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# Evaluation of fear and obsession related to COVID-19 in patients with diabetes

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## Abstract

Fear and obsession related to COVID-19 may significantly impact patients with diabetes. Therefore, this study evaluated the levels of obsession and fear related to COVID-19 in patients with diabetes who were fully vaccinated compared to those with incomplete vaccination. This study employed a causal-comparative design. The statistical population included 362 patients with diabetes including fully vaccinated and in completely vaccinated individuals. These patients were recruited from vaccination centers in Torbat Heydariyeh City using a convenience sampling method. . Research instruments included the Fear of COVID-19 Questionnaire and the COVID-19 Obsession Scale. Data were analyzed using the Chi-square test and the independent two-sample t-test. SPSS version 21 software was used for analysis. A significant difference was observed between the fully vaccinated and incompletely vaccinated groups in terms of COVID-19 obsession and fear of COVID-19 ($p < 0.05$). According to the observed means, the mean values of COVID-19 obsession and fear of COVID-19 were higher in patients with diabetes with full vaccination compared to the group with incomplete vaccination. To reduce fear and obsession in patients with chronic diseases such as diabetes, health care programs can use psychological programs and the presence of clinical psychologists. This is especially important when designing treatment and care programs, including vaccination strategies against infectious diseases such as the coronavirus.

**Keywords:** COVID-19 Obsession, Fear of COVID-19, Patients with Diabetes, Full Vaccination, Incomplete Vaccination

## Introduction

COVID-19 is an infectious disease caused by severe acute respiratory syndrome coronavirus (1, 2). The first case was identified in Wuhan, China, in December 2019 (3, 4). COVID-19 is primarily a respiratory disease, but it can affect the brain, kidneys, heart, and liver (2).

Neuropsychiatric manifestations are common during viral pandemics but are often inadequately addressed (5, 6). Due to the absence of precise treatment, preventive measures and effective vaccines are the best strategies against this disease (7). Four types of viral vaccines available against COVID-19. These include inactivated or attenuated vaccines, protein-based vaccines, viral vector vaccines, and RNA- or DNA-based vaccines (8).

Vaccine hesitancy is a major problem. The World Health Organization (WHO) listed vaccine hesitancy among the top ten global health threats (2). False information on social media has contributed to the spread of distrust (12). Many individuals remain hesitant to accept vaccination. Further research is necessary to provide robust evidence supporting the benefits of vaccines (13, 14).

Due to the unpredictable nature of COVID-19, high mortality rate, rapid transmission, and multiple mutations, this virus may cause psychological consequences including fear, anxiety, and obsession (15). Fear is a normal human emotion (16) that signals the presence of danger or the threat of harm (17).Fear can also be a symptom of mental health conditions such as panic disorder, social anxiety disorder, phobias, and post-traumatic stress disorder (PTSD) (18). Previous studies reported that patients with diabetes have more fear of COVID-19 (19).

Obsession and intrusive thoughts create mental pressure to persist with irrational thought or action (20). Health recommendations such as avoiding physical contact, frequent hand washing, staying at home, and avoiding gatherings may increase anxiety and obsessive thoughts (9, 10). Patients with diabetes have specific daily habits and are not excluded from experiencing these phenomena (21).

Diabetes is a chronic underlying disease that occurs either when the pancreas produces insufficient insulin or when the body is unable to use insulin effectively (22, 23). Patients with diabetes are a main high-risk group for COVID-19 and need more attention and care (26).

Therefore, this study compared fear and obsession related to COVID-19 between two groups of patients with diabetes: vaccinated and unvaccinated (28). The results may enhance understanding of behavioral differences following vaccination and help promote vaccine uptake.

## Method

This causal-comparative study assessed the levels of obsession and fear related to COVID-19. The study population included patients with diabetes —either fully or partially vaccinated— who attended vaccination centers in Torbat Heydariyeh. Participants were selected using a convenience sampling method. Based on a previous study (19) and a two-sample t-test with 95% confidence interval, the sample size was calculated to be 362 patients (181 vaccinated and 181 unvaccinated). All 362 completed questionnaires were included in the analysis.

After obtaining ethics approval from Torbat Heydariyeh University of Medical Sciences, researchers randomly selected five of the nine vaccination centers in Torbat Heydariyeh. The researchers visited the centers and explained the study objectives to participants. Healthcare workers then identified patients with diabetes who had incomplete or complete vaccination. Demographic information, vaccination dates, and contact numbers were extracted from patient records. An electronic questionnaire was sent to participants through social messengers. Completed questionnaires were collected on the same day or subsequent days.

Inclusion criteria were a physician's diagnosis of diabetes, consent to participate, access to WhatsApp, and receipt of either four vaccine doses (full vaccination) or fewer than four doses (incomplete vaccination). Exclusion criteria included drug or cigarette addiction,

physical or mental disability, psychiatric disorder, or incomplete questionnaire completion.

The study instruments included a demographic questionnaire, the Fear of COVID-19 Scale, and the COVID-19 Obsession Scale. The Fear of COVID-19 Scale was first developed by Ahorsu and colleagues. This self-report instrument contains seven items. It measures fear related to COVID-19 using a 5-point Likert scale from strongly disagree (1) to strongly agree (5). The Cronbach's alpha was 0.82. The composite reliability was 0.88. The test-retest coefficient was 0.72. Item fit was confirmed using differential item functioning analysis. The correlation of this instrument with the depression scale was 0.42. The correlation with the general anxiety scale was 0.51. Reported construct validity indices showed good fit. Individual scores range from 7 to 35. Higher scores indicate greater fear. In the present study, the Cronbach's alpha was 0.87. The reliability coefficient was 0.83 (30).

The COVID-19 Obsession Scale was originally developed by Lee. This scale addresses when thinking about COVID-19 becomes a disorder. The scale correlates with coronavirus anxiety, spiritual crisis, drug and alcohol coping, severe hopelessness, and suicidal thoughts. Diagnostic characteristics of the instrument include sensitivity of 81% to 93% and specificity of 73% to 76%. These values are comparable to other screening tools such as the GHQ (31). In Iran, the validity and reliability of this scale were examined. The Cronbach's alpha was 0.79. The reliability coefficient was 0.77 (40). This questionnaire contains 4 items. Each item uses a 5-point scale. The scale values are not at all (0), rarely (1), less than one or two days (2), several recent days (3), more than seven days (3), and almost every day during the last two weeks (4). Scores equal to or higher than seven indicate probable obsession related to COVID-19 (32).

After data collection, descriptive statistics and analytical statistics were performed. Descriptive statistics included ranges, frequencies, percentages, and mean ± standard deviation.

## Results

Data analysis was performed using the Chi-square test and the independent two-sample t-test. SPSS software version 24 was used for all analyses. This study examined 362 patients with diabetes. The patients were divided into two groups: full vaccination and incomplete vaccination. The mean age of participants was 36 ± 1.64 years. The lowest age range was 18 to 29 years. In this range, 18% of patients received full vaccination and 16% received incomplete vaccination. The highest age range was 40 to 49 years. In this range, 34% of patients received full vaccination and 37% received incomplete vaccination. The Chi-square value for age was 1.368 ($p = 0.713$). In the full vaccination group, 54% of patients were male and 46% were female. In the incomplete vaccination group, 43% of patients were male and 57% were female. The Chi-square value for sex was 3.189 ($p = 0.074$). In the full vaccination group, 35% of patients were married, 33% were single, and 32% were divorced or separated. In the incomplete vaccination group, 29% were married, 39% were single, and 32% were divorced or separated. The Chi-square value for marital status was 1.171 ($p = 0.557$). In the full vaccination group, 35% of patients were employees, 34% were self-employed, and 31% were housewives. In the incomplete vaccination group, 33% were employees, 31% were self-employed, and 36% were housewives. The Chi-square value for occupation was 0.171 ($p = 0.918$). In the full vaccination group, 32% of patients had primary to high school diploma, 27% had high school diploma, 20% had associate degree, and 21% had bachelor or higher degree. In the incomplete vaccination group, 21% had primary to high school diploma, 30% had high school diploma, 24% had associate degree, and 25% had bachelor or higher degree. The Chi-square value for education was 3.563 ($p = 0.313$). The Chi-square test revealed no significant difference between the two groups for age, sex, marital status, occupation, or education ($p > 0.05$). The mean score for COVID-19 obsession in the full vaccination group was 8.02 ± 1.03. The mean score for

COVID-19 obsession in the incomplete vaccination group was 6.40 ± 0.84. The mean score for fear of COVID-19 in the full vaccination group was 19.10 ± 0.99. The mean score for fear of COVID-19 in the incomplete vaccination group was 15.70 ± 0.67. The total number of participants for all analyses was 362.

## Discussion

This study evaluated the levels of obsession and fear related to COVID-19 in patients with diabetes. Two groups were compared: those who were fully vaccinated and those with incomplete vaccination. The results showed a significant difference between the two groups for COVID-19 obsession and fear of COVID-19. The mean values of COVID-19 obsession and fear of COVID-19 were higher in patients with diabetes who were fully vaccinated compared to the group with incomplete vaccination.

Regarding the obsession variable, patients with diabetes who received vaccination showed higher obsession scores than unvaccinated patients. This finding is consistent with studies by Vollerumoreno and colleagues (34), Rubin and colleagues (35), Dad and colleagues (36), and Wheaton and colleagues (37).

A study shows that COVID-19 causes physical problems and reduces quality of life. These factors lead to obsessive symptoms and anxiety in patients (34). COVID-19 also produces a collection of symptoms. These symptoms include fear, anxiety, and obsessive-compulsive symptoms related to the disease (35). Patients with diabetes have low stress tolerance. They experience anxiety sensitivity and obsessive symptoms related to their emotions. Therefore, these patients have a greater tendency to receive the COVID-19 vaccine and avoid the disease (36).

Wheaton and colleagues examined the effects of the coronavirus pandemic on obsessive-compulsive symptoms. Their results showed that obsessive symptoms intensified in 76.2% of individuals. Most individuals were worried about infection with COVID-19. These individuals thought more about prevention and vaccination against COVID-19 compared to other people in society (37).

In this study, fear of COVID-19 was associated with a greater tendency to accept vaccination in patients with diabetes. This finding is consistent with studies by Nazli and colleagues (38), Erdem and colleagues (39), Bendau and colleagues (40), and Salali and colleagues (41).

A common feature of fear and anxiety is that individuals tend to avoid what they fear. Therefore, the most acceptable explanation is that individuals with high levels of fear of COVID-19 try to avoid COVID-19 by receiving vaccination. Another explanation is that participants with higher fear of COVID-19 perceive the disease as a threat to their own health or the health of their relatives. Therefore, these participants probably have a greater tendency to receive vaccination. They wish to protect themselves and their relatives against COVID-19.

However, inconsistencies exist in this area. In the study by Detoc and colleagues (42), anxiety had a negative association with vaccine acceptance. In the study by Gotlib and colleagues (43), anxiety had no significant relationship with vaccine acceptance. The reason for this inconsistency may be due to differences in culture, statistical population, sample size, and the construct of anxiety. Those studies measured general and pervasive anxiety. In general anxiety, individuals experience ambiguity and uncertainty. They do not take constructive actions. However, in specific anxiety such as coronavirus anxiety, the subject is clear. Individuals make constructive decisions to avoid it. Vaccination is one such constructive decision.

## Conclusion

When designing treatment and care programs such as vaccination against contagious diseases like the coronavirus, health care systems can use clinical psychologists and psychological interventions. These interventions can reduce fear and obsession in patients with chronic diseases such as diabetes.

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## Conflict of Interest

No conflict of interest was reported by the authors.

## Authors' Contributions

Conceptualization and study design were developed by Ghodrati Torbati, A. Data collection was performed by Saba, N. Data analysis and interpretation were conducted by Ghodrati Torbati, A. Manuscript drafting and critical revision for important intellectual content were carried out by Yazdansetad, Z. All authors reviewed and approved the final version of the manuscript prior to submission.

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