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The Levels of Obsession, Fear and Self-Care Behaviors Related to Covid-19 in Diabetic Patients with Complete and Incomplete Vaccination

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Abstract

Introduction: *Fears and obsessions related to Covid-19 can play important roles in self-care behaviors including vaccination among diabetic patients. C This study investigated the levels of obsession, fear and self-care behaviors related to Covid-19 among fully and partially vaccinated diabetic patients.*

Methods: *It was a causal-comparative research study involving 362 diabetic patients who were fully and partially vaccinated as the population. Convenience sampling method was used to select these patient referring to Torbat Heydarieh vaccination centers. The fear of Covid-19 questionnaire, the covid-19 obsession scale and the self-care questionnaire related to corona were used as the instrument in the present study. The data were analyzed using chi-square and ANOVA and SPSS 21 software.*

Results: *There was a significant difference between the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in two groups of fully and partially vaccinated ($P<0.05$). Also, according to the observed averages, it can be argued that the mean values of the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in diabetic patients with full vaccination were higher than the group of people with incomplete vaccination.*

Conclusion: *In order to increase self-care behaviors, reduce fears and obsessions of people with chronic diseases, including diabetes, psychological programs and psychologists can be used in the design of care and treatment programs, including vaccination against contagious diseases such as the coronavirus.*

Keywords: Obsession caused by covid-19, Fear of covid-19, Self-care behaviors, Diabetic patients, Full vaccination, Partial vaccination

Introduction

Covid-19 is a contagious disease caused by acute respiratory syndrome of the corona virus [1,2]. The first known case was detected in Wuhan, China in December 2019[3,4]. Corona virus has accounted for more than 205 million cases so far (November 21, 1400), of which Iran's share was slightly less than 4.5 million people [3]. Covid-19 is mainly a respiratory disease, but it can affect the brain and other organs such as kidneys, heart and liver [2]. Neuropsychiatric manifestations are common during viral epidemics, but they are not effectively addressed [5,6].

Preventive protection measures along with effective vaccines are the best strategies to fight this deadly disease [7]. Currently, there are four types of viral vaccines including inactivated/weakened vaccines, protein-based vaccines, viral-vector vaccines, and RNA/DNA vaccines [8]. Successful immunization against Covid-19 is the biggest challenge for majority of current governments. Recent studies around the world have reported citizens' mistrust of health systems [5,9,10].

Therefore, increased vaccination and increasing its acceptance

rate among citizens should be put on the agenda by the governments and the necessity of vaccination should be proved to the people. Fear is a natural, powerful and primary human emotion [11].

It includes global biochemical as well as a heightened emotional responses. Fears inform us of existence of a danger or threat of a harm, whether this danger is physical or psychological. Sometimes fear originates from real threats, but it can also originate from imaginary dangers [12]. Fear can also be a symptom of some mental health conditions such as panic disorder, social anxiety disorder, panic and post-traumatic stress disorder (PTSD) [13]. Based on the studies conducted so far, patients with diabetes are more afraid of COVID-19 and various behavioral changes have been reported in them[14].Obsession and disturbing thoughts are mental pressures to continue a thought or an action that the person knows is irrational but is unable to stop it [15].

In the current situation and according to the health recommendations for avoiding physical contact with others, constantly washing hands, staying at home and refraining from attending gatherings, anxiety and obsessive thoughts may appear more. In this case, people with obsessive-compulsive disorder may experience more obsessive thoughts, and people who do not have obsessive-compulsive disorder may also temporarily experience pseudo-obsessive thoughts and behaviors [11]. Diabetic people are not excluded from this group due to their private habits and behaviors during the days and nights, and they also need a series of special cares [16].

Diabetes is a chronic underlying disease occurring when the pancreas does not produce enough insulin or when the body cannot effectively use the produced insulin [17,18]. Diabetes is a disease damaging many vital organs of the body and paves the way for other diseases like blindness, kidney failure, heart attacks, strokes, and lower limb amputations [19]. 460 million people in the world are suffering from diabetes[20] and, in Iran, 11% of people over 21 years of age, equivalent to 5.5 million people, are suffering from it. In 2019, about 4.2 million people died of diabetes.

That is, approximately 11.3% of all deaths in the world were due to diabetes and its complications. Global statistics indicated that the prevalence of diabetes and deaths caused by it are increasing in different countries and ages, so that now one person dies every eight seconds due to this disease. In addition, the number of people with diabetes will double by 2040 [21], but Covid-19 has created special conditions all over the world, and diabetic patients are one of the main groups at risk and need to be addressed [17]. Healthy diet, regular physical activity, maintaining normal body weight and avoiding smoking are ways to prevent or control diabetes [16].

Self-care behaviors includes learnable, conscious and purposeful actions each person take for himself/herself, his/her family and others to stay healthy, protect their physical and mental health and meet their social needs [22]. However, the mentioned variables (fear) and intellectual and practical obsessions in the era of Covid-19 can have negative impacts on people's behaviors and activities. Various studies have been conducted in the world regarding the psychological problems of Covid-19 [3,13,14] and a limited number of studies also investigated the problems of vaccination [5].

Since the start of vaccination, the number of corona patients and behavioral diseases resulting from covid-19 has decreased significantly [23] while the importance of this issue for certain groups, including diabetic patients, has not been has been taken into account. Studies in Iran have also been very superficial and transient in this field, and most of them have examined the role of health literacy on health promotion in specific states [24]. For this reason, in this study, we decided to compare fully and partially vaccinated diabetic patients in terms of fears, obsessions and self-care behaviors related to covid-19.

Methods

It was causal-comparative study conducted with the aim of determining the levels of obsession, fear and self-care behaviors related to Covid-19. The research population consisted of fully and partially vaccinated diabetic patients referring to Torbat-e Heydarieh vaccination centers in 2022. They were selected using convenience sampling method. According to the similar study [15], after completing 400 questionnaires, 38 incompletely completed questionnaires were removed from the study and a number of 362 individuals (181 people in the case group and 181 people in the control group) were selected.

After obtaining the code of ethics from Torbet-e Heydarieh University of Medical Sciences, among the 9 health service centers, 5 vaccination centers of the city were randomly selected. Then, objectives of the research were explained to them, and with the help of health care providers and referring to the relevant databases, diabetics with incomplete vaccination and complete vaccination were identified. Necessary data including demographic information, vaccination date and contact number of the patients were also extracted from their files.

Then, the electronic questionnaires were provided to the sample through social media messages, and the completed questionnaires were received on the same day or the following days. The criteria for entering the study included: patients with diabetes diagnosed by a physician, the patient's knowledge and consent to participate in the study, having access to WhatsApp, patients with diabetes who have received the Covid-19 vaccine (injection of four doses of the vaccine for the full vaccination group), people with diabetes who have not injected the Covid-19 vaccine (injecting less than four doses of the vaccine for the partial vaccination group). Exclusion criteria were: drug addiction and smoking (based on the patient's history), any physical and mental disability, having a psychiatric illness, and incomplete completion of the questionnaire.

Questionnaire of fear of Covid-19:

It was first developed by Ahorsu et al. (2020) and it is a 7-item self-report instrument which assesses the level of fear caused by Covid-19 in the form of a 5-point Likert scale from (1) com-

pletely disagree to (5) completely agree. Cronbach's alpha value was 0.82, composite reliability value was 0.88, test-retest coefficient was 0.72, and the fit of the research questions was confirmed using the question performance difference analysis. The correlation of the instrument with the depression scale was 0.42 and with the general anxiety level was 0.51. The reported construct validity indices also showed a good fit. The minimum and maximum score of a person in this scale is between 7 and 35, and a higher score indicates a higher fear. Cronbach's alpha of the instrument in the present study was 0.87 and the reliability coefficient was 0.83 [25].

Questionnaire of obsession caused by covid-19:

The initial version of this scale was prepared by Lee in 2020 [23]. This scale seeks to answer the question of thinking about the corona disease becomes a disorder. This scale has a correlation with anxiety of the corona virus, spiritual crisis, dealing with drugs and alcohol, extreme hopelessness and suicidal thoughts. The diagnostic features of the tool were (sensitivity 81% to 93%, specificity 73% to 76%) . In Iran, its reliability and validity were investigated and the Cronbach's alpha of the instrument was 0.79 and the reliability coefficient was 0.77 [24]. This questionnaire has 4 items and each of its items has a 5-point Likert scale from not at all 0 to 4 almost every day during the last 2 week. Scores higher than or equal to 7 indicate the possibility of obsessions related to the Covid-19 virus [23].

Self-care questionnaire related to Corona:

This questionnaire was created by Pouyan Fard et al. (2020) and has 15 questions and self-care behaviors related to Covid-19 in the areas of social distancing, mask use, and hygiene behaviors in a five-point Likert scale from 1 very low to 5 very high [25]. The highest and lowest scores obtained by respondents in this questionnaire are 15 and 75, respectively. Higher scores in this questionnaire indicate a higher level of self-care among people. Cronbach's alpha of this scale has been reported by its creators as 0.87 and its validity has been evaluated and confirmed by psychologists. The reliability of this scale was obtained using Cronbach's alpha method in the current study.

After collecting data, descriptive statistical methods (frequency, percentage and mean ± standard deviation) and inferential statistics including Chi-squared test and ANOVA comparing two independent groups were performed. The data were analyzed using SPSS version 21 software.

Results

Chi-square test and one-way ANOVA were used for statistical analysis and the results are reported in Tables 1 to 5.In this study, 362 people in two groups of diabetic patients with full vaccination and partial vaccination were examined. Table 1 is related to descriptive statistics of variables in two groups of diabetic patients with complete and incomplete vaccination. Chi-square test results showed no statistically significant difference between the study groups in terms of age, gender, marriage, occupation and education (P>0.05). The mean age of the participants was 36±1.64 years, the gender distribution in the group of full vaccination was male (54.14%) and the gender distribution in the group of partial vaccination was female (51.93%). Most of the people in the group with full vaccination were married (34.80%) and most of the people with partial vaccination were single (39.22%).

The most occupation in the group with full vaccination was employee (36.46%) and the most occupation in the group with partial vaccination was also Homemaker (35.91%). Education of people in the group with full vaccination was academic (37.01%) and people education in the group with partial vaccination was sub-diploma (38.12%). The mean and standard deviations related to the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in two groups of diabetic patients with full vaccination and partial vaccination are described separately in table 2.

In order to perform the analysis of variance test, the first assumptions of the ANOVA test, including the normality and homogeneity of the variances of the scores, were examined. According to Table No. 3, the Kolmogorov–Smirnov test was used for normality which indicated the normality of the data distribution (p>0.05). According to Table No. 4, in order to check the presumption of equality of variances, the Levene's test was used and the results in the complete vaccination group included: obsession caused by covid-19 (sig=0.289, F=0.749), fear of covid-19 (sig=0.196 , F=2.940) and the variable of self-care behaviors (sig=0.764, F=0.268) and in the incomplete vaccination group including: the variable of obsession caused by covid-19 (sig=0.573, F=0.253), fear of covid-19 (sig =0.257, F=0.386) and the variable of self-care behaviors (sig=0.349, F=0.742). Considering that the significance level of Levene's test is greater than 0.05, the presumption of equality of variances in all research variables was confirmed. Considering the confirmation of the presuppositions, the one-way ANOVA method can be used to investigate the research hypotheses.

Table 1: Descriptive statistics of demographic variables in two groups of diabetic patients with complete and incomplete vaccination

Variable		Complete vaccination	Incomplete vaccination	χ2	P-value
		F (%)	F (%)		
Age	18 to 29 years	34(18.78%)	29(16.02%)	1.368	0.713
	30 to 39 years	39(21.54%)	45(24.86%)		
	40 to 49 years	61(33.70%)	67(37.01%)		
	50 to 59 years	47(25.96%)	40(22.09%)		
Gender	Male	98(54.14%)	87(48.06%)	3.189	0.074
	Female	83(45.85%)	94(51.93%)		
Status Marital	Single	60(33.14%)	71(39.22%)	1.171	0.557
	Married	63(34.80%)	53(29.28%)		
	Divorce	58(32.04%)	57(31.49%)		
Employment type	Employee	66(36.46%)	59(32.59%)	0.171	0.918
	Freelance Job	59(32.59%)	57(31.49%)		
	Homemaker	56(30.93%)	65(35.91%)		
Education	Sub-Diploma	61(33.70%)	69(38.12%)	3.563	0.313
	Diploma	53(2.28%)	65(35.91%)		
	Academic	67(37.01%)	47(25.96%)		

Table 2: Average score of dependent variables in two groups with complete and incomplete vaccination

Variable	Complete vaccination	Incomplete vaccination	Total
The resulting obsession of covid-19	8.02 ± 1.03	6.40 ±0.84	362
Fear of covid-19	19.10 ± 0.99	15.70 ±0.67	362
Self-care behaviors	48.40 ± 1.42	37.90 ±1.52	362

Table 3: The results of the Kolmogorov-Smirnov test to check the normality of the distribution of variables

sig	Kolmogorov-Smirnov test	Groups	Variables
0.652	0.742	Complete and incomplete vaccination group	The resulting obsession of covid-19
0.384	0.865	Complete and incomplete vaccination group	Fear of covid-19
0.591	0.693	Complete and incomplete vaccination group	Self-care behaviors

Table 4: The results of Levene's test in order to check the equality of error variances in groups

Groups / Variables	Complete vaccination		Incomplete vaccination	
	F	sig	F	sig
The resulting obsession of covid-19	0.749	0.289	0.253	0.573
Fear of covid-19	2.940	0.196	0.386	0.257
Self-care behaviors	0.268	0.764	0.742	0.349

Table 5: One-way ANOVA comparing two groups in research variables

Groups	Sum of Squares	df	mean square	F	sig.
The resulting obsession of covid-19	427.340	1	427.340	32.594	0.002
Fear of covid-19	369.804	1	369.804	25.367	0.000
Self-care behaviors	520.261	1	520.261	78.291	0.001

The results of variance analysis showed that there is a significant difference between the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in two groups ($p<0.05$). Also, according to the averages observed in table number 2, it can be said that obsession caused by covid-19, fear of covid-19 and self-care behaviors are more in the complete vaccination group than in the incomplete vaccination group.

Discussion

The present study was conducted with the aim of investigating the level of obsession, fear and self-care behaviors related to covid-19 in fully and partially vaccinated diabetic patients. Based on the results, there was a significant difference between the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in two groups with full vaccination and partial vaccination, so that the mean values of the variables of obsession caused by covid-19, fear of covid-19 and self-care behaviors in diabetic patients with full vaccination were higher than the group of people with partial vaccination.

According to the findings, the variable of obsession was higher among the diabetic patients who were vaccinated than those who were not vaccinated. The results of this finding were consistent with Rubin et al.[26], Dodd et al.[27], and Wheaton et al. [28] studies. Research showed that the Covid-19 disease can cause symptoms of obsession and anxiety due to the physical problems and decrease in the quality of life of the patients [29]. They cause such symptoms as fear, anxiety, and mental-practical obsessions related to the disease [30]. People with diabetes are also more likely to receive the Covid-19 vaccine and avoid contacting the disease due to their low stress tolerance and because of the anxiety sensitivity and obsessive symptoms they experience related to their emotions [31]. In a study, Wheaton et al. examined the effects of coronavirus pandemic on people's practical obsessive-compulsive symptoms. The results showed that obsessive symptoms have worsened in 76.2% of people. Most of the people were worried about getting infected with Covid-19 and thought about prevention and vaccination against covid-19 more than other people in the society [32].

In this study, the fear of covid-19 was associated with a greater willingness to accept vaccination in diabetic patients, which is consistent with the studies of Nazli et al [29], Erdem et al. [30], Bendau et al. [31], Salali et al., [32]. A common feature of fear and anxiety is that people tend to avoid what they fear. Hence, the most plausible explanation is that people with high levels of fear of COVID-19 are trying to avoid what they fear, namely, COVID-19, by getting vaccinated. Another explanation may be that the participants with higher levels of fear of Corona consider Covid-19 as a threat to their health or their loved ones. Therefore, these participants are likely to be more willing to get vaccinated to protect themselves and their loved ones from COVID-19.

However, there are inconsistencies in this field. For example, in Detoc et al.'s study [33], anxiety had a negative relationship with vaccine acceptance, and in Gotlib et al.'s study [34], 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 anxiety structure. As they measured the general and widespread anxiety, in this type of anxiety, people are confused and indecisive and do not take any proactive action. But in specific anxiety situations such as Covid-19, where the issue is clear, the person takes constructive decisions (such as vaccination) to avoid it.

As the findings showed, the self-care behaviors in the group of people who got vaccinated were more than those who didn't get vaccinated. This means that people who scored high in the self-care variables received more vaccines than other people. The results of this finding were consistent with the results of Roshchina et al., [35] and Yan et al., [36] and inconsistent with Tsai's

research [37]. Self-care is the ability of a person to take care of himself and try to maintain life, health and well-being related to physical and social health [38]. Self-care is an important part of disease control and is a process which includes behavior and purposeful choices and reflects the attitude and knowledge of each individual. Maintaining one's health and life requires constant self-care and control. Implementing health-related self-care behaviors affects the individual. In fact, lifestyle changes are necessary to maintain health. Observing health behaviors is more common among people who value helping others [39].

Through active participation in the care processes, self-care leads to improvement of public health, improvement of quality of life and ultimately reduces treatment costs. People who practice more self-care behaviors are more responsible and worried about the disease and its spread to others. Therefore, self-care can lead people to accept vaccines. The inconsistency between the results of the present study and Tsai's study [37] can be attributed to the fear of unanticipated side effects of the vaccine and distrust towards it.

Conclusion

The presence of clinical psychologists and psychological interventions can be used in the design of care and treatment programs, including vaccination against contagious diseases such as the corona virus, in order to increase self-care behaviors, reduce people's fear and obsession.

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Conflict of interest

In this study, there is no conflict of interests.

Contribution of authors

Conceptualization and design of the study (Ghodrati Torbati, A.), data collection (Dadar,N) analysis and interpretation of data (Ghodrati Torbati, A.), preparing a draft of the article or revising it to develop thoughtful content (Fathi, H.) final approval of the manuscript before sending it to the journal.

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