonism (e.g., manipulation, deceit, grandiosity), disinhibition (e.g., irresponsibility, impulsivity, distractibility), and psychoticism (e.g., unusual beliefs and experiences, avoidance of crowds, perceptual dysregulation). The items are rated on a four-point Likert scale from Strongly Disagree (0) to Strongly Agree (3) (Krueger et al., 2014). The psychometric properties of this version were confirmed in Iran by Abdi and Chelabianlu (2017), with a total reliability of 0.89 and internal consistency of 0.83 to 0.89 for its factors (Abdi & Chelabianloo, 2017). In the present study, the Cronbach's alpha for the entire scale was 0.85.

2.3. Data Analysis

This study used descriptive statistics to categorize participants' demographic information, including frequency, percentage, mean, and standard deviation. Inferential statistics were also used, including the Kolmogorov-Smirnov test to assess data normality, Pearson's correlation coefficient, and structural equation modeling. To evaluate the fit of the proposed model, indices such as chi-square over degrees of freedom, the Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA) were used. SPSS.22 and AMOS.22 software were employed for data analysis. The significance level in this study was set at 0.05.

3. Findings and Results

The final sample of the present study consisted of 300 participants. The mean age and standard deviation of the sample were 16.10 and 0.90, respectively. Descriptive statistics and normality tests for the variables are reported in Table 1.

Table 1

Descriptive Statistics of the Study Variables

Variable	Component	Mean	Standard Deviation	Skewness	Kurtosis
Cyberbullying	Cyberbullying	31.01	5.27	0.35	-0.61
	Cyber Victimization	30.72	5.93	0.28	-0.73
Contingent Self-Worth	Family Support	18.86	5.34	0.22	-0.73
	Competitiveness	19.33	5.09	0.56	-0.51
	Appearance and Body	19.98	5.74	0.20	-0.84
	Divine Love	20.27	5.70	0.35	-0.78
	Academic Competence	19.85	5.61	0.27	-0.91
	Integrity	19.66	5.43	0.26	-1.05
	Approval from Others	20.19	5.64	0.08	-0.20
Abnormal Personality	Negative Affect	14.94	2.98	0.01	-0.35
	Detachment	15.27	3.22	-0.15	-0.49
	Antagonism	14.89	3.44	0.03	-0.70
	Disinhibition	14.63	3.77	-0.24	-0.47
	Psychoticism	14.99	3.54	-0.50	0.11

As shown in Table 1, the mean and standard deviation values indicate an appropriate data distribution, and the skewness and kurtosis values also confirm the normal distribution of the data. The correlation matrix between the study variables is presented in Table 2.

Table 2

Correlation Matrix of the Study Variables

n	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Negative Affect	1												
2	Detachment	0.47	1											
3	Antagonism	0.26	0.39	1										
4	Disinhibition	0.38	0.36	0.34	1									
5	Psychoticism	0.28	0.36	0.36	0.24	1								
6	Family Support	*-0.16*	-0.19	-0.24	-0.24	*-0.11*	1							
7	Competitiveness	-0.19	-0.15	-0.21	-0.19	-0.17	0.48	1						
8	Appearance and Body	*-0.14*	-0.25	-0.26	-0.27	-0.18	0.52	0.47	1					
9	Divine Love	-0.17	-0.25	-0.18	*-0.14*	-0.13	0.38	0.43	0.60	1				
10	Academic Competence	-0.17	-0.16	-0.22	-0.19	-0.14	0.50	0.67	0.61	0.48	1			
11	Integrity	-0.21	-0.29	-0.31	-0.22	-0.21	0.52	0.42	0.56	0.52	0.49	1		
12	Approval from Others	-0.15	-0.22	-0.28	-0.25	-0.18	0.56	0.46	0.61	0.55	0.54	0.61	1	
13	Cyberbullying	0.23	0.26	*0.16*	0.31	0.17	*-0.16*	*-0.13*	-0.32	-0.33	-0.26	-0.25	-0.22	1
14	Cyber Victimization	*0.16*	0.19	0.19	0.21	0.22	-0.18	-0.12	-0.30	-0.26	-0.27	-0.30	-0.20	0.48

All p<0.01

The results in Table 2 show that there is a positive relationship between cyberbullying components and abnormal personality traits, and a negative relationship with contingent self-worth components. For instance, the

correlation between cyberbullying and negative affect is (0.23) and with detachment is (0.26). Additionally, the correlation between cyberbullying and family support is (-0.16), and with competitiveness is (-0.13). These relationships are significant at the 0.01 level. The tested model, along with the standardized coefficients, is shown in Figure 1.

In Figure 1, the tested model of the present study is depicted. Based on the model test results, abnormal personality dimensions predict 11% of the variance in contingent self-worth, and together with contingent self-worth, they explain 29% of the variance in cyberbullying. Direct and indirect effects are reported in Table 3.
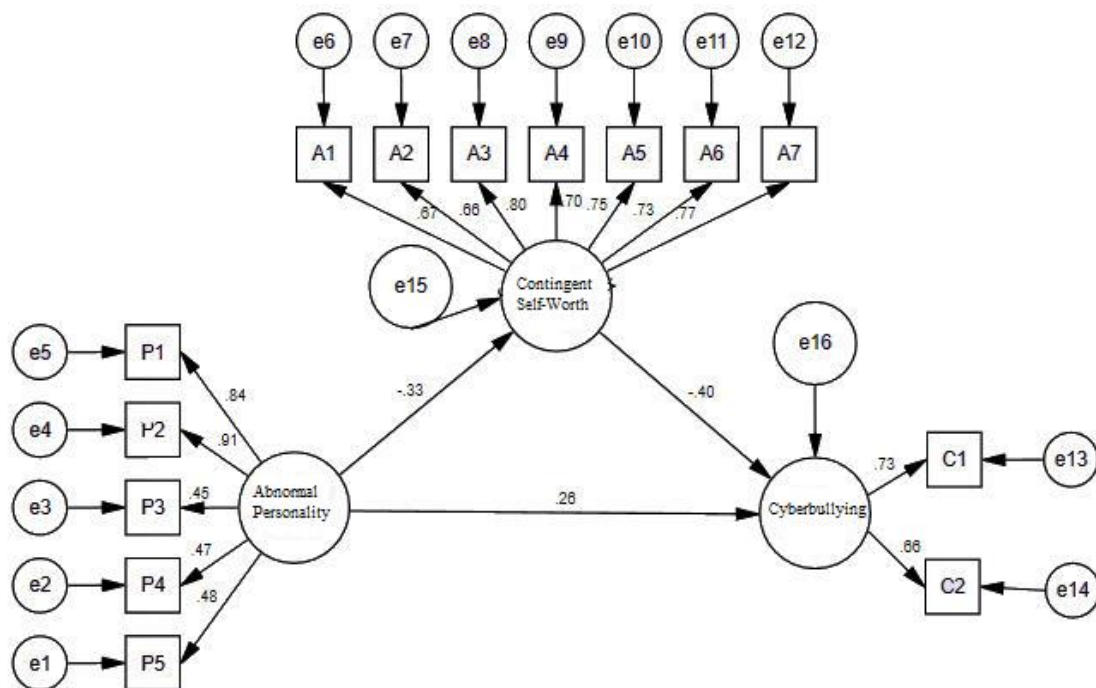
Table 3

Direct and Indirect Effects of the Tested Model

Path	Direct Effect	t	p	Indirect Effect	Sobel	p
Abnormal Personality → Contingent Self-Worth	-0.33	-4.41	0.001	-	-	0.001
Abnormal Personality → Cyberbullying	0.26	3.16	0.001	-	-	0.001
Contingent Self-Worth → Cyberbullying	-0.40	-4.81	0.001	-	-	0.001
Abnormal Personality → Contingent Self-Worth → Cyberbullying	-	-	-	0.13	1.96	0.05

Figure 1

Model with Beta Coefficients

According to Table 3, the direct effect of abnormal personality on contingent self-worth is (-0.33), and its direct effect on cyberbullying is (0.26). Additionally, the direct effect of contingent self-worth on cyberbullying is (-0.40). In the present model, contingent self-worth plays a mediating role between abnormal personality and cyberbullying, with the indirect effect of this relationship being (0.13), which is significant at the 0.05 level. To assess the model fit, fit indices proposed by Gefen et al. (2000) were used. These indices include absolute, comparative, and parsimonious fit indices. The absolute fit indices are Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Root Mean Square Residual (RMR). The comparative fit indices are Comparative Fit Index (CFI), Normed Fit Index (NFI), and Incremental Fit Index (IFI), and the parsimonious fit indices are chi-square to degrees of freedom (X2/df), Parsimonious Comparative Fit Index (PCFI), and Root Mean Square Error of Approximation (RMSEA). These indices are reported in Table 4.

Table 4

Fit Indices of the Tested Model

Indices	X2	df	P	X2/df	RMSEA	GFI	CFI	NFI	AGFI
Value	153.457	73	0.001	2.10	0.06	0.91	0.90	0.90	0.87
Acceptance Range				< 3	< 0.08	> 0.90	> 0.90	> 0.90	> 0.85

The fit indices show that the tested model has a good fit.

4. Discussion and Conclusion

The present study aimed to test the structural model of relationships between personality pathology dimensions and cyberbullying, mediated by contingent self-worth among high school students in Tehran. The model test results showed that abnormal personality had a direct negative effect on contingent self-worth and a direct positive effect on cyberbullying. The negative relationship between abnormal personality dimensions and concepts related to self-worth and self-esteem has been demonstrated in many studies (Abdi & Chelabianloo, 2017; Abdi & Pak, 2017; Skjernov et al., 2020; Wright et al., 2013), aligning with the first hypothesis. For instance, Abdi and Nasiri (2015) found that abnormal personality dimensions had a positive relationship with narcissistic traits such as grandiosity and exploitation, indicating damaged self-worth in these groups. This finding can be explained by the general negative relationship between abnormal personality dimensions and mental health. Individuals with higher scores in abnormal personality dimensions tend to have lower mental health (Vrabel et al., 2019). Since high self-worth is associated with better mental health, it is negatively related to abnormal personality. In this regard, Hopwood et al. (2012) showed that abnormal personality dimensions are associated with negative and maladaptive beliefs about the self (Hopwood et al., 2013). In other words, individuals with negative beliefs about themselves are likely to hold negative beliefs about their self-worth, which can lead to bullying behavior. Students with high abnormal personality traits tend to have lower mental health, self-esteem, and self-worth (Vrabel et al., 2019). Low self-worth also increases envy, resentment, and feelings of inferiority toward others. These individuals try to compensate for these feelings of inadequacy through mechanisms such as violence and bullying (Deci & Ryan, 2010). This pattern also applies to the virtual space, where students with bullying tendencies exhibit such behaviors online.

Another finding of the present study was the negative relationship between contingent self-worth and cyberbullying. This result aligns with previous studies (Chang, 2020; Ghoul et al., 2013; Shoaa Kazemi, 2017). The relationship between contingent self-worth and bullying can be explained by the impact of self-worth on individuals' behavior and emotions. In this context, Thus, the mediating role of contingent self-worth in the relationship between abnormal personality and cyberbullying becomes more evident. Students with high scores in abnormal personality have lower levels of contingent self-worth, leading to envy, social rejection, and violence, which positively affect their bullying behaviors (Vrabel et al., 2019). Therefore, the mediating role of contingent self-worth in the relationship between abnormal personality and cyberbullying is confirmed.

As mentioned before, Landinez Martinez et al. (2021) suggested that hidden tendencies behind students' abnormal personality dimensions influence behavioral outcomes such as bullying or academic performance (Landínez Martínez et al., 2021). Thus, this study examined one of these important tendencies—self-worth (Shagufta & Nazir, 2021)—which had not been explored in previous studies. The present study confirmed the role of hidden motivational and individual factors in the relationship between abnormal personality and cyberbullying. However, future research should further investigate these relationships by examining the mediating role of other related variables.

5. Suggestions and Limitations

Despite the findings, this study is limited by its focus on female high school students in District 2 of Tehran, which may affect the generalizability of the results. Caution should be exercised when applying these findings to broader populations. Additionally, the inability to fully control confounding variables such as students' intelligence, family upbringing, and external environmental factors presents another limitation, potentially affecting the study's validity. Future studies can apply this model to other educational levels or even among university students to achieve more

comparative results. Further research could also explore gender differences in the relationship between abnormal personality dimensions, contingent self-worth, self-handicapping, and bullying.

Authors' Contributions

Authors contributed equally to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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