

# Obsessive-Compulsive Disorder Traits and Preventive Behaviors during COVID-19 Pandemic: The Role of Self-Regulation Strategies

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## Abstract

**Background:** COVID-19 pandemic has brought the world many different challenges. One of them is the increase in the traits of mental disorders, especially obsessive-compulsive disorder (OCD). OCD is one of the most disabling disorders for patients and families. One of the factors associated with OCD is self-regulation strategies. Investigating the associations between self-regulation strategies and OCD symptoms can help us find better ways in order to prevent and treat OCD. Additionally, in this critical period, preventive behaviors play a significant role in reducing COVID-19 cases worldwide. The present research aimed to investigate the association between self-regulation strategies, OCD traits, and preventive behaviors during COVID-19 pandemic.

**Methods:** This cross-sectional study aimed to determine the relationship between OCD traits and self-regulation strategies, including expressive suppression, cognitive reappraisal, self-control, integrative self-knowledge, self-compassion, and preventive behaviors during COVID-19 pandemic in 2022. We recruited 380 Iranian adolescents aged 12 to 18 ( $15.32 \pm 2.13$ ) through multi-stage sampling method and among the students in Shiraz schools in 2022. The sample size was determined based on the study primary objective. In order to gather data, Padua obsession and compulsion inventory, integrative self-knowledge questionnaire, self-control scale, preventive behaviors scale, self-compassionate scale, and emotion regulation questionnaire were utilized as research instruments. The data were analyzed by Pearson correlation coefficient and stepwise regression analysis.

**Results:** The obtained findings shed light on negative relationships between OCD ( $65.55 \pm 20.61$ ) and self-compassion ( $35.38 \pm 6.35$ ,  $P=0.001$ ), self-control ( $39.78 \pm 10.83$ ,  $P=0.001$ ), integrative self-knowledge ( $38.74 \pm 6.72$ ,  $P=0.01$ ), cognitive reappraisal ( $27.93 \pm 6.01$ ,  $P=0.01$ ). Moreover, positive relationships were observed between OCD, preventive behaviors ( $5.95 \pm 0.92$ ), and expressive suppression ( $15.04 \pm 4.52$ ,  $P=0.03$ ). The results also revealed that self-regulation strategies account for 62% of preventive behaviors.

**Conclusion:** Self-regulation strategies were found to be important predictors for adolescents' preventive behaviors during the pandemic. Therefore, paying further attention to self-regulation strategies in this critical period of life is of great necessity.

**Keywords:** Obsessive-compulsive disorder, Preventive behaviors, COVID-19, Self-compassion, Self-control, Integrative self-knowledge, Expressive suppression, Cognitive reappraisal

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## 1. Introduction

With the worldwide outbreak of COVID-19, up until now, April 2022, there have been more than 502 million confirmed positive cases and about 6 million deaths around the world (1). Unfortunately, since the emergence of the coronavirus, Iran has reported around 7 million patients and 141000 deaths (1). All the media, including newspapers, news, the internet, and every social media application, have brought us a considerable amount of information about COVID-19 and different ways to avoid being infected by that, including washing hands regularly and wearing masks, as well as social distancing (1). These behaviors are called preventive behaviors since they help to reduce the

infected cases and mortality due to COVID-19 (1). Under these circumstances, paying attention to mental disorders, which could potentially affect people's mental health, is highly necessary. Several therapists and patients have mentioned their concerns about increasing OCD cases (2). The fear of being infected by coronavirus leads to washing hands regularly, which is one of the most common symptoms of OCD (3); with excessive emphasis on this activity by every media, anybody who is potentially vulnerable to OCD could become an OCD patient. Kumar and Somani (4) reported an OCD patient whose symptoms worsened during the COVID-19 pandemic, whose life has become unbearable. In addition, Banerjee (5) mentioned several domains that can lead to deteriorating

the status of OCD patients and those potentially vulnerable. These domains include becoming obsessed with the minimum time of washing hands, the obsession with steps of hand washing, the compulsion to keep hands clean every time a person comes from outside, checking information constantly about ways leading to infection, being under pressure by family to be strict about hygiene, and finally normalizing more rumination and washing hands and taking bath compulsively.

According to DSM-5, most OCD symptoms appear before the age of 25, before which two thirds of OCD patients are diagnosed (6). Obsessions and compulsions are the major criteria for OCD. Obsessions are thoughts, images, or unwanted and disturbing impulses, and compulsions include behaviors, actions, or mental actions that are responses to obsessions (6).

Obsessions consist of thoughts, feelings, or images which are unwished, disturbing, and unexpected. They cause anxiety and distress. Compulsions are known as repetitive behaviors or conscious mental actions which are response to obsessions. Compulsions are obligatory for OCD patients since they believe these actions could help them reduce their distress, which is incorrect. The majority of patients know that their obsessions and compulsions are problematic and have insight into their issues; thus, preventing and treating OCD is crucial for people who can potentially become patients and patients themselves (7). One of the most effective ways to prevent and treat OCD is to concentrate on internal abilities to be more protected against getting the symptoms of OCD or their worsening during COVID-19 pandemic. One of the determining inner abilities is self-regulation strategies (8).

These strategies comprise emotion regulation strategies, such as cognitive reappraisal and expressive suppression, self-compassion, self-control, and integrative self-knowledge (9-11).

The first component is emotion-regulation strategies, which are processes that help a person experience and express his/her emotions in an adaptive way, such as cognitive reappraisal (12). Cognitive reappraisal is mainly characterized as an emotion-regulation strategy that assists a person in observing all aspects of an issue, not just one (13). In addition, maladaptive emotion-regulation strategies, including expressive suppression,

mainly focus on suppressing thoughts and not talking about a problem (13).

Another element, self-compassion, generally focuses on being mindful and kind to oneself in every situation, especially when making mistakes (14). Having a compassionate attitude toward one is conducive to developing the capacity for accepting and facing challenging situations in life (15). Zessin and colleagues illustrated that it has negative relationships with rumination, avoidance, fear of failure, and positive relations with life satisfaction and well-being (16).

The third concept is self-control, which helps us modify and adapt our responses to improve our relations with other people (17). Self-control is a crucial concept for managing actions and regulating painful emotions in challenging moments. Self-control contributes to a higher capacity for adaption and mental health (18). Other self-control outcomes are lower levels of anxiety and distress and higher levels of acceptance and satisfaction (18).

On the other hand, low capability in self-control has several consequences, including low educational achievements, addiction, and low satisfaction in interpersonal relationships (19).

Self-control assists people to have less rumination facing different challenges and distresses and faster recovering from negative consequences of mental illnesses (20).

The final element of self-regulation strategies is integrative self-knowledge which is mainly explained as the ability to neutralize various psychological defenses, which results in experiencing emotions, especially those that are socially defined as threatening and harmful like sadness, anger, and anxiety (21). As a result, long-term outcomes of improving the capacity of integrative self-knowledge are higher life satisfaction, well-being, emotional health, and less rumination, obsession, and distress (22).

Integrative self-knowledge mainly involves paying attention, being aware, and experiencing unprocessed emotions, which require practice and enduring painful feelings at first. Research has demonstrated that integrative self-knowledge is a mental health criterion (22).

The present paper investigated the associations between self-regulation strategies, OCD traits, and preventive behaviors in adolescents during COVID-19 pandemic.

This study sought to investigate the relationship between self-regulation strategies, preventive behaviors, and OCD traits and evaluate the predictive role of self-regulation strategies for preventive behaviors.

## 2. Methods

This was a cross-sectional research and the population of this study was all the Iranian adolescents and young adults in 2022 in Shiraz schools. We chose 380 adolescents based on the research's aim. Multi-stage sampling method was applied, and the students between 12 to 18 years of age (204 males, 176 females) were included. Thirty schools were chosen through multi-stage sampling method in four educational districts in Shiraz, and two classes in each school were randomly selected. Subsequently, six to seven students from each class filled the online questionnaires willingly. Moreover, written informed consent was obtained from all the participants.

In this project, self-regulation strategies are predictive variables for preventive behaviors. The obtained data were checked and analyzed by SPSS version 21 using Pearson correlation coefficient and multiple regression, at a significance level of 0.05. The students younger than 12 or older than 18 and with a psychiatric history of disorders were excluded from this research.

### 2.1. Research Instruments

#### 2.1.1. Padua Obsessive-compulsive Disorder Scale

This scale consists of 55 questions for assessing the obsessions and compulsions. A revised short form of this scale was applied herein, which includes 39 questions. This questionnaire is scored from 0 (never) to 4 (always). Oppen (23) confirmed that the internal consistency of this scale for American students is acceptable based on a Cronbach's alpha of about 0.80 and showed that this scale has an appropriate convergent validity. In addition, Goodarzi and Firoozabadi confirmed its reliability and validity with CVI=0.84 and CVR=0.88 in Iran (24).

#### 2.1.2. Self-control Scale

The self-control scale was proposed by Tangney and colleagues in 2004 (25). It comprises 36 questions and its short form consists of 13 questions used in this research. The answers are scored on a five-degree Likert scale from 1 (never) to 5 (always). The validity and reliability of this scale are appropriate and its internal consistency for the short-form is 0.83 and 0.89 for the main form (25). The CVR of this scale was reported as 0.80 in Iran (9).

#### 2.1.3. Integrative Self-knowledge Questionnaire

This questionnaire was designed by Ghorbani and co-workers in 2008 (26). It has 12 sentences, and the responses are categorized on a five-degree Likert scale from 1 (almost true) to 5 (almost false). The internal consistency and convergent validity of this scale are appropriate in Iran and the USA, and its CVR was reported as 0.85 in Iran (26). In this study, Cronbach's alpha was 0.74.

#### 2.1.4. Self-compassionate Scale

The self-compassionate scale (27) consists of 26 sentences. This scale assesses three two-aspect components including: common humanity versus isolation, self-compassion versus self-judgment, and mindfulness versus over-identification. This scale is scored from Almost never (1) to Almost always (5). Previous research showed the proper test-retest reliability of this scale. Its internal reliability in Iranian studies was 0.84, and the CVI of this scale was reported as 0.83 in Iran (21).

#### 2.1.5. Self-reported Preventive Behaviors

A nine-item questionnaire was applied to assess and evaluate preventive behaviors (28). Five items are designed to reduce the exposure to public places, one item is written to evaluate preventive behaviors during coughing, two items about hand washing and surface disinfection, and the last item mainly concentrates on prevention of being infected with other people. One infectious disease specialist and two epidemiologists validated these items. The choices are yes and no, 1 is for preventive behaviors while 0 is for no answers. Therefore, the scores range from 0 to 9, and scores above 75% are considered as high preventive behaviors. The pilot study reliability was 0.81, and Cronbach's alpha for

this study was 0.89. The CVR and CVI of this scale were reported as 0.80 and 0.82 in Iran.

### 2.1.6. Emotion-regulation Questionnaire

This questionnaire was designed by Gross and John (29) and consisted of two aspects, including cognitive reappraisal with six sentences, and expressive suppression with four sentences. The internal consistency of this questionnaire was reported at 0.80, and test-retest reliability for cognitive reappraisal and expressive suppression were 0.67 and 0.71, respectively (29). In Iran, Besharat and Bazzazian (30) reported the reliability coefficient of cognitive reappraisal and expressive suppression to be 0.87 and 0.91, respectively, and the CVR of this scale was reported as 0.89 in Iran.

## 3. Results

The study sample comprised 380 Iranian adolescents aged 12 to 18 years old with an average and SD of respectively 15.32 and 2.13 (204 males,

176 females). Table 1 illustrates the descriptive statistics of the research variables.

Pearson correlation coefficients are extracted and demonstrated in Table 2.

To assess the analysis between the research variables, we utilized Pearson correlation coefficient, and stepwise multiple regression after checking and confirming the normality and linearity assumptions.

According to the Durbin-Watson test, the predictor variables were independent with a value of 1.95. Multiple regression was performed to check the predictive role of self-regulation strategies for preventive behaviors (Table 3).

## 4. Discussion

Findings have demonstrated that all self-regulation strategies are important predictors for preventive behaviors during COVID-19 pandemic,

**Table 1:** The mean, standard deviation, and Cronbach's alpha of scores for the studied variables

| Variables                  | Mean  | SD    | Cronbach's alpha |
|----------------------------|-------|-------|------------------|
| OCD                        | 65.55 | 20.61 | 0.96             |
| Integrative self-knowledge | 38.74 | 6.72  | 0.91             |
| Self-control               | 39.78 | 10.83 | 0.91             |
| Self-compassion            | 35.38 | 6.35  | 0.92             |
| Preventive behaviors       | 5.95  | 0.92  | 0.88             |
| Cognitive reappraisal      | 27.93 | 6.01  | 0.89             |
| Expressive suppression     | 15.04 | 4.52  | 0.90             |

**Table 2:** Correlation matrix of variables

|                            | 1       | 2      | 3      | 4       | 5      | 6       | 7 |
|----------------------------|---------|--------|--------|---------|--------|---------|---|
| OCD                        | 1       |        |        |         |        |         |   |
| Integrative self-knowledge | -0.38** | 1      |        |         |        |         |   |
| Self-control               | -0.42** | 0.58** | 1      |         |        |         |   |
| Self-compassion            | -0.45** | 0.29** | 0.24** | 1       |        |         |   |
| Preventive behaviors       | 0.43*   | 0.41*  | 0.54** | 0.61**  | 1      |         |   |
| Cognitive reappraisal      | -0.33*  | 0.31*  | 0.35*  | 0.41**  | 0.42** | 1       |   |
| Expressive suppression     | 0.35*   | -0.31* | -0.28* | -0.39** | -0.31* | -0.38** | 1 |

P=\*\*0.01; P=\*0.05

**Table 3:** Results of stepwise multiple regression

| Criterion variable   | Predictive variables       | B    | Beta  | S.E  | Adjusted R square | P        |
|----------------------|----------------------------|------|-------|------|-------------------|----------|
| Preventive behaviors | Self-compassion            | 0.39 | 0.49  | 0.08 | 0.62              | 0.001*** |
|                      | Self-control               | 0.37 | 0.44  | 0.19 |                   | 0.001*** |
|                      | Integrative self-knowledge | 0.34 | 0.41  | 0.07 |                   | 0.01**   |
|                      | Cognitive reappraisal      | 0.33 | 0.40  | 0.09 |                   | 0.01**   |
|                      | Expressive suppression     | 0.31 | -0.38 | 0.14 |                   | 0.03*    |

\*P=0.05; \*\*P=0.01; \*\*\*P=0.001

and that they account for 62% of these behaviors. This finding emphasizes the importance of self-regulation strategies for individual and social well-being since adolescents able to apply these strategies consider their and others' health important. Results also illustrated that four concepts of self-regulation strategies have negative and significant relationships with OCD symptoms and positive relationships with preventive behaviors. However, expressive suppression has a positive and significant relationship with OCD symptoms and a negative relationship with preventive behaviors. Moreover, OCD traits and preventive behaviors have a positive relationship. The results of this study are consistent with those of Wetterneck and co-workers, who showed that the severity of OCD symptoms has a negative relationship with self-compassion (31). In addition, other research showed that OCD symptoms have a negative association with self-compassion and mindfulness, which is also a dimension of self-compassion (32). Additionally, Eichholz and colleagues (33) confirmed that self-compassion has a negative relationship with symptoms severity of OCD and obsessive beliefs. As mentioned before, self-compassion has three two-dimension aspects, which consist of common humanity versus isolation, self-compassionate versus self-judge, and mindfulness versus over-identification.

More mindful people are less engaged with ruminations and obsessions since obsessions prevent them from being at the moment and experiencing all their present emotions. In addition, being mindful as one of the aspects of self-compassion helps them to monitor their emotions and thoughts in times when obsessions appear; therefore, they are more prepared to deal with those painful emotions since they have practiced being at the moment, and they do not suppress their feelings. Being mindful and not suppressing challenging emotions also help them to process all the aspects of news about COVID-19 pandemic; not only do they follow preventive strategies, such as washing hands and keeping social distancing, but they also pay attention to the fact that if they stay careful in a normal level, they will be healthy. As a result, they acknowledge both sides of the news, not just the bad ones. Furthermore, the self-compassionate aspect of the self-compassion concept assists them in order to be kind toward themselves, which is a crucial quality in this critical

period of life since this period has numerous ups and downs, and their identity is being developed. Thus, being compassionate as well as mindful results not only in being aware of the moment and observing all the aspects of a certain situation (cognitive reappraisal), but also helps them to be kind toward themselves and accept their painful emotions and thoughts willingly and not suppress them (expressive suppression). Another aspect which is common humanity helps them to believe that making mistakes is part of being human and is normal; therefore, although having obsessions is a problem that makes life painful, it is normal to have some repetitive thoughts during a lifetime and trying to treat this issue is what matters.

Evidence also demonstrated that after self-compassion, self-control is the most effective component of self-regulation strategies associated with OCD symptoms and preventive behaviors. This result is consistent with those reported by Froreich and colleagues in 2016 (34). Self-control is a concept that helps people to manage their thoughts, emotions, and behaviors. Hence, having higher levels of self-control results in managing and regulating repetitive thoughts and actions and also regulating harmful and disturbing emotions, such as anxiety, which is a normal consequence of not doing compulsions. Therefore, developing self-control in adolescence contributes to further well-being and mental health in the future. Knowing how to manage and regulate thoughts, behaviors, and especially emotions assists them in maintaining function in every aspect of their lives, including emotional, social, and psychological elements, particularly during the pandemic; this quality is highly conducive to controlling their dangerous actions that can increase COVID cases.

Finally, integrative self-knowledge is confirmed as a major element of self-regulation. It predicts preventive behaviors and has a positive relationship with it and a negative relationship with OCD symptoms. Integrative self-knowledge mainly involves omitting obstacles in experiencing painful emotions and thoughts and results in processing them without avoidance, which is highly similar to cognitive reappraisal. This element helps one to observe all the aspects and emotions related to a situation without suppressing them. Adolescents with higher levels of integrative self-knowledge try not to avoid bad news about COVID-19 pandemic, and they experience painful emotions, such as

sadness and anxiety, but with the help of two other aspects of self-regulation, they manage repetitive thoughts and actions. Kishore and colleagues (35) indicated the same results about this concept. Moreover, this process can help them to observe and monitor their thoughts and emotions, which results in more preventive behaviors.

One of the interesting findings is the positive relationship between preventive behaviors and OCD symptoms. This relationship was expected since people with OCD traits always care about their repetitive thoughts regarding sanitation during COVID pandemic, but what makes it interesting is the negative relationship between OCD symptoms and self-regulation strategies. This finding confirms that although people with OCD symptoms are careful about their behaviors during the pandemic, they become emotionally and psychologically tired due to the lack of self-regulation strategies that can eventually reduce their levels of mental health well-being in the long run.

A number of limitations and suggestions in this study that should be mentioned are as follows: 1) It is important to evaluate this relationship in older adults in order to compare the results with those of this study. 2) It could be suggested to investigate the effectiveness of therapies; this investigation mainly involves experiencing emotions, such as emotion-focused therapy (EFT), intensive short-term dynamic psychotherapy (ISTDP), and compassion-focused therapy (CFT) during the COVID-19 pandemic. 3) It is vital to investigate parents' roles in developing self-regulation capacities of adolescents.

## 5. Conclusions

As COVID-19 continues, OCD symptoms can emerge in many people around the world, especially as DSM-5 (2013) mentioned, in adolescents. The obtained results herein confirmed that self-regulation strategies, including self-compassion, self-control, integrative self-knowledge, cognitive reappraisal, and expressive suppression, play important roles in OCD symptoms and preventive behaviors in adolescents; therefore, they can be potentially helpful in the treatment of OCD patients these days since these elements mainly focus on processing unpleasant emotions which have been common due to bad news during COVID-19 pandemic and experiencing these

feelings is necessary in order to mentally stay healthy. In addition, these results demonstrated that improving self-regulation capacities help people who are potentially vulnerable to OCD to be mentally protected from this disorder and maintain their psychological well-being. People who apply self-regulation strategies are also more careful with their behaviors during the pandemic.

## Ethical Approval

This study was approved by Shiraz University of Medical Sciences, Shiraz, Iran with the ethical approval code of IR.SUMS.REC.1400.641. In addition, written informed consent was obtained from all the participants.

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