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ORIGINAL RESEARCH ARTICLE

Investigating the Relationship Between Temperament, Character, and Obsessive–Compulsive Disorder: The Mediating Role of Self-Regulation in Patients with Obsessive–Compulsive Disorder

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Abstract

Background Obsessive–compulsive disorder is one of the most common psychiatric disorders and is listed among the top ten leading causes of disability worldwide. Due to its chronic and debilitating nature, relatively high prevalence, and its negative impact on various life domains, special clinical attention is needed. Accordingly, the present study aimed to investigate the relationship between temperament and character and obsessive–compulsive disorder, with a focus on the mediating role of self-regulation in patients diagnosed with obsessive–compulsive disorder.

Methods This study employed a descriptive–correlational design based on structural equation modeling. The statistical population included all obsessive–compulsive disorder patients referring to public and private psychiatric clinics in Kermanshah. Based on inclusion and exclusion criteria, a confirmed obsessive–compulsive disorder diagnosis was obtained by a psychiatrist and a structured DSM-5 clinical interview. Three hundred eligible participants were selected using convenience sampling. Research instruments included the obsessive–compulsive inventory-revised, the self-regulation questionnaire, and the temperament and character inventory. Data were analyzed using descriptive statistics and structural equation modeling in SPSS 21 and PLS3.

Results The hypothesized model demonstrated an acceptable fit (Normed Fit Index = 0.90; Standardized Root Mean Square Residual SRMR = 0.079). Temperament and character had a significant direct effect on self-regulation (t = 15.30). Additionally, temperament and character (t = 2.91) and self-regulation (t = 2.64) had significant direct effects on obsessive–compulsive disorder symptoms. Temperament and character also showed a significant indirect impact on obsessive–compulsive disorder through self-regulation (t = 2.54).

Conclusion The findings highlight the importance of considering temperament, character traits, and self-regulatory capacities when designing psychological interventions for individuals with obsessive–compulsive disorder.

Keywords Temperament, Character; Obsessive–compulsive disorder; Self-regulation

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1 Introduction

Obsessive–compulsive disorder (OCD) is one of the most common psychological disorders, characterized by recurrent, repetitive, intrusive, and anxiety-provoking obsessive thoughts and compulsive behaviors.[1] In the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association (2013), OCD is described as a set of mental and behavioral patterns in which the individual is preoccupied with orderliness, organization, perfectionism, and personal and interpersonal control in nearly all aspects of life. As a result, flexibility, open-mindedness, and efficient use of time and energy diminish. This condition begins before early adulthood and persists across different contexts. Obsessions and compulsions are the two core features of this disorder, and each may manifest either alone or in combination.[2]

Over recent years, OCD has attracted considerable attention and has been the subject of numerous studies. This increased attention is mainly due to the rising prevalence of the disorder over the past three decades.[3] The lifetime prevalence of OCD in the general population remains relatively stable at about 2–3%, and among psychiatric outpatients, it has been reported as high as 10%.[4] The DSM-5 reports a one-year global prevalence of 1.1% to 1.8%.[2] Additionally, the prevalence of OCD in Kermanshah has been reported to be 4.6%.[5]

In this regard, neglecting the psychopathology and treatment of OCD can lead to negative consequences. Despite the availability of various treatment approaches, including pharmacotherapy, behavioral therapy, and cognitive therapy, a significant proportion of patients benefit only minimally from these treatments. Between 40% and 60% of patients report little to no improvement. For example, about 30% of patients do not respond to medication;[6] approximately 33% do not respond to cognitive therapy, and 41% fail to respond to behavioral therapy.[7] Although cognitive-behavioral therapy (CBT) is considered the psychological treatment of choice for OCD,[8] and 60% to 70% of patients show improvement with CBT,[9] only 25% meet full recovery criteria after treatment, and up to 50% experience relapse.[10]

Therefore, given the high relapse rates and the incomplete success of current therapeutic approaches, there is a need for specialized treatment protocols that prevent the progression and exacerbation of OCD and facilitate effective recovery. The priority, accordingly, is the accurate identification of the factors involved in the onset and maintenance of OCD, followed by the design of treatment models based on the variables influencing the development and persistence of the disorder. Temperament and character are among the factors that play a significant role in the formation and maintenance of OCD.[11-15]

Cloninger,[16] one of the major theorists in biological personality psychology, proposed a solid theoretical framework emphasizing the biological foundations of personality, consisting of temperament and character. Temperament, the biological and hereditary component of personality, refers to an individual's broad emotional response patterns to environmental stimuli. It includes four dimensions: novelty seeking, harm avoidance, reward dependence, and persistence. Character, on the other hand, reflects self-concept and individual differences in goals, values, and life choices, developing throughout one's lifespan. Character dimensions include cooperativeness, self-directedness, and self-transcendence.[17,18]

Studies have demonstrated that specific dimensions of temperament and character, such as high harm avoidance and low self-directedness, are associated with deficits in self-regulation. These self-regulation deficits, in turn, predict the emergence or severity of OCD symptoms. In other words, self-regulation plays a crucial mediating role in the pathway through which temperament and character influence OCD symptoms.[19]

Thomas and Chess proposed the concept of goodness-of-fit, suggesting that if an individual's temperament aligns with environmental expectations, positive developmental outcomes are expected. Since individuals with OCD often struggle with daily life functioning, it can be inferred that they may not have experienced healthy development and may face challenges in adapting to their environment. Moreover, a character shaped by environmental influences is consistent with learning-theory explanations of OCD. From this perspective, OCD results from abnormalities in natural learning mechanisms. In contrast, early childhood learning experiences may contribute to the development of obsessive–compulsive symptoms through imitation of parental or environmental behaviors.[15]

Self-regulation is a critical construct in psychology, emphasizing the active role individuals can play in promoting health and preventing or improving disease outcomes.[20] It serves as a mediator between personality and health.[21] Self-regulation is a multidimensional construct involving cognitive, motivational-emotional, behavioral, and physiological processes that govern the active control of goal-directed actions.[22] It encompasses internal and operational processes that enable individuals to pursue their goals over time and under varying conditions. Self-regulation manages thoughts, emotions, and behaviors through intentional or automatic use of specific mechanisms and supporting meta-skills. It aims to guide thoughts, emotions, and behaviors along a particular pathway toward a planned objective.[23,24]

Researchers also propose that self-regulation may mediate the relationship between maladaptive behaviors and adjustment.[25] Clinical studies on OCD reveal that deficits in self-regulation are a core feature of the

disorder. Therefore, to enhance our understanding of the role of self-regulation in OCD, further research is needed to explore the links between these constructs.[26,27] High self-regulation predicts lifelong health, whereas poor self-regulation increases the likelihood of adverse health outcomes.[28] The ability to apply self-regulation across cognitive, motivational-emotional, behavioral, and physiological domains is essential in adopting and maintaining healthy behaviors throughout life. Consequently, a significant challenge for health professionals is identifying strategies to enhance self-regulatory skills that promote lifelong healthy habits, contributing to the maintenance of health, prevention of disease, slowing of disease progression, and improved quality of life.[20]

Given the significant role of self-regulation both in the development of OCD and in its treatment, several theories have sought to clarify the factors that affect OCD either directly or indirectly by disrupting self-regulation. Since previous studies have not examined a comprehensive model addressing both the direct and indirect effects of temperament and character on OCD symptoms through self-regulation, the present study aims to investigate this relationship: the association between temperament–character dimensions and obsessive–compulsive disorder, with self-regulation as a mediating factor in patients diagnosed with OCD (Figure 1).

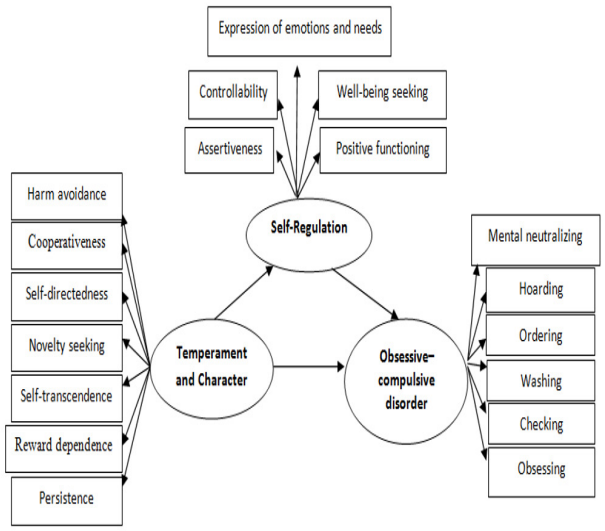

Figure 1 Research conceptual model

2 Methods

The present study employed a descriptive-correlational research design using structural equation modeling. The statistical population consisted of all patients diagnosed with OCD who were referred to public and private psychiatric clinics across the city of Kermanshah.

According to Stevens,[29] considering 15 cases per predictor variable in multiple regression analysis using ordinary least squares is a helpful rule of thumb. Because structural equation modeling is closely related to multivariate regression in several aspects, selecting 15 cases per measured variable in the model is not unreasonable. Therefore, based on these recommendations, a sample size of 300 patients (161 women and 139 men, aged 18–55) who met the inclusion criteria was selected through convenience sampling.

The inclusion criteria were: adults (men and women) with a diagnosis of OCD, receiving an OCD diagnosis from a psychiatrist based on a structured clinical interview (DSM-5), providing informed consent to participate, having at least a secondary-school education, and being between 18 and 55 years old. Exclusion criteria included: refusal to participate, the presence of severe or acute OCD symptoms that would make participation difficult or nearly impossible, incomplete questionnaires, and comorbid psychiatric disorders.

After selecting the sample, participants completed the questionnaires individually. Ethical considerations included assuring participants of confidentiality, prioritizing their psychological well-being, respecting their right to decline participation at any time, and emphasizing that they could withdraw from the study at any stage without any consequences.

Measurement Instruments

Obsessive-Compulsive Inventory–Revised (OCI-R)

OCI-R was developed by Foa et al.[30] The questionnaire consists of 18 items rated on a five-point Likert scale (0 = never to 4 = extremely). The total score ranges from 0 to 72, and each subscale ranges from 0 to 12, with higher scores indicating greater severity of obsessive-compulsive symptoms. Score interpretation is as follows: 0–24 indicates low OCD severity, 24–36 indicates moderate severity, and scores above 36 reflect high OCD severity. The clinical cutoff score for this instrument is 21. Foa et al.[28] reported internal consistency coefficients ranging from 0.81 to 0.93 for the total scale and 0.65 to 0.90 for the subscales, except an alpha of 0.34 for the mental neutralizing subscale in the control group. The instrument demonstrates good discriminant validity and satisfactory convergent validity. Overall, the English version of the OCI-R possesses strong psychometric properties. To evaluate the reliability of the Persian version of the OCI-R, internal consistency was assessed using Cronbach's alpha. The results indicated an alpha of 0.85 for the total scale and the following subscale alphas: checking (0.66), ordering (0.69), obsessing (0.72), washing (0.69), hoarding (0.63), and mental neutralizing (0.50). Additionally, item-subscale correlations were calculated, showing medium effect sizes based on

Cohen (1988): washing (r = 0.46), obsessing (r = 0.46), hoarding (r = 0.37), ordering (r = 0.43), checking (r = 0.40), and mental neutralizing (r = 0.25). Similar to the English version, correlations among the subscales in the Persian version were significant (r = 0.25-0.57). Pearson correlations between the subscales and the total score were also significant (r = 0.61 to 0.80). Test–retest reliability, assessed using the Spearman–Brown coefficient, ranged from 0.74 to 0.91 in the OCD clinical group and 0.57 to 0.67 in the non-clinical control group.[31]

Temperament and Character Inventory (TCI)

TCI, developed by Cloninger,[32] consists of 125 items to which respondents answer "true" or "false." This questionnaire was designed to assess personality traits that are either biologically based (temperament) or shaped through environmental influences (character). The model evaluates seven dimensions, including four temperament scales: novelty seeking, harm avoidance, reward dependence, and persistence, and three character scales: cooperativeness, self-directedness, and self-transcendence. The TCI was standardized in Iran by Kaviani Hjtuomsj and Pournaseh,[33] who reported satisfactory reliability and validity for research use. Test–retest reliability coefficients indicated strong stability across scales: novelty seeking (0.86), harm avoidance (0.88), reward dependence (0.73), persistence (0.79), cooperativeness (0.86), self-directedness (0.90), and self-transcendence (0.86). Validity indices for the subscales ranged from 0.66 to 0.90, indicating good construct validity. Specifically, subscale validity coefficients were as follows: novelty seeking (0.75), harm avoidance (0.72), reward dependence (0.87), persistence (0.90), cooperativeness (0.76), self-directedness (0.66), and self-transcendence (0.86).

In the present study, Cronbach's alpha for the total scale was 0.83, and reliability coefficients for the subscales were: novelty seeking (0.79), harm avoidance (0.71), reward dependence (0.85), persistence (0.87), cooperativeness (0.73), self-directedness (0.69), and self-transcendence (0.84).

Self-Regulation Questionnaire (SRQ)

SRQ, developed by Ibánez et al.[34] is a 25-item instrument designed to assess self-regulation across five domains: positive functioning, controllability, expression of emotions and needs, assertiveness, and well-being seeking. Items are rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Total scores range from 25 to 125, with higher scores indicating greater levels of self-regulation and related skills. The psychometric properties of the SRQ have been supported in preliminary international studies. Ibánez et al.[34] reported a one-month test–retest reliability coefficient of 0.87. Convergent and discriminant validity were confirmed through correlations of the SRQ with extraversion, emotional stability (low neuroticism), and impulse control (low psychoticism).

In the validation study of the Persian version, conducted with a sample of 357 participants (150 men and 207 women), test–retest reliability coefficients were r = 0.87 for the total scale, and r = 0.82, 0.72, 0.78, 0.81, and 0.85 for the subscales of positive functioning, controllability, expression of emotions and needs, assertiveness, and well-being seeking, respectively, indicating satisfactory stability. Internal consistency was also high, with Cronbach's alpha equal to 0.93 for the total score, and 0.87, 0.91, 0.85, 0.92, and 0.90 for the respective subscales, demonstrating strong internal reliability. Content validity was assessed by six psychology experts, yielding Kendall's coefficient of concordance values of 0.77 for the total scale, and 0.83, 0.80, 0.71, 0.80, and 0.70 for the subscales, all of which were deemed acceptable. Convergent and discriminant validity were evaluated by examining correlations between the SRQ subscales and major personality dimensions and mental health indicators. Results showed significant positive correlations with extraversion and psychological well-being, and significant negative correlations with neuroticism and psychological distress. These findings support the convergent and discriminant validity of the SRQ.[35]

Data Analysis

For data analysis, descriptive statistics (mean, standard deviation, frequency, and percentage), Pearson correlation, and structural equation modeling were employed using SPSS version 21 and PLS version 3.

3 Results

Table 1 presents the descriptive information for the demographic variables of patients with obsessive–compulsive disorder.

Table 2 summarizes the descriptive statistics (means and standard deviations) for temperament and character traits, self-regulation, and OCD symptoms. Among temperament and character dimensions, harm avoidance showed the highest mean (M = 14.05, SD = 2.43), while persistence had the lowest (M = 2.06, SD = 1.53); the total temperament and character score was moderate (M = 68.79, SD = 7.33). Self-regulation subscales demonstrated relatively similar mean values (M range = 9.99–10.26), with a moderate total self-regulation score (M = 50.67, SD = 10.86). OCD symptom subscales showed comparable mean scores, with obsessing being the highest (M = 10.21, SD = 1.93).

Table 1 Descriptive information of demographic variables of patients with OCD

Variable	Category	Frequency	Percentage
Gender	Female	161	53.7
	Male	139	46.3
Marital status	Single	107	35.7
	Married	102	34
	Divorced	55	18.3
	Widowed	36	12
Age	18–25	66	22
	26–35	109	36.3
	36–55	125	41.7
Education level	Secondary school	63	21
	Diploma / associate	93	31
	Bachelor's	105	35
	Master's / PhD	39	13
Employment status	Employed	113	37.7
	Unemployed	106	35.3
	Homemaker	81	27
Economic status	Poor	78	26
	Moderate	129	43
	Good	69	23
	Excellent	24	8
Family history of OCD	Yes	201	67
	No	99	33

Table 2 Means and standard deviations of the study variables

Variable	Category/subscale	Mean	Standard deviation
Temperament and Character Subscales	Reward dependence	8.97	2.31
	Novelty seeking	9.68	1.95
	Persistence	2.06	1.53
	Cooperativeness	10.60	2.23
	Self-transcendence	12.29	1.49
	Self-directedness	11.14	2.87
	Harm avoidance	14.05	2.43
Total Temperament and Character Score		68.79	7.33
Self-regulation subscales	Positive functioning	10.15	2.60
	Controllability	10.08	2.48
	Assertiveness	10.26	2.63
	Well-being Seeking	9.99	2.23
	Expression of emotions and needs	10.19	2.37
Total self-regulation score		50.67	10.86
OCD symptoms subscales	Mental neutralizing	9.79	1.96
	Hoarding	9.74	1.62
	Washing	10.12	2.37
	Checking	9.97	2.32
	Ordering	10.03	2.07
	Obsessing	10.21	1.93
Total OCD score		59.86	9.89

Table 3 shows the correlation coefficients among temperament and character, self-regulation, and obsessive–compulsive disorder in patients diagnosed with OCD.

Table 4 presents the correlation coefficients between the total scores, temperament and character variables, self-regulation, and obsessive–compulsive disorder in patients with OCD.

Table 3 Correlation matrix between temperament and character, self-regulation, and OCD in patients with OCD

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Reward dependence	1																	
2. Novelty seeking	0..37**	1																
3. Persistence	0.29**	0.32**	1															
4. Cooperativeness	0.35**	0.59**	0.26**	1														
5. Self-transcendence	0.28**	0.26**	0.15**	0.25**	1													
6. Self-directedness	0.29**	0.41**	0.26**	0.62**	0.24**	1												
7. Harm avoidance	-0.25**	-0.26**	-0.06	-0.23**	-0.48**	-0.21**	1											
8. Positive functioning	0.56**	0.47**	0.34**	0.40**	0.31**	0.36**	-0.21**	1										
9. Controllability	0.67**	0.44**	0.32**	0.40**	0.31**	0.35**	-0.23**	0.74**	1									
10. Assertiveness	0.59**	0.55**	0.36**	0.47**	0.33**	0.37**	-0.22**	0.75**	0.73**	1								
11. Well-being Seeking	0.46**	0.36**	0.33**	0.29**	0.33**	0.34**	-0.20**	0.64**	0.62**	0.59**	1							
12. Expression of emotions and needs	0.49**	0.39**	0.33**	0.35**	0.31**	0.33**	-0.26**	0.78**	0.73**	0.68**	0.55**	1						
13. Mental neutralization	-0.21**	-0.24**	-0.24**	-0.28**	-0.17**	-0.26**	-0.17**	-0.23**	-0.19**	-0.26**	-0.17**	-0.22**	1					
14. Hoarding	-0.23**	-0.21**	-0.24**	-0.24**	-0.17**	-0.25**	-0.18**	-0.13*	-0.15**	-0.20**	-0.16**	-0.16**	0.54**	1				
15. Washing	-0.31**	-0.36**	-0.35**	-0.31**	-0.28**	-0.35**	-0.25**	-0.29**	-0.29**	-0.34**	-0.27**	-0.30**	0.58**	0.36**	1			
16. Checking	-0.30**	-0.38**	-0.35**	-0.32**	-0.24**	-0.34**	-0.23**	-0.29**	-0.28**	-0.33**	-0.25**	-0.29**	0.61**	0.35**	0.78**	1		
17. Ordering	-0.22**	-0.27**	-0.28**	-0.24**	-0.18**	-0.27**	-0.17**	-0.22**	-0.21**	-0.25**	-0.17**	-0.20**	0.54**	0.30**	0.75**	0.76**	1	
18. Obsessing	-0.25**	-0.28**	-0.22**	-0.27**	-0.24**	-0.25**	-0.19**	-0.23**	-0.21**	-0.26**	-0.21**	-0.28**	0.32**	0.29**	0.69**	0.65**	0.48**	1

Note: *p* < .05, **p* < .01

Table 4 Descriptive statistics and correlation matrix of total scores of study variables

Variable	1	2	3
1. Temperament and character	1		
2. Self-regulation	0.55**	1	
3. OCD	.0-38**	-0.34**	1
Mean	68.79	50.67	59.86
SD	7.33	10.86	9.89

**p < .01

As shown in Table 3 and Table 4, reward dependence, novelty seeking, persistence, cooperativeness, self-transcendence, and self-directedness were positively and significantly correlated with self-regulation, whereas harm avoidance was negatively and significantly correlated with self-regulation. Additionally, reward dependence, novelty seeking, persistence, cooperativeness, self-transcendence, and self-directedness were negatively and significantly correlated with obsessive–compulsive disorder, while harm avoidance was positively and significantly correlated with OCD.

Before testing the structural model, the assumptions of normality, multicollinearity, and independence of errors were examined. To assess normality, skewness and kurtosis tests were conducted. Results indicated that skewness and kurtosis values for all variables were not statistically significant ($p > 0.05$), confirming the assumption of normality.

To check for multicollinearity, tolerance and variance inflation factor (VIF) indices were evaluated. Tolerance values were greater than 0.10, and VIF values were below 10, indicating that multicollinearity was not present among the study variables. Therefore, the assumptions required for model testing were satisfied.

For model fit assessment, reliability and convergent validity criteria were applied. Reliability was evaluated using Cronbach's alpha and composite reliability, and convergent validity was assessed using the average variance extracted.

As shown in Table 5, the AVE values for all variables were above 0.50, indicating adequate convergent validity of the measurement model. Additionally, Cronbach's alpha (α) and composite reliability values for all variables exceeded 0.70, demonstrating a perfect fit for the measurement model.

For the structural model, R^2 and Q^2 indices were used to assess model fit. The R^2 coefficient indicates the proportion of variance in the endogenous variable explained by the exogenous variables, with higher values reflecting better model fit. According to Chin,[36] R^2 values of 0.19, 0.33, and 0.67 are considered weak, moderate, and strong, respectively. Results showed that 41% of the variance in obsessive–compulsive disorder was explained by the predictor variables.

The Q^2 index assesses the predictive relevance of the model. Cohen[37] suggested thresholds of 0.02, 0.15, and 0.35 for weak, moderate, and strong predictive relevance, respectively. The Q^2 value for the OCD construct was 0.271, indicating a strong predictive fit for the structural model.

Figure 2 presents all factor loadings, path coefficients, and their significance levels. To assess the overall fit of the model, Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI) were used in the latest version of PLS3.

The SRMR value should be less than 0.09; in this study, it was 0.079, indicating an acceptable model fit. The NFI value should be greater than or equal to 0.90, and in this study, it was 0.90, indicating an acceptable fit. Based on these two indices, the overall fit of the structural model is adequate.

After confirming the adequacy of the measurement and structural models, the study hypotheses were examined and tested. The direct, indirect, and significance coefficients are presented in Table 6.

As shown in Table 6, the path coefficient of temperament and character on self-regulation was 0.584, with a t-value of 15.30, which exceeds the critical value of 1.96. Therefore, this hypothesis is supported, indicating a direct and positive relationship between these two variables.

The path coefficient of temperament and character on OCD was −0.206, with a t-value of 2.91, exceeding 1.96. The path coefficient of self-regulation on OCD was −0.192, with a t-value of 2.64, also exceeding 1.96. Both hypotheses are supported, indicating inverse relationships between these predictors and OCD.

Furthermore, the indirect effect of temperament and character on OCD through self-regulation was −0.112, which was statistically significant at the $p < 0.05$ level. This result suggests that temperament and character contribute to a reduction in OCD symptoms via the mediating role of self-regulation.

Table 5 Q^2, R^2, Average Variance Extracted (AVE), composite reliability, and cronbach's alpha of the latent variables of the study

Latent variable	Q^2	R^2	AVE	CR	α
Temperament and character	-	-	0.76	0.77	0.75
Self-regulation	0.361	0.501	0.94	0.93	0.92
OCD	0.271	0.419	0.93	0.92	0.91

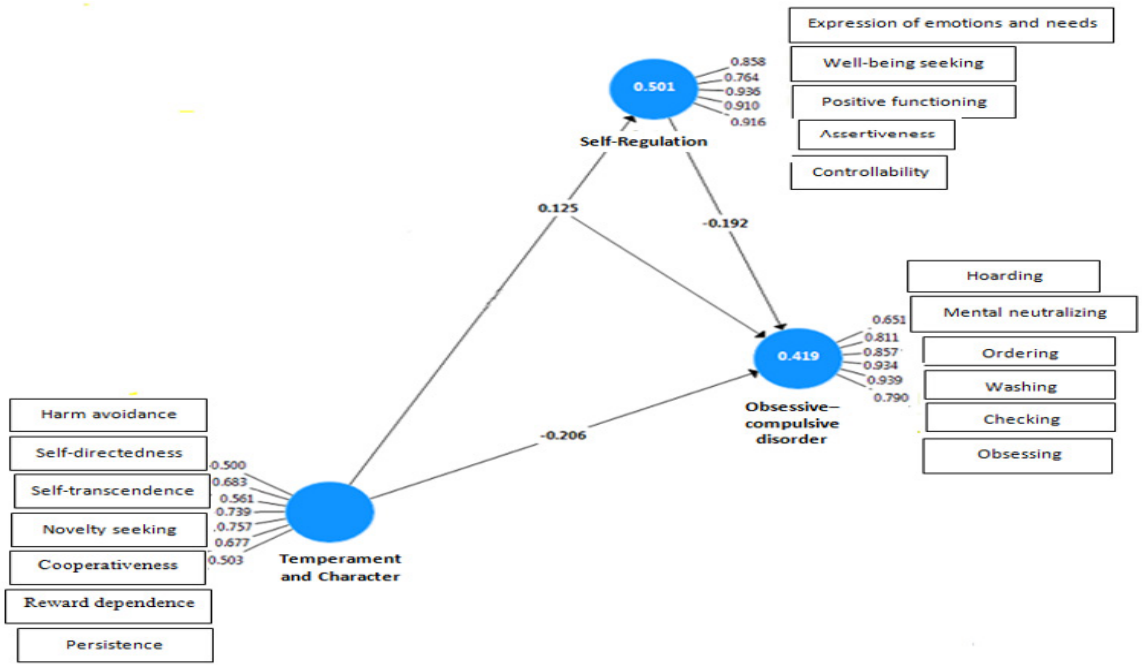

Figure 2 Output of smart PLS software for the calculation of path coefficients and factor loadings of the research variables

Table 6 Summary of the structural model results of the study

Hypothesis	Path	β	t	Significance	Result
Direct effects	Temperament and character→self-regulation	0.584	15.30	0.001	Hypothesis supported
	Temperament and character→OCD	-0.206	2.91	0.004	Hypothesis supported
	Self-regulation→OCD	-0.192	2.94	0.008	Hypothesis supported
Indirect effects	Temperament and character→self-regulation→OCD	-0.112	2.54	0.011	Hypothesis supported

4 Discussion

This study aimed to investigate the relationship between temperament and character and OCD, focusing on the mediating role of self-regulation in patients with OCD. Model fit indices indicated that the proposed model had a satisfactory fit. The study found significant relationships between temperament and character dimensions (harm avoidance, self-directedness, self-transcendence, novelty seeking, cooperativeness, reward dependence, and persistence) and both self-regulation (positive functioning, controllability, assertiveness, well-being seeking, and expression of emotions) and OCD. Both temperament and character, as well as self-regulation, were able to predict OCD directly. Moreover, self-regulation mediated the relationship between temperament and character and OCD.

The significance of the direct effect of temperament and character on OCD is consistent with prior research.[1,11-14] Similarly, the mediating role of self-regulation aligns with studies by Bermúdez.[21] These findings suggest that temperament and character play a substantial role in the development and maintenance of OCD. Specifically, low scores in reward dependence, novelty seeking, persistence, cooperativeness, self-transcendence, and self-directedness, combined with high harm avoidance, may strongly predict susceptibility to psychological disorders, including OCD. According to Cloninger's theory, dimensions of temperament and character are useful in distinguishing the personality profiles of healthy individuals from those with psychological disorders such as OCD.[38]

Individuals scoring high on harm avoidance tend to experience fatigue, fear of uncertainty, social inhibition, and embarrassment in unfamiliar situations. Those with low reward dependence are often cold, less sensitive to group dynamics, more serious and logical, solitary, and less responsive to others' emotions. Low persistence is associated with low effort in pursuing tasks, low adaptability, and a tendency to give up easily when faced with failure.[39] High self-directedness promotes goal-directed participation and reduces compulsive behaviors by enhancing individuals' ability to regulate, control, and adapt their actions to achieve goals and uphold personal values. The results also showed that temperament and character have a direct and significant effect on self-regulation, consistent with findings by de la Fuente et al.[40] and Lotfi and Amini.[41]

Self-regulation involves psychological efforts to control internal states, processes, and behaviors to achieve higher-order goals. Individuals monitor and adjust thoughts, emotions, and behaviors to align with personal standards, promoting well-being or prompting corrective actions when discrepancies occur.[42] While self-regulation is primarily expressed through cognition, emotion, and behavior, temperament and character structures and processes influence its development. Higher levels of reward dependence, novelty seeking, persistence, cooperativeness, self-transcendence, and self-directedness, along with lower harm avoidance, are associated with higher self-regulation, and vice versa. Cloninger emphasized that personality dimensions interact, influencing both the emergence of psychological disorders and the development of adaptive coping mechanisms.[43]

High novelty seeking is associated with active engagement with new stimuli, reward seeking, and avoidance of punishment.[44] Individuals low in harm avoidance exhibit confidence, positivity, and competence in social situations. High reward dependence is linked to responsibility, openness, and warm relational behaviors.[13] High persistence is associated with perceiving failure and fatigue as challenges, persevering in the face of criticism, and dedicating oneself to achieving success.[45] High self-directedness fosters goal-orientation, problem-solving, and resilience, while high self-transcendence allows re-evaluation of situations, alternative perspectives, and positive coping strategies.[46] High cooperativeness is associated with patience, supportive behaviors, and positive social engagement.[13]

Furthermore, the results indicated that temperament and character exert a significant indirect effect on OCD through self-regulation, consistent with prior studies.[27,35,47,48] Temperament and character influence OCD not only directly but also indirectly by affecting self-regulation. Deficits in self-regulation may mediate the relationship, contributing to the development or exacerbation of OCD. According to learning theories, OCD arises from abnormalities in natural learning mechanisms, and early childhood experiences, such as observational learning, may contribute to symptom development. Thus, low levels of character traits can impair self-regulation, increasing vulnerability to OCD.[15] Individuals with strong self-regulation can set goals, plan strategies, monitor progress, and adjust behaviors to achieve balance, whereas patients with OCD often exhibit deficits in these capacities.[49,50]

Understanding self-regulation in OCD patients is crucial for effective interventions. Enhancing self-regulation skills may facilitate the adoption of healthy habits, slow disease progression, improve quality of life, and support mental health.[20]

This study has several limitations. First, its cross-sectional design does not allow causal inferences. Second, the sample was limited to individuals aged 18–55 in Kermanshah, limiting generalizability to other age groups or regions. Based on the findings, it is recommended that mental health professionals consider patients' temperament, character, and self-regulation in the treatment of OCD and design interventions targeting these domains. Given the importance of self-regulation in symptom management, strategies to enhance self-regulation should be prioritized in therapeutic programs for OCD patients.

5 Conclusion

This study found that personality traits and self-regulation play a significant role in the onset and severity of OCD. Personality dimensions such as harm avoidance, reward dependence, and self-directedness, along with deficits in self-regulation, can directly or indirectly contribute to the exacerbation of OCD symptoms. Based on these findings, enhancing self-regulation in therapeutic interventions may help alleviate OCD symptoms. This study emphasizes the importance of considering personality traits and improving self-regulation in the treatment of OCD.

Declarations

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No AI-assisted technologies were utilized in any part of this work.

Authors' Contributions
All authors contributed to the initial idea generation, study design, data collection, and manuscript drafting. All authors have read and approved the final version of the manuscript and declare no disagreement over its contents.

Availability of Data and Materials
The data and materials used in this study are available from the corresponding author upon reasonable request.

Conflict of Interest
The authors declare that there is no conflict of interest.

Consent for Publication
Not applicable.

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This article is derived from the first author's doctoral dissertation at Razi University and was approved by Kermanshah University

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