

## Research Paper



## Structural modeling in the relationship between intellectual-practical obsessions and cognitive-emotional regulation with regard to the mediating role of mental resilience in dentists

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**Abstract**

**Introduction and Objective:** Obsessive behaviors in dentists impair professional performance and mental health, while strengthening emotion regulation and stress tolerance can help prevent these risks. Therefore, this study aimed to predict obsessive thoughts and behaviors based on emotional regulation, considering the mediating role of psychological resilience among dentists.

**Research Methodology:** The present study is applied in terms of its purpose and descriptive-correlational in terms of data collection methods, utilizing structural equation modeling. The statistical population consisted of all dentists in Ardabil in 2024, from which 120 individuals were selected as respondents using convenience sampling. Data were collected using three questionnaires: the Connor-Davidson Psychological Resilience Questionnaire, the Garnefski et al. Cognitive Emotion Regulation Questionnaire, and the Maudsley Obsessional-Compulsive Questionnaire. Data analysis was conducted using SPSS.16 and R software, employing Pearson correlation, multiple regression analysis, structural equation modeling, and path analysis.

**Findings:** Statistical analysis results indicated a significant and inverse relationship between obsessive thoughts and behaviors with emotional regulation ( $p < 0.01$ ), mediated by resilience. It was also found that resilience had a significant positive relationship with cognitive emotion regulation ( $p < 0.01$ ). This research found that cognitive emotion regulation explained 54% of the variance in obsessive thoughts and behaviors, with resilience influencing approximately 81% of obsessive behaviors, and cognitive emotion regulation impacting resilience by about 32% ( $p < 0.01$ ).

**Conclusion:** The findings indicated that resilience plays a significant and inverse mediating role in the relationship between obsessive thoughts and behaviors and cognitive emotion regulation among dentists. In other words, both cognitive emotion regulation and resilience can significantly predict obsessive-compulsive tendencies. Therefore, identifying obsessive behaviors and the factors influencing them should become a priority for health psychologists, as enhancing resilience and emotional competence can improve dentists' professional functioning and support targeted therapeutic interventions.

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## Introduction

Dentists, due to the demands of their work environment and the precision required in their professional tasks, are frequently exposed to high levels of occupational stress, which has been associated with increased risk of mental health issues such as anxiety, depression, and obsessive-compulsive symptoms in dental professionals (Maragha et al., 2025; Hakanen et al., 2008; Gallagher et al., 2021). These intrusive behaviors may manifest in various forms, ranging from persistent concerns about instrument contamination to fears of clinical errors, and compulsive acts such as excessive hand washing or repeated equipment checks. Multiple factors—including patients' anxiety and the dentist's intense focus on treatment procedures—can contribute to stress and its detrimental consequences, such as obsessive behaviors (Almutairi, Albeshier, & Alqahtani, 2021). At the core of obsessive-compulsive disorder lies a disruption in the cognitive and emotional processing of environmental information. This disturbance is expressed through repetitive behaviors, intrusive thoughts, mental images, and unwanted impulses, which instill in the affected individual a perceived compulsion to respond to their obsessive thoughts (Ferreira, Pêgo, & Morgado, 2020). All of these consequences can be traced back to a persistent underlying worry characteristic of individuals with OCD (Yazdi-Ravandi et al., 2018). Beyond experiencing obsessive thoughts and emotions, attention must also be given to their review, regulation, and prevention. These processes are influenced by evolutionary, cognitive, social, and interpersonal triggers that can affect decision-making, memory, physiological responses, and social interactions in real time (Fineberg et al., 2018). Emotional regulation refers to the processes through which individuals identify, manage, and modify their emotional responses. It plays a crucial role in shaping both cognitive and behavioral outcomes. In particular, difficulties in emotional regulation have been strongly linked to the onset and exacerbation of psychological disorders, including obsessive-compulsive behaviors and thoughts. Research indicates that when individuals struggle to effectively recognize and manage their emotions, it can lead to maladaptive coping mechanisms, which significantly contribute to the development and intensification of obsessive-compulsive tendencies. In fact, a growing body of evidence shows that the inability to regulate emotions adequately is a key factor in the emergence and worsening of obsessive-compulsive symptoms (Harrington et al., 2018). The presence of OCD-related behaviors can impair professional performance and negatively impact mental health. Dentists who experience such symptoms often show a decline in work quality, increased burnout, and impaired interpersonal functioning (Jalal, Chamberlain, & Sahakian, 2023). These behaviors, often driven by compulsive checking routines aimed at ensuring instrument sterilization, can lead to significant time loss, compromised performance, and chronic fatigue (Fineberg, Pellegrini, Clarke, & Perera, 2020). Numerous studies have explored the consequences of obsessive behaviors, with results consistently indicating their detrimental impact on both performance and well-being. For instance, Baghban and colleagues found a significant relationship between the severity of temporomandibular joint disorder (TMD) symptoms and the presence of obsessive behaviors (Baghban, Shakeri, & Mousavi, 2023). Smith and colleagues demonstrated that OCD symptoms in dentists were associated with increased work pressure and fear of professional error, which in turn led to reduced job satisfaction and heightened social isolation in the workplace (Smith, Taylor, & Adams, 2023). Additionally, Robbins and colleagues reported that obsessive behaviors interfered with the delivery of dental care, causing delays in task execution among dental personnel. These behaviors were shown to amplify occupational stress, particularly when paired with the high levels of precision and responsibility required in dentistry (Robbins, Vaghi, & Banca, 2022). According to a report by Smith et al., 9.8% of dentists with mild to moderate OCD symptoms experienced significant occupational stress and heightened concerns about clinical errors, leading to delays in task completion and reduced quality of care for patients (Smith et al., 2023).

The onset and exacerbation of emotions such as stress, anxiety, worry, and fear can predispose individuals to intrusive thoughts and compulsive behaviors (Abramowitz & Jacoby, 2022). For instance, the stress and concerns experienced by dentists may elicit and intensify maladaptive emotional responses, culminating in obsessive fears of contamination or clinical error. Failure to manage such emotions may reinforce the obsessive-compulsive cycle and disrupt professional performance. In this context, cognitive emotion regulation and its adaptive strategies serve as critical mechanisms for managing emotions in response to stressful situations, enabling dentists to regulate destructive emotions and avoid excessive or maladaptive reactions (Garnefski & Kraaij, 2021). Emotion regulation strategies encompass a range of mechanisms aimed at modulating emotions and interpreting affective experiences. Among them, cognitive emotion regulation processes are particularly relevant, as understanding their mechanisms can be instrumental in addressing emotional and psychological problems associated with psychiatric disorders (Berking & Wupperman, 2012). Cognitive emotion regulation is, in essence, a key coping strategy that

allows individuals to respond flexibly to internal and external stressors, particularly during emotionally adverse experiences. Numerous studies have explored the association between psychological disorders—especially obsessive-compulsive behaviors—and cognitive emotion regulation among healthcare professionals. These findings suggest that the use of constructive regulation strategies can mitigate psychological distress. For example, one study revealed that the use of maladaptive and ineffective cognitive strategies in response to emotional experiences increases individuals' vulnerability to emotional difficulties, psychological stress, and anxiety-related issues—including obsessive thoughts and beliefs (Rahmani, Zanjani, & Omid, 2022). In a separate study conducted among healthcare professionals, including dentists, Sheppes and colleagues found that cognitive emotion regulation functioned as a moderating variable in the relationship between occupational stress and obsessive-compulsive behaviors. Furthermore, the study demonstrated that the use of ineffective strategies—such as emotional suppression—was associated with higher levels of obsessive-compulsive symptoms in this group (Sheppes, Suri, & Gross, 2022). In a related investigation, Thompson and Waltz examined the correlation between obsessive-compulsive behaviors and cognitive emotion regulation in the medical profession. They found that dentists who employed adaptive strategies such as positive reappraisal reported fewer obsessive-compulsive symptoms and exhibited greater psychological flexibility in the face of occupational demands (Thompson & Waltz, 2021). Similarly, findings by Aldao and Dixon-Gordon indicated that an inability to regulate negative emotions—particularly anxiety related to clinical errors—was positively correlated with an increase in obsessive thoughts and compulsive behaviors in high-stress professions such as healthcare (Aldao & Dixon-Gordon, 2020). Additionally, research by Garnefski and colleagues revealed that dentists who exhibited higher levels of obsessive-compulsive behaviors frequently employed maladaptive cognitive emotion regulation strategies, such as rumination and self-blame. Conducted with a sample of 150 dentists, the study found that these strategies were significantly associated with increased occupational stress and reduced professional performance quality (Garnefski, Kraaij, & Spinhoven, 2019).

The use of adaptive emotion regulation techniques requires the ability to control and modulate negative emotions—a capacity that is often supported by psychological resilience and the flexibility it provides in stressful situations. Resilience increases an individual's tolerance to psychological pressure and facilitates the regulation of emotions such as anxiety and worry in high-stress contexts, thereby preventing the onset or persistence of maladaptive emotional responses, including obsessive-compulsive behaviors (Bonanno, 2021). In this sense, resilience is seen as a psychological buffer that, by enhancing individuals' ability to withstand emotional distress, reduces the intensity of compulsive behaviors (Southwick & Charney, 2022). Resilience plays a mediating role in this context. Studies have shown that resilience reduces emotional vulnerability and enhances cognitive flexibility, which helps reduce the impact of poor emotion regulation on obsessive-compulsive behaviors (Chen & Bonanno, 2023; Wu et al., 2022; Fletcher & Sarkar, 2020). By increasing emotional tolerance, resilience also mediates the relationship between obsessive behaviors and rumination (Hilt & Pollak, 2021).

Despite previous research on the relationship between obsessive-compulsive behaviors (OCD), cognitive emotion regulation, and psychological resilience, there is a significant gap in understanding how these variables specifically apply to dentists. Most prior studies have focused on general populations or other professional groups, with limited attention paid to the unique occupational stressors inherent in dentistry—such as the demand for high precision, long working hours, and persistent exposure to stress. This study is innovative because it addresses critical gaps in the literature by exploring the role of psychological resilience in managing obsessive-compulsive behaviors specifically within the dental profession. Given the unique demands of this profession, this study aims to analyze the structural modeling of the relationship between obsessive-compulsive symptoms, cognitive emotion regulation, and the mediating role of psychological resilience among dentists. This research is particularly important as it provides a deeper understanding of how these behaviors are managed within the specific context of the dental profession and can inform the development of targeted interventions to improve the mental health of dentists.

## Methodology

This applied research was conducted in 2024 (1403 in the Iranian calendar) using a descriptive-correlational design for data collection. Considering the temporal framework of the study, it falls under the category of cross-sectional research. The statistical population included all licensed dentists in Ardabil County during the year 2024. To determine the appropriate sample size, the researchers utilized G\*Power software. Results from the statistical power analysis indicated that, for a correlational test within the framework of structural equation modeling (SEM),

a minimum sample size of 105 participants would be sufficient to achieve a statistical power of 0.80, at an alpha level of 0.05 and assuming a medium effect size ( $d = 0.5$ ). In line with recommendations for SEM, which suggest recruiting 10 to 40 participants per observed variable, this study adopted a conservative approach by selecting 15 participants per observed variable. Given the inclusion of 7 observed variables, a sample size of 105 was considered adequate.

To account for participant attrition (estimated at 14%) and to enhance the generalizability of the findings, a total of 120 participants were recruited using a convenience sampling method.

Given the quantitative nature of the study, three validated self-report questionnaires were employed for data collection:

1. Cognitive Emotion Regulation Questionnaire (CERQ) developed by Garnefski et al. (2007),
2. Maudsley Obsessive-Compulsive Inventory (MOCI) developed by Hodgson and Rachman (1977),
3. Connor-Davidson Resilience Scale (CD-RISC) developed by Connor and Davidson (2003).

A detailed description of each instrument is provided in the following section.

**Cognitive Emotion Regulation Questionnaire (CERQ):** The Cognitive Emotion Regulation Questionnaire (CERQ), developed by Garnefski et al. (2007), is a psychometrically validated tool designed to assess individuals' cognitive strategies for regulating emotions in response to negative or stressful events. The 36-item version of the CERQ includes nine subscales—Self-blame, Acceptance, Rumination, Positive Refocusing, Reappraisal, Catastrophizing, Blaming Others, Positive Reappraisal, and Thought Suppression—each measured through four items. Responses are rated on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*), resulting in subscale scores ranging from 4 to 20, and a total score range of 36 to 180. Higher scores on a given subscale indicate greater use of that specific strategy, whether adaptive (e.g., positive reappraisal) or maladaptive (e.g., catastrophizing). For example, a high score on positive reappraisal reflects a constructive approach to managing emotions, whereas a high score on catastrophizing reflects vulnerability to psychological distress such as obsessive-compulsive symptoms. The CERQ is widely used in clinical and research settings to assess emotional regulation patterns associated with anxiety, depression, and OCD. The 36-item version, compared to its shorter 18-item form, offers greater depth and accuracy in capturing emotion regulation profiles. The Persian version of the CERQ was standardized by Hasani (2011), demonstrating satisfactory psychometric properties, including internal consistency coefficients (Cronbach's alpha) ranging from 0.76 to 0.93, test-retest reliability ranging from 0.51 to 0.75, and construct validity confirmed through principal component analysis with varimax rotation and inter-subscale correlations ranging from 0.32 to 0.67 (Hasani, 2011). In the present study, the overall reliability of the instrument was confirmed, with a Cronbach's alpha coefficient of 0.862, indicating strong internal consistency and suitability for research purposes.

**Maudsley Obsessive-Compulsive Inventory (MOCI):** The Maudsley Obsessive-Compulsive Inventory (MOCI), developed by Hodgson and Rachman, is a diagnostic tool designed to assess the type and extent of obsessive-compulsive problems. The MOCI consists of 30 items with dichotomous (yes/no) response options and evaluates the presence and severity of OCD symptoms across four core subscales: Checking, Washing, Slowness, and Doubting. Each item is scored such that a "Yes" response (indicating endorsement of the symptom) receives a score of 1, and a "No" response receives a score of 0, yielding a total score range of 0 to 30. A higher total score reflects a greater intensity of obsessive-compulsive symptoms, such as frequent checking, excessive washing, slowness in tasks, or pathological doubt, suggesting a higher likelihood of clinical relevance. Conversely, a lower score indicates the absence or minimal presence of OCD symptoms. The cut-off score for identifying clinical significance may vary depending on the population and research objectives, but generally, scores above 10 to 12 are considered indicative of potential clinical concern and warrant further evaluation. In a foundational study, Hodgson and Rachman (1997) demonstrated the sensitivity of the MOCI to treatment-related changes in a sample of forty OCD patients, reinforcing its utility for both clinical and research purposes. The MOCI has been recognized as a valid instrument for tracking therapeutic outcomes and for exploring the etiology, progression, and prognosis of various obsessive-compulsive complaints (Emmelkamp, Hoekstra, & Visser, 1985). Its reliability and validity have been confirmed across multiple clinical populations worldwide. For instance, Sanavio reported a correlation of 0.70 between the MOCI total score and the Padua Inventory, and Rachman and Hodgson (1980, as cited in Turner & Beidel) reported a test-retest reliability coefficient of 0.89. The Persian version of the inventory was standardized by Shams and colleagues, who confirmed its reliability using the test-retest method,

reporting a high correlation coefficient of 0.98 ( $r = .98$ ) (Shams et al., 2008). In two separate studies conducted in Iran, the mean score among OCD patients was found to be 15.75 ( $SD = 5.63$ ) in one study and 14.67 ( $SD = 5.76$ ) in the other. In the current study, the reliability of the MOCI was assessed using Cronbach's alpha, yielding a coefficient of 0.921, indicating excellent internal consistency and affirming the suitability of this questionnaire for assessing obsessive-compulsive symptoms among dentists (Ghassemzadeh et al., 2002; Ghassemzadeh, Khamseh, & Ebrahimkhani, 2005).

**Connor-Davidson Resilience Scale (CD-RISC):** The Connor-Davidson Resilience Scale (CD-RISC), developed by Connor and Davidson (2003), is a 25-item self-report instrument designed to measure psychological resilience using a 5-point Likert scale ranging from 0 (*not true at all*) to 4 (*true nearly all the time*). The total score ranges from 0 to 100, with higher scores indicating greater resilience and a stronger ability to adapt to stress and adversity, while lower scores suggest increased psychological vulnerability and reduced coping capacity. The scale comprises five subscales, which include: personal competence, tolerance of negative affect, positive acceptance of change, sense of control, and spiritual influences. In their original validation study, Connor and Davidson (2003) confirmed the construct validity of the instrument through factor analysis and reported significant correlations with the General Health Questionnaire (GHQ). The internal consistency of the scale was assessed using Cronbach's alpha, which was reported as 0.89, indicating high reliability. The Persian version of the CD-RISC was validated by Keyhani et al. (2015), who reported a Cronbach's alpha of 0.769, demonstrating acceptable reliability in the Iranian context. In the present study, the reliability of the CD-RISC was assessed using Cronbach's alpha, which yielded a coefficient of 0.749, indicating satisfactory internal consistency and supporting the instrument's appropriateness for evaluating resilience in dental professionals.

Following the approval of the research proposal by the Research Council and the acquisition of the ethical code ([IR.UMA.REC.1403.023](#)) from University of Mohaghegh Ardabili, a remote data collection approach was adopted, given the nature of the target population and their occupational constraints. Initially, online questionnaires were designed, and the corresponding survey links were distributed to professional social media groups and channels associated with dentists in Ardabil County and the Ardabil University of Medical Sciences and Health Services. These links were shared through platforms such as WhatsApp, Instagram, and Telegram, with the assistance and endorsement of the university, which had provided access to these relevant professional networks. The survey platform was configured to automatically deactivate once the required sample size of 120 participants was reached. The inclusion criteria for participation were that individuals must be licensed dentists with at least one year of experience in the field. The exclusion criteria included individuals who were not actively practicing dentistry or had any psychiatric disorders that could interfere with their ability to complete the survey. In addition to the study questionnaires, the link also included an informed consent form, which participants were required to read and complete to indicate voluntary participation. Demographic data such as gender, age, physical and physiological health status, education level, employment status, and marital status were also collected through this link. The data collection phase began on July 15, 2024, and concluded on November 15, 2024. For data analysis, both descriptive and inferential statistical methods were employed. Descriptive statistics such as means and standard deviations were calculated to summarize the demographic and variable-related characteristics. For inferential analysis, Pearson correlation coefficients, multiple regression analysis, structural equation modeling (SEM), and path analysis were conducted using SPSS and R software to examine the relationships between the variables and to test the proposed structural model.

## Results

Table 1 presents the analysis of the demographic characteristics of the respondents, including gender, educational level, workplace, marital status, health status, age, and years of professional experience. To describe these variables, relevant statistical indicators such as frequency, percentage, mean, maximum, and minimum values were calculated and reported.

**Table 1.** Demographic Characteristics of the Participants

| Variable          | Categories / Indicators | Frequency / Value | Percentage (%) |
|-------------------|-------------------------|-------------------|----------------|
| Gender            | Male                    | 78                | 65.30          |
|                   | Female                  | 42                | 34.69          |
| Educational Level | Master's Degree         | 40                | 33.2           |
|                   | Doctorate               | 80                | 66.66          |

|                                   |                               |               |       |
|-----------------------------------|-------------------------------|---------------|-------|
| Workplace                         | Private Clinic or Office      | 105           | 87.8  |
|                                   | Public Hospital               | 15            | 12.2  |
| Marital Status                    | Single                        | 32            | 27.04 |
|                                   | Married                       | 88            | 72.95 |
| Physical and Physiological Health | Healthy                       | 117           | 97.4  |
|                                   | Illness or Disability         | 3             | 2.6   |
| Age                               | Mean Age                      | 34.5153 years | –     |
|                                   | Youngest Participant          | 25 years      | –     |
|                                   | Oldest Participant            | 59 years      | –     |
| Work Experience                   | Mean Work Experience          | 8.2347 years  | –     |
|                                   | Most Experienced Participant  | 30 years      | –     |
|                                   | Least Experienced Participant | 1 year        | –     |

Table 1 presents the demographic characteristics of the study participants. The results show that 65.30% ( $n = 78$ ) of participants were male, while 34.69% ( $n = 42$ ) were female. A majority held a doctoral degree (66.66%,  $n = 80$ ), while 33.2% ( $n = 40$ ) held a master's degree. Most participants (87.8%,  $n = 105$ ) were employed in private clinics or personal dental offices, whereas only 12.2% ( $n = 15$ ) worked in public hospitals. The mean professional experience was 8.23 years, ranging from 1 to 30 years. Regarding marital status, 72.95% ( $n = 88$ ) of participants were married and 27.04% ( $n = 32$ ) were single. In terms of health status, 97.4% ( $n = 117$ ) of the dentists were reported as physically and physiologically healthy, while 2.6% ( $n = 3$ ) reported having an illness or disability. The average age of participants was 34.5153 years, with the youngest being 25 years old and the oldest 59 years old.

**Note:** Although a portion of the participants holds a master's degree (33.2%), these degrees are in non-clinical fields related to dentistry such as Dental Public Health, and not additional clinical qualifications. Therefore, all participants are actively practicing dentistry, and the inclusion of participants with master's degrees does not affect the validity of the study.

**Table 2.** Descriptive Statistics of the Study Variables and Their Dimensions

| Variable / Dimension           | Mode  | Median | Mean   | SD    | Variance | Min   | Max    | N   |
|--------------------------------|-------|--------|--------|-------|----------|-------|--------|-----|
| Cognitive Emotion Regulation   | 109   | 107    | 109.39 | 15.87 | 2518.99  | 26.00 | 148.00 | 120 |
| Self-Blame                     | 13    | 13     | 12.36  | 2.75  | 3.00     | 3.00  | 20.00  | 120 |
| Acceptance                     | 20    | 21     | 20.13  | 4.17  | 5.00     | 5.00  | 32.00  | 120 |
| Rumination                     | 21    | 21     | 20.47  | 4.46  | 5.00     | 5.00  | 32.00  | 120 |
| Positive Refocusing            | 19    | 20     | 20.07  | 4.21  | 5.00     | 5.00  | 33.00  | 120 |
| Positive Reappraisal           | 20    | 17     | 16.79  | 4.14  | 4.00     | 4.00  | 28.00  | 120 |
| Thought Suppression            | 19    | 20     | 19.55  | 3.79  | 5.00     | 5.00  | 31.00  | 120 |
| Reappraisal                    | 20    | 17     | 17.79  | 4.14  | 4.00     | 4.00  | 28.00  | 120 |
| Catastrophizing                | 21    | 21     | 20.47  | 4.46  | 5.00     | 5.00  | 32.00  | 120 |
| Blaming Others                 | 20    | 17     | 16.79  | 4.14  | 4.00     | 4.00  | 28.00  | 120 |
| Obsessive-Compulsive Behaviors | 36.00 | 39.00  | 38.74  | 12.00 | 59.00    | 9.00  | 81.13  | 120 |
| Checking                       | 15.00 | 17.00  | 16.38  | 5.00  | 25.00    | 4.08  | 16.66  | 120 |
| Washing                        | 12.00 | 13.00  | 12.83  | 4.00  | 20.00    | 3.34  | 11.20  | 120 |
| Slowness                       | 12.00 | 10.00  | 9.52   | 3.00  | 15.00    | 2.92  | 8.56   | 120 |
| Doubting                       | 15.00 | 17.00  | 16.38  | 5.00  | 25.00    | 4.08  | 16.66  | 120 |
| Psychological Resilience       | 45.00 | 43.00  | 40.95  | 15.00 | 72.00    | 11.26 | 0.00   | 120 |
| Personal Competence            | 9.00  | 9.00   | 8.09   | 3.00  | 15.00    | 2.58  | 0.00   | 120 |
| Positive Acceptance of Change  | 15.00 | 15.00  | 14.10  | 5.00  | 25.00    | 4.31  | 0.00   | 120 |
| Tolerance of Negative Emotions | 9.00  | 8.00   | 8.09   | 3.00  | 15.00    | 2.70  | 0.00   | 120 |
| Spiritual Influences           | 6.00  | 6.00   | 5.43   | 2.00  | 10.00    | 1.94  | 0.00   | 120 |
| Control                        | 6.00  | 6.00   | 5.22   | 2.00  | 10.00    | 1.87  | 0.00   | 120 |

**Table 3.** Assessment of Data Normality for the Main Variables

| Variable                       | Kolmogorov–Smirnov Test | Sample Size | Shapiro–Sig. Level | Wilk Test Statistics | Sample Size | Sig. Level |
|--------------------------------|-------------------------|-------------|--------------------|----------------------|-------------|------------|
|                                | Statistics              |             |                    |                      |             |            |
| Cognitive Emotion Regulation   | 0.117                   | 120         | 0.000              | 0.883                | 120         | 0.000      |
| Obsessive-Compulsive Behaviors | 0.074                   | 120         | 0.011              | 0.974                | 120         | 0.001      |
| Resilience                     | 0.083                   | 120         | 0.002              | 0.858                | 120         | 0.001      |

Based on the results presented in Table 3, all three variables—cognitive emotion regulation, obsessive-compulsive behaviors, and resilience—violate the assumption of normal distribution, as indicated by significance levels less than 0.05 in both the Kolmogorov–Smirnov and Shapiro–Wilk tests.

**Table 4.** Pearson Correlation Matrix among Main Study Variables

| Variables                      | Cognitive Emotion Regulation | Obsessive-Compulsive Behaviors | Resilience |
|--------------------------------|------------------------------|--------------------------------|------------|
| Cognitive Emotion Regulation   | 1                            | –                              | –          |
| Obsessive-Compulsive Behaviors | -0.833                       | 1                              | –          |
| Resilience                     | 0.716                        | -0.580                         | 1          |

$p < 0.001^{**}$

As shown in Table 4, the Pearson correlation coefficients indicate statistically significant relationships between the variables at the 0.001 level. There is a strong and negative correlation between cognitive emotion regulation and obsessive-compulsive behaviors, moderated by psychological resilience. Additionally, a positive and significant correlation was found between resilience and cognitive emotion regulation ( $p < 0.01$ ). Given the significant correlations among the variables, it is justified to proceed with the structural modeling analysis and present the direct, indirect, and total effects, as well as the model fit indices.

Prior to conducting the structural equation modeling (SEM), composite scores were calculated for each variable, treating each construct as a single observed score. Subsequently, the multivariate normality of the data was assessed, and the results confirmed that the data met the required assumption of normal distribution. The model fit of the proposed structural model was then evaluated using several key indices, including the Chi-square statistic ( $\chi^2$ ), the Chi-square to degrees of freedom ratio ( $\chi^2/\text{df}$ ), the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA). For the model to be considered a good fit, it is recommended that  $\chi^2/\text{df} < 2.5$ , RMSEA be small and close to zero, and that CFI, GFI, and AGFI values be close to 1.00. Values that meet these thresholds indicate that the hypothesized model is adequately supported by the data. The results of the structural model fit are presented in Table 3.

**Table 5.** Structural Model Fit Indices

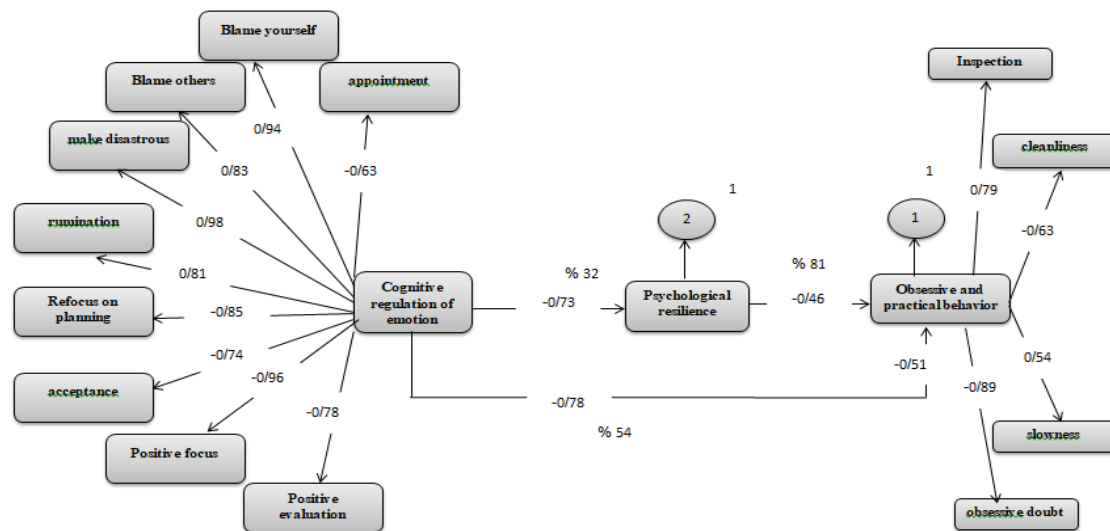
| Fit Index            | df       | $\chi^2$ | $\chi^2/\text{df}$ | RMSEA    | GFI      | AGFI     | CFI      | p-value  |
|----------------------|----------|----------|--------------------|----------|----------|----------|----------|----------|
| Calculated Value     | 7        | 4.82     | 4.56               | 0.001    | 0.979    | 0.895    | 0.939    | < 0.001  |
| Acceptable Threshold | < 5      | < 5      | < 5                | < 0.08   | > 0.90   | > 0.90   | > 0.90   | < 0.001  |
| Interpretation       | Good fit | Good fit | Good fit           | Good fit | Good fit | Good fit | Good fit | Good fit |

The results of the structural model fit analysis presented in Table 5 indicate that the Chi-square to degrees of freedom ratio ( $\chi^2/\text{df}$ ) is less than 2.5 and the RMSEA value is close to zero, both of which are desirable thresholds. Furthermore, the fit indices (CFI, GFI, and AGFI) are all close to 1.00, confirming that the model demonstrates a good fit. Based on these findings, it can be concluded that the proposed structural model adequately fits the observed data ( $p < 0.001$ ).

**Table 6.** Direct, Indirect, and Total Effects on Obsessive-Compulsive Behaviors

| Predictor                                 | Direct Effect | Indirect Effect | Total Effect | R <sup>2</sup> | p-value |
|-------------------------------------------|---------------|-----------------|--------------|----------------|---------|
| Cognitive Emotion Regulation → OCD        | -0.51         | -0.27           | -0.78        | 0.54           | < 0.001 |
| Resilience → OCD                          | -0.46         | –               | -0.46        | 0.81           | < 0.001 |
| Cognitive Emotion Regulation → Resilience | 0.73          | –               | 0.73         | 0.32           | < 0.001 |

According to the results presented in Table 6, all hypothesized paths were statistically significant at  $p < 0.001$ . This supports the conclusion that psychological resilience plays a significant and negative mediating role in the relationship between cognitive emotion regulation and obsessive-compulsive behaviors among dentists. Additionally, as illustrated in Figure 1, the rounded coefficients correspond to the correlation estimates reported in Table 4. Specifically, cognitive emotion regulation accounts for 54% of the variance in obsessive-compulsive behaviors, resilience explains 81%, and emotion regulation predicts 32% of the variance in resilience. Therefore, given the mediating function of resilience, it can be concluded that cognitive emotion regulation serves as a strong predictor of obsessive-compulsive tendencies through its direct and indirect effects. In sum, the dual impact of emotion regulation—both on resilience and directly on obsessive-compulsive behaviors—alongside the influence of resilience itself, demonstrates a well-fitting and effective predictive model for understanding OCD-related patterns in dental professionals.



Chi-Square = 685.49, df = 182, P = 0.00000, RMSEA = 0.058  
**Figure 1.** Path Analysis Model Predicting Obsessive-Compulsive Behaviors

### Discussion and Conclusion

This study aimed to examine the relationship between obsessive-compulsive behaviors and cognitive emotion regulation, with the mediating role of psychological resilience among dentists. Statistical analyses revealed a significant negative mediating effect of resilience in this relationship. Specifically, psychological resilience was found to mediate the link between cognitive emotion regulation and obsessive-compulsive behaviors, suggesting that cognitive regulation strategies can predict such behaviors when psychological resilience is taken into account. These findings align with previous research by (De Ruiter et al., 2024; Yap et al., 2023; Stern et al., 2023; Ferrández-Mas et al., 2023; Khajeh et al., 2022; See et al., 2022; McKenzie et al., 2022; Salek Ebrahimi et al., 2019; Shafi'i-Kahani et al., 2021; Asli-Azad et al., 2019). For instance, De Ruiter et al. (2024) reported that greater resilience in high-risk occupations reduces occupational stress and psychological disorders such as obsessive-compulsive behaviors. Similarly, Ferrández-Mas et al. (2023) found that the use of adaptive cognitive emotion regulation strategies prevents the manifestation of obsessive symptoms, and Stern et al. (2023) demonstrated that dentists with higher resilience were significantly less likely to exhibit obsessive-compulsive symptoms (De Ruiter et al., 2024; Stern et al., 2023; Ferrández-Mas et al., 2023).

The results can be interpreted in light of the psychological processes experienced by dentists in high-pressure environments. Negative thoughts associated with clinical responsibility may evoke emotions such as shame and guilt. Psychological characteristics such as excessive responsibility and catastrophizing may amplify these emotions, reducing self-regulation capacities and increasing vulnerability to compulsive behaviors (Salkovskis, 1999). Dentists who do not rely on adaptive emotion regulation strategies often resort to maladaptive ones such as rumination and catastrophizing, which have harmful consequences (Hezel & McNally, 2016; Fisher, 2009). Occupational stressors may exacerbate symptoms in dentists predisposed to OCD. In such cases, psychological resilience acts as a protective factor, enabling dentists to manage negative emotions and maintain optimal performance (Connor & Davidson, 2003; Behzadpoor et al., 2016; Layne et al., 2014; Bonanno et al., 2011). The statistical analyses confirmed a significant negative mediating role of resilience in the relationship between obsessive-compulsive behaviors and cognitive emotion regulation. This indicates that higher resilience moderates this link, ultimately reducing obsessive-compulsive symptoms (Smith et al., 2023; De Ruiter et al., 2024; Khajeh et al., 2022; See et al., 2022).

Furthermore, the findings revealed a significant inverse relationship between the use of adaptive cognitive emotion regulation strategies and obsessive-compulsive symptoms. Dentists who used more adaptive strategies were less likely to exhibit OCD symptoms. These findings are consistent with studies by (Bischof et al., 2024; Solis, 2024; Wu et al., 2022; De Ruiter et al., 2024; Yap et al., 2023; Stern et al., 2023; Khajeh et al., 2022; García-Soriano et al., 2020; Ferreira et al., 2021; Ferreira et al., 2020; Nangle et al., 2019; Kökneyei et al., 2024; Salamon et al., 2023; Borbour, 2022; Jafari-Fard et al., 2019; Besharat et al., 2015). For example, Wu et al. (2022) concluded that individuals in high-stress occupations who use adaptive regulation strategies experience fewer

obsessive symptoms. Similarly, García-Soriano et al. found that occupational stress impairs emotional regulation, increasing compulsive behaviors, while adaptive emotion regulation strategies help mitigate such outcomes. Yap et al. (2023) confirmed that in clinical samples, adaptive cognitive emotion regulation strategies significantly reduce obsessive-compulsive symptom severity.

These findings suggest that dentists with obsessive-compulsive symptoms often struggle with emotional awareness and tolerance, turning to compulsive behaviors as a means of avoiding emotional discomfort (Robinson & Freeston, 2014). Maladaptive strategies such as catastrophizing and self-blame weaken self-control and increase cognitive distortions, while adaptive strategies such as cognitive restructuring, acceptance, and problem-solving reduce emotional overload and prevent OCD symptom escalation (Calkins, Berman, & Wilhelm, 2013). Due to the high-stress nature of dentistry, the profession is especially prone to intrusive thoughts and repetitive behaviors, yet cognitive emotion regulation serves as a key protective factor (Stern, et al., 2023). Research confirms that deficits in emotion regulation are positively correlated with OCD symptoms, whereas adaptive strategies interrupt this cycle (Khajeh, et al., 2022). This is particularly important for dentists, whose perfectionism and high attention to detail may predispose them to obsessive patterns (De Ruiter, et al., 2024). The ability to manage emotions through constructive strategies reduces compulsive tendencies and enhances psychological and professional adaptability. Therefore, the inverse relationship observed in this study highlights the beneficial role of emotion regulation in dentists' mental health and work performance. These findings underscore the need for preventive interventions focused on emotion regulation training for dentists (Stern, et al., 2023).

One of the significant findings was the negative and significant correlation between obsessive-compulsive behaviors and psychological resilience among dentists, indicating that those with higher resilience were less likely to experience OCD-related symptoms. This finding aligns with previous studies (Çalikkasap et al., 2023; Gorelik et al., 2023; Mohammadzadeh et al., 2023; Mohammadi-Ahmadabadi & Dolatabadi, 2021). For instance, Çalikkasap et al. (2023) found that higher resilience was inversely associated with OCD symptoms, even without being a shared causal factor, while Gorelik et al. (2023) showed that cognitive-behavioral interventions can enhance resilience and reduce OCD symptoms. In line with this, Mohammadi-Ahmadabadi & Dolatabadi (2021) observed a negative correlation between resilience and obsessive beliefs in women. The negative correlation observed in dentists can be explained by resilience acting as a protective mechanism, helping to shield them from severe OCD symptoms, especially when facing professional stressors like workload or responsibility (Labrague, 2021; Brown et al., 2021). Studies confirm that resilience is associated with fewer OCD symptoms in high-stress professions, suggesting that promoting resilience can significantly reduce the likelihood of obsessive-compulsive tendencies in dentists. Therefore, enhancing resilience through psychological interventions may improve dentists' mental well-being (Atkinson, 2015; Azoulay et al., 2024).

Based on the statistical analyses, it can be concluded that psychological resilience significantly and negatively mediates the relationship between obsessive-compulsive behaviors and cognitive emotion regulation among dentists. However, there are several limitations in the study that should be acknowledged. One key limitation is the cross-sectional nature of the research, which prevents establishing causal relationships between the variables. Additionally, the reliance on self-report questionnaires may have introduced response biases, as some dentists may have been reluctant to answer honestly due to the sensitive nature of obsessive-compulsive symptoms, potentially reducing the credibility of the findings. To address this concern, researchers assured participants of confidentiality and data anonymization. Another limitation was limited participation due to the demanding schedules of dentists, which posed logistical challenges and slowed the data collection process. Furthermore, although the sample size was sufficient for statistical power analysis, it may not fully represent the diversity of the entire dental profession.

In light of these limitations, several suggestions for future studies are offered. Future research should consider longitudinal designs to establish causal relationships and use a combination of self-report and behavioral measures to reduce bias. Additionally, expanding the sample size and replicating the study across other high-stress occupational groups, such as ICU nurses, emergency room staff, and aesthetic surgeons, is recommended to enhance the generalizability of the findings. To enhance the resilience of dental professionals, it is recommended that educational workshops focusing on positive coping strategies, stress management, and flexibility under pressure be developed. Furthermore, implementing training programs within medical universities to promote adaptive cognitive emotion regulation and strengthen resilience is also advised. Lastly, to promote research equity and increase validity, it is suggested that future studies use random sampling methods.

### **Ethical Considerations**

All ethical principles were observed in conducting this research. The present article is derived from a research project at the University of Mohaghegh Ardabili, approved on 29 January 2024 with the ethics code [IR.UMA.REC.1403.023](#) issued by the Research Ethics Committee of the University of Mohaghegh Ardabili.

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### **Conflict of Interest**

The authors declare that they have no conflict of interest.

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