

Original Article

Mediating role of referential thinking in the relationship between perfectionism and obsessive-compulsive disorder among gifted studentsCamelia Sadati^{1*} ¹ Department of Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran**Corresponding author and reprints:** Camelia Sadati, PhD, Department of Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran. Postal code/ P.O. Box: 1477893855.**Email:** cameliasadati@gmail.com**Received:** 26 Nov 2022**Accepted:** 26 Apr 2023**Published:** 02 Sep 2023**Abstract**

Background: Obsessive-compulsive disorder (OCD) is a prevalent condition of psychological dysfunction in students and causes anxiety in them. The present study aimed to investigate the mediating role of referential thinking in the relationship between perfectionism and OCD among gifted students.

Methods: The statistical population of this descriptive correlation study included all gifted high school students in Tehran in 2020. Multistage random cluster sampling was employed to select 110 students (55 males and 55 females), and structural equation modeling was used for data analysis. The research instruments included the Perseverative Thinking Questionnaire (PTQ), Frost Multidimensional Perfectionism Scale (FMPS), and Maudsley Obsessive-Compulsive Inventory (MOCI).

Results: Referential thinking mediated the relationship between perfectionism and OCD in an indirect, negatively significant manner ($P < 0.001$). Perfectionism and referential thinking were directly and significantly correlated; however, referential thinking had a significant negative relationship with OCD ($P < 0.001$). According to the results, perfectionism predicted 11% of the variance in referential thinking, while perfectionism and referential thinking together predicted 17% of the variance in OCD. Moreover, the findings did not reveal a significant direct relationship between perfectionism and OCD.

Conclusion: Perfectionism and referential thinking contribute to the alleviation of OCD in gifted high school students. Intellectually gifted students can adopt creative coping techniques, which can mitigate the adverse effects of OCD, as they have high levels of creativity, self-awareness, and sensitivity.

Keywords: Obsessive-Compulsive Disorder; Perfectionism; Students; Thinking.

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Introduction

It has always been a concern of psychologists in various communities to pay attention to gifted students and their needs (1). Gifted students differ from other students in intelligence and personality; hence, they can either provide opportunities or cause threats to societies.

Indeed, intellectually gifted students are a country's national capital, while inattention to them can pose them with psychological injuries (2). Different theories have been developed for intellectual giftedness. Some theorists believe in the presence of general intelligence, whereas others believe in

combinatorial and interactive aspects of intelligence. In this regard, theorists assume intelligent individuals to have a variety of characteristics, such as creativity, high motivation for learning, and the ability to identify their strengths. Successful, intelligent individuals employ analytical, creative, and practical abilities to adapt to, form, and select environments (3, 4). Although there are rather diverse theories regarding intellectual giftedness, these theories share certain features, including individual differences between intelligent and ordinary students. Intelligent students, for instance, are characterized by intrusive thoughts (5).

Obsessive-compulsive disorder (OCD) is a prevalent condition of psychological dysfunction. It is also a complicated neuropsychological disorder and an unbearable chronic condition described as debilitating by the World Health Organization. OCD, also known as an anxiety disorder, affects approximately 2.5% of the general population (6). Although its onset is observed in adolescence or adulthood, it may emerge in childhood. The disorder often starts gradually and is sometimes an acute condition associated with stress. Introduced as a global mental health problem, OCD affects nearly two-thirds of patients in adolescence or early adulthood (7, 8). It is mainly characterized by unwanted thoughts, images, and impulses that are so repetitive and bothersome that patients continue obsessive rumination. This condition causes anxiety (as a result of intrusive thoughts) and then leads to obsessive actions (9). Some studies have associated OCD with perfectionism (10). Pozza et al. (10) reported that perfectionism might be an early predictor of OCD symptoms in youth. Perfectionism is a multidimensional construct that includes a set of high standards for actions. It results in negative evaluations, criticisms, and self-blame (11).

Perfectionism has three dimensions: self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism. Apparently, perfectionism has a key role in the etiology, persistence, and pathology of specific psychological conditions such as anxiety disorder, depression, and OCD (12). In the maladaptive perfectionism model, perfectionistic behaviors cause stress and sometimes failure, possibly exacerbating negative emotions and thoughts such as anxiety. Since OCD is an anxiety disorder, some dimensions of perfectionistic thoughts emerge as recurring thoughts (e.g., doubt) and compensatory behaviors (e.g., washing) (9). In cognitive theories, perfectionism is considered a central element of obsessive-compulsive personality disorder (OCPD). At the same time, it is theoretically assumed that patients with OCD are mostly perfectionistic, as confirmed by research findings of nonclinical populations. Nevertheless, some studies have found no significant relationships between perfectionism and OCD, whereas others have reported positive relationships (13). Additionally, research indicates that gifted students exhibit higher scores in perfectionism and OCD than ordinary students (14).

The comorbidity of perfectionism and a wide spectrum of psychological disorders indicates that perfectionism emerges as an unlradiagnostic system. In other words, cognitive and metacognitive processes play mediating roles between perfectionism and psychological distress (15). Repetitive negative thinking or referential thinking is one such process. In fact, negative perfectionism increases cognitive and metacognitive processes and intensifies negative thinking, thereby acting as a significant predictor of psychological distress (16, 17). Referential thinking is a metacognitive process and rumination. It exacerbates and strongly correlates with emotional disorders such as depression, anxiety, and intrusive thoughts. Referential

thinking has three components: spontaneity, repetitiveness, and inability to stop negative thoughts. These thoughts revolve around a person's negative experiences and problems (18, 19). In this regard, some studies have concluded that referential thinking can mediate the relationship between perfectionism and some psychological disorders (20).

Different dimensions of abnormal perfectionism not only have significant positive correlations with depression but also play a predicting role in anxiety disorders and OCD (21, 22). According to research, adolescents, and youth who are predisposed to developing OCD are more likely to postpone academic activities and homework or exam preparation due to compulsive actions, obsessive thoughts, and intrusive impulses. As a result, they are slow and avoidant in their actions. They also have difficulty making decisions and performing customary activities, for OCD is a positive predictor of procrastination among learners (23). OCD's principal processes cause issues with inhibition, memory, and learning. These individuals also have a lower perception of memory capability and memory reliability. People with OCD have higher perfectionism scores and lower short memory levels than normal people. They also use additional strategies for inefficient thinking control and have a problem with verbal memory due to a concentration control problem (24, 25).

Personality traits such as perfectionism and obsessive behavior can primarily contribute to students' social injuries and academic failure. Hence, focus on perfectionism is a must and needs to be analyzed seriously among students. There is still vagueness when analyzing relationships between perfectionism, referential thinking, and OCD among intellectually gifted students. Accordingly, the present study aimed to investigate the mediating role of referential thinking in the relationship between perfectionism and obsessive-compulsive disorder among gifted students in Tehran.

Methods

The statistical population of this descriptive correlational study included all gifted high school students of Tehran during the 2019–2020 school year. Given the presence of two predictive variables and the possible attrition, the research sample was estimated at $n=110$ individuals (55 females and 55 males). According to Thomson's (26) model (10 participants for each observed variable), and given that there were 10 observable variables in this study, a total of 110 participants were selected. They were recruited through multistage random cluster sampling. For this purpose, two schools (a boys' school and a girls' school) were randomly selected from all gifted high schools (i.e., grade-A schools for intellectually gifted students) in Tehran. After the required permit was obtained from the education department of the district of interest, two classes were randomly selected from the schools. The research questionnaires were then distributed among students for data collection.

Research instruments

Perseverative Thinking Questionnaire (PTQ): This questionnaire was developed by Ehring et al. (27) to evaluate repetitive negative thinking. It is a self-report 15-item tool consisting of a higher-order factor labeled "Repetitive Negative Thinking" (RNT) and three lower-order factors related to the repetitiveness of RNT (9 items), the perceived unproductiveness of RNT (3 items), and RNT capturing mental resources (3 items). PTQ is often administered for depression and other cases of mood disorders. It is scored on a 5-point Likert scale ranging from "0" for "never" to "4" for "always". The scores of items are added to determine the total score or that of each subscale ranging from 0 to 60. Higher scores indicate higher levels of RTN in a respondent (27). In Ehring et al.'s study (27) all subscales of the PTQ showed good internal consistencies. (27) Kami et al. (28)

Table 1. Means, standard deviations (SD), skewness, and kurtosis of the research variables

Variables	Mean \pm SD	Skewness	Kurtosis
Perfectionism	108.09 \pm 15.28	-0.16	0.03
Referential thinking	44.72 \pm 15.28	-0.09	-1.06
Obsessive-compulsive disorder	45.12 \pm 3.37	-0.48	0.79

reported a Cronbach's alpha of 0.95 for the questionnaire.

Frost Multidimensional Perfectionism Scale (FMPS): This scale was formulated by Frost et al. (29) to measure different dimensions of perfectionism. It includes 65 items in six subscales called concerns over mistakes (9 items), doubts about actions (4 items), excessive concern with parents' expectations (5 items), excessive concern with parents' evaluation (4 items), excessively high personal standards (7), and concern with precision, order, and organization (6 items). The total score is obtained from the summation of scores on all 35 items. High scores indicate a person's high levels of perfectionism in one area. The questionnaire is scored on a 5-point Likert scale ranging from "1" for "completely disagree" to "5" for "completely agree". Frost et al. (29) reported that the original version of the FMPS had good validity and reliability. Akhavan Abiri et al. (30) reported a Cronbach's alpha of 0.84 for the scale.

Maudsley Obsessive-Compulsive Inventory (MOCI): This test was developed by Hodgson and Rachman (31). It consists of 30 items (half with true keys and half with false keys) in four subscales: checking, cleaning, slowness, and doubting. The responses are labeled true or false to determine the total obsessiveness score and the scores of the four subscales (31). Hodgson and Rachman (31) reported that the original version of the MOCI had good validity and reliability. Assareh et al.

(32) reported a Cronbach's alpha of 0.89 for the questionnaire.

Statistical analyses

The theoretical research model and the research hypotheses were analyzed through structural equation modeling in PLS. Path coefficients (i.e., factor loads) and R^2 values were analyzed. Moreover, CV and Q^2 were employed to determine the model fitness.

Results

Table 1 reports the descriptive indices such as mean, standard deviation (SD), skewness, and kurtosis of variables. As Table 1 indicates, standard deviation exhibited the proper data distribution, whereas skewness and kurtosis demonstrated the normal distribution of variables.

Table 2 also reports the correlation of variables. OCD had significant negative correlations with perfectionism ($r = -0.26$) and referential thinking ($r = -0.38$), whereas perfectionism correlated positively and significantly with referential thinking ($r = 0.32$).

The research assumptions and model are presented in Figure 1. Figure 1 illustrates the path coefficients that can be employed to compare the effects of variables. According to Figure 2, perfectionism had a negative relationship with OCD but a positive association with referential thinking. Moreover, there was a negative relationship between referential thinking

Table 2. Pearson correlation coefficients among the research variables

Variables	1	2	3
1- Perfectionism	1		
2- Referential thinking	0.32**	1	
3- Obsessive-compulsive disorder	-0.26**	-0.38**	1

** : $P < 0.01$

and OCD. Table 3 reports the detailed results of direct relationships and their significance levels. According to Table 3, a positively significant relationship holds between perfectionism and referential thinking ($\beta= 0.32, P<0.001$). There was also a significant association between referential thinking and OCD ($\beta= -0.33, P<0.001$). However, the results indicated that perfectionism had no significant correlation with OCD ($\beta= -0.15, P=0.079$). Perfectionism predicted 11% of the referential thinking variance, while perfectionism and referential thinking together explained 17% of the OCD variance.

Table 4 reports indirect associations and general relationships to analyze the mediating role of referential thinking. The results indicated that perfectionism was linked indirectly with OCD through referential thinking. Overall, the results depicted that referential thinking had a mediating role in the relationships between perfectionism and OCD ($\beta= -0.41, P<0.001$).

Table 5 reports the results of analyzing the model fitness through CV and Q^2 . As these indices were positive, it can be concluded that the research model was sufficiently fit. The positive CV values indicated that predictor constructs could properly predict criterion constructs.

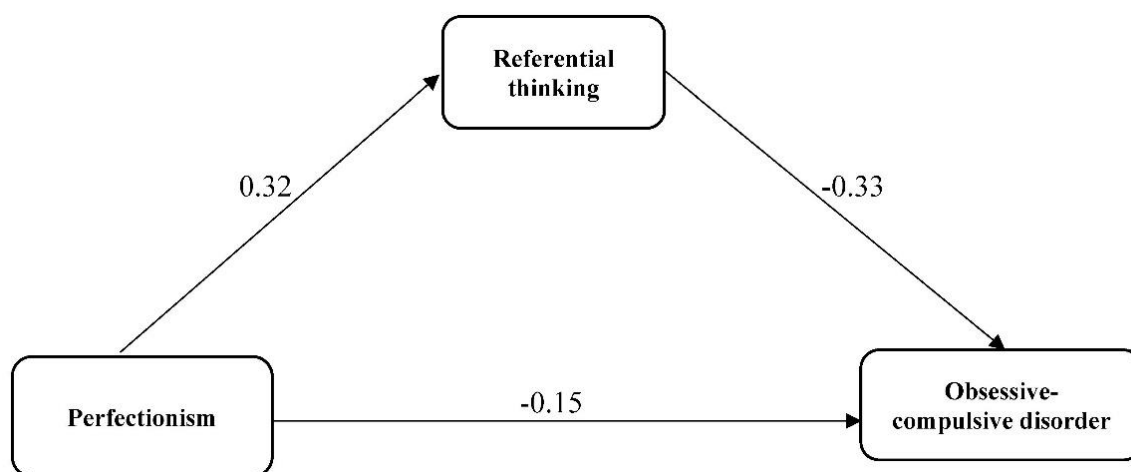


Figure 1. The proposed model of the mediating role of referential thinking in relationships of perfectionism and obsessive-compulsive disorder

Table 3. Path coefficients of direct relationship between variables in the research model.

Path	β	t	P	R^2
Perfectionism to referential thinking	0.32	4.04	0.001	0.11
Perfectionism to obsessive-compulsive disorder	-0.15	1.44	0.079	
Referential thinking to obsessive-compulsive disorder	-0.33	4.05	0.001	0.17

Table 4. Path coefficients of indirect relationship between variables in the research model.

Path	β	t	SE	P
Perfectionism to obsessive-compulsive disorder with the mediating role of referential thinking	-0.41	-2.87	0.09	0.001

Table 5. The results of analyzing the model fitness through CV and Q^2

Variables	CV	Q^2
Obsessive-compulsive disorder	0.16	0.10
Referential thinking	0.09	0.01

Discussion

The present study aimed to investigate the mediating role of referential thinking in the relationship between perfectionism and obsessive-compulsive disorder among gifted students in Tehran. According to the results, there was a positive relationship between perfectionism and referential thinking. Moreover, referential thinking had a mediating role in the relationships between perfectionism and OCD. Many studies have confirmed the relationship between perfectionism and referential thinking. Shirmohammadi et al. (33) analyzed the relationship between referential thinking and perfectionism among university students. They reported a significant positive relationship between the two variables. Masido (34) found a positive link between perfectionism and cognitive/metacognitive processes such as referential thinking. Moreover, Masido et al. (20) reported that perfectionism intensified some psychological disorders by affecting intellectual processes.

The characteristics of perfectionists can be pointed out to explain the positive relationship between perfectionism and referential thinking. In fact, perfectionism is a cognitive pattern of a person's expectations. Its major component is to set robust and inflexible goals for assignments and to regulate unreal high standards. These individuals also have high scores in critical self-evaluation. At the same time, referential thinking is characterized by repetitiveness, spontaneity, and the inability to stop negative thoughts. Hence, it can be concluded that perfectionists and those with referential thinking share specific characteristics. Perfectionists follow inflexible cognitive patterns to encounter assignments (14). Moreover, there is a similar interpretation of referential thinking. That is, people with higher scores of referential thinking constantly interpret and think about the correctness and incorrectness of assignments. This discussion is more

serious when it comes to intellectually gifted students. Since these students have higher scores in perfectionism, they always use referential thinking to interpret the correctness of their assignments (11). They may evaluate their performances with regard to their achievements in competition with other students, success in assignments, and superiority to other students.

According to what went above, it can be predicted that referential thinking can have a positive relationship with obsessive thinking or OCD in general. Indeed, a further finding of this study was the negative relationship between referential thinking and OCD. However, many studies have reported a positive correlation between these two variables (22, 32). Different studies have indicated that referential thinking is an ultra-diagnostic process, which is a common characteristic of many disorders. Vigne et al. (24) described referential thinking as a risk factor that has comorbidity with many emotional disorders.

The theories of intellectual giftedness can be employed to explain this finding. Nearly all theories of intellectual giftedness believe that intellectually gifted students differ from ordinary students in cognitive and individual aspects. In this regard, Sternberg's theory of successful intelligences is a novel theory (35). According to this theory, individuals who identify and use their strengths more frequently while recognizing and modifying their weaknesses are intellectually successful. In fact, intellectually successful individuals adapt to, shape, and select environments by striking a balance between their analytical, creative, and practical abilities. Therefore, intellectually gifted students can eliminate OCD by perceiving its presence as a weakness. In other words, they tend to be perfectionistic in terms of optimal behavior toward performance; hence, perfectionism in such students can negatively affect OCD. Although this study did not report any

significant relationships between perfectionism and OCD, intellectually gifted students consider OCD a problem (6). They analyze and explain how people solve mental problems and assignments and improve their own thinking and reasoning skills to perform better in different situations.

Limitations

Every study may face some limitations on implementation. The results of this study are limited to gifted high school students of Tehran during the 2019–2020 school year; therefore, caution should be taken into account while generalizing the results to other age groups and students. Another limitation of the study was the use of a self-report tool, which can lead to biased results.

Conclusion

The indirect relationship between perfectionism and OCD was negative and significant, such that perfectionism intensified referential thinking, which in turn reduced OCD. Perfectionism could mediate between cognitive/metacognitive processes and psychological disorders. Since referential thinking is considered a cognitive/metacognitive process, its mediating role can be explained in the relationship between perfectionism and OCD. Intellectually gifted students can identify OCD as a weakness due to having high cognitive abilities. They can also mitigate this disorder by using the corrective aspect of their referential thinking through problem-solving strategies. Investigating the mediating role of referential thinking in the relationship between perfectionism and OCD in gifted students is one of the most important strengths of the present study. Consequently, perfectionism and referential thinking contribute to the alleviation of OCD. Intellectually gifted students can adopt creative coping techniques, which can mitigate the adverse effects of OCD, as they have high levels of creativity, self-awareness, and sensitivity.

Ethical Approval

The Ethics Review Board of Islamic Azad University, Science and Research Branch, approved the present study with the following number: 975306.

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Conflict of Interest

All the authors declare that they have no conflict of interest.

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