

Prediction of Commitment to Social Distancing by Post-Traumatic Stress Disorder Symptoms and Corona Anxiety during Social Distancing Period in Iran

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Abstract

Introduction: After the outbreak of the coronavirus disease, social distancing was recommended in order to prevent its spread. The current investigation was carried out to study whether commitment to social distancing could be predicted by corona-related anxiety and posttraumatic-stress disorder symptoms.

Method: The cross sectional study was carried out on 595 individuals, who completed the questionnaires online. Convenience sampling was used for this purpose. The used questionnaires included the Impact of Event Scale (IES), Corona Disease Anxiety Scale (CDAS) and the Commitment to Social Distancing Scale (CSDS). The data analysis was done in two sections: descriptive and inferential. In the descriptive section, frequency, percentage, mean, standard deviation, independent t-test, and one-way ANOVA were utilized. In inferential section, exploratory factor analysis, Cronbach's alpha, Pearson correlation and multiple regression were utilized. The data were analyzed using SPSS-24.

Results: The results indicated that there was significant correlation between the impacts of all the components of the impact of event scale, except for avoidance with commitment to social distancing. Regression analysis showed that the total model was significant (adjusted $r^2 = 0.099$, $f = 15.05$, $\text{Sig} = 0.01$), and corona anxiety ($\beta = 0.319$; $p < 0.05$) and hyper-arousal subscale of the IES ($\beta = 0.211$; $p < 0.05$) can significantly predict commitment to social distancing.

Conclusion: Informing the society of the importance of adherence to health instructions cannot solely lead to social distancing, therefore, policymakers need to combine public awareness with a little anxiety and alertness so that people follow health guidelines.

Keywords: COVID-19, Corona Anxiety, Stress Disorders, Post-Traumatic, Iran

Introduction

In December 2019, the Coronavirus (COVID-19) was identified in Wuhan and then spread all over the world [1]. The symptoms of COVID-19 include: fever, shivering, coughs, coryza, sore throat, breathing problems, muscle pain, nausea, diarrhea and vomit [2]. The infected patients may deteriorate and develop severe or even fatal respiratory symptoms; such as acute respiratory syndrome or acute respiratory failure [3, 4]. The elderly who suffer from medical illnesses are more likely to experience the symptoms severely [2]. The prevalence of this illness was so high that the World Health Organization (WHO) called it a health emergency and a global concern [5]. The infection rate of this illness is determined by its

reproduction rate which has been estimated to be 4.08; this means each COVID-19 could infect four new cases [6]. The death rate for illness differs in different countries [2]. The common recommendations for preventing this virus is for infected patients to quarantine for seven to 14 days, while the uninfected individuals are recommended to adhere to social distancing [7]. These individuals should limit their interpersonal interactions and avoid unnecessary travelling or commuting in order to slow the virus spreading down and to prevent its prevalence. Although it is not clear how efficient these methods are and the excessive use of them has been criticized due to the lack of scientific support [8, 9]. However, one point is clear; social distancing is efficient only if people adhere to it [10].

Some investigations have been carried out on factors that may affect social distancing. For instance, results of one of these studies indicated that the moral advice which are based on a deontological sense have a modest effect on increasing relational behaviors which lead to the prevention of the spread and transfer of viruses in the society (such as washing hands, avoiding extensive gatherings or adherence the government's recommendations for preventing the spread of COVID-19 [11]. On the other hand, being male, smoking, high levels of attention deficit hyperactivity disorder symptoms, risky behaviors, high psychological distress and having a poor awareness of educative behaviors are correlated with lack of commitment to health instructions for preventing COVID-19 [12]. Furthermore, individuals who are informed of quarantine, disease and social norms, and also comprehend the benefits of quarantine and the danger of the disease are more adherent of quarantine [[10].

On the other hand, the prevalence of this disease is accompanied by psychological problems such as depression, anxiety, stress [13-15], insomnia, obsessive-compulsive symptoms [16], anger, denial and fear [17]. These symptoms are more prevalent in individuals who are in danger of being exposed to this virus which means medical caretakers are at greater risk compared to the general population [16]. Fear and anxiety are extensively prevalent among the population who is infected to this virus [18]. Therefore, considering these problems and perceiving them is of great importance and if medical care is delayed, these individuals may suffer from irrecoverable harms resulting from these crises [19]. There are a number of reasons for examining the role of anxiety and Post-traumatic Stress Disorder (PTSD) during coronavirus outbreaks and their role in social distancing in the current study. First, the results of many studies indicate that at the time of the outbreak of the this virus, anxiety and anxiety-related problems such as PTSD were common psychological symptoms in the community; resulting in the occurrence of health-related behaviors [20, 21]. Second, the results of some studies demonstrate when dealing with a pandemic, people usually consider it as a serious risk factor and stressor [12, 22]. Third, most studies have focused solely on the role of psychological problems during the outbreak. However, the relationship between

these two components (anxiety and PTSD) and social distancing which is a significant prevention method against the pandemic, has not yet been investigated. Therefore, the aim of the current research was to examine the relationship between PTSD symptoms and corona anxiety with adherence to social distancing during the COVID-19 pandemic. The current investigation was carried out to study whether commitment to social distancing could be predicted by corona-related anxiety and PTSD symptoms in the general population or not. This study investigated whether the existence of posttraumatic stress disorder symptoms can predict levels of adherence to social distancing and whether COVID-19 anxiety can predict social distancing or not.

Method

Initially, the goals and methodology of the study were described for samples, and if they agreed, a written consent form was taken. This investigation is an applied research in terms of its aim, and is also descriptive methodology-wise. The population consisted of 18-60 year-old individuals who were inhabitants of Iran. According to the limitations caused by social distancing, we utilized online surveys for data collection. The research was carried out in Iran. Free Statistics Calculators software was used to determine the sample size, with considering effect size (f^2) = 0.02, desired statistical power level: 0.8, number of predictors: 4, probability level: 0.05 and sample size suggested 597 [23]. The inclusion criteria included being in the age range of 12-65 and having the ability to read and write. The exclusion criteria included uncompleted questionnaires.

Convenience sampling method was applied and questionnaires were completed on social media. The sample included 370 women (71.8%) and 145 men (28.2%). The average age was 27.79 years old (min: 12, max: 64). In this study, 59.6% of the participants were single and 40.4% were married. In terms of educational level, 5.6% of the patients had a lower level than high school diploma, 26.2% had a high school diploma, 41.7% had a BA, 21.6% had an MA and 4.9% owned a PhD degree.

The questionnaires were designed on the porline website (<https://porline.ir/>) and were then informed on WhatsApp, Telegram and Instagram. First, a brief explanation of the purpose of the study and related ethical issues was provided, and participants answered a question about informed consent to participate in the study and then were guided to the questionnaire battery. The data analysis was done in two sections: descriptive and inferential. In the descriptive section, frequency, percentage, mean, standard deviation, independent t-test, and one-way ANOVA were utilized. In the inferential section, exploratory factor analysis, Cronbach's alpha, Pearson correlation and the multiple regression were utilized. After data collection, 82 questionnaires were excluded due to being partially incomplete or having outlier and the final analysis was done with 515 questionnaires.

The tools used in this study were as follows:

Impact of Event Scale (IES): Horowitz et al. designed this questionnaire at 1979 [24]. This questionnaire consists of 22 items which measure the frequency of posttraumatic avoidance, arousal and intrusive thoughts during the last week. The answers are scored between zero to four [24] Hypothesis. This scale has been studied in Iran and its internal consistency has been reported to be suitable with the Cronbach's alpha coefficient between 0.67-0.87 [25]. In this study, Cronbach's alpha coefficients for the total scale, and subscales of intrusive thoughts, avoidance and hyper-arousal were 0.87, 0.84, 0.72 and 0.81 respectively.

Corona Disease Anxiety Scale (CDAS): This scale has been designed by Alipour et al. (2020) in order to measure the anxiety of Iranian citizens about coronavirus. This scale consists of 18 items and each item is scored between zero (never) to three (always). This questionnaire includes two subscales of psychological and physical symptoms. The Cronbach's alpha coefficients for psychological symptoms, physical symptoms and the total scale have been reported to be 0.87, 0.86 and 0.91 respectively [26]. Cronbach's alpha for this scale was calculated to be 0.91 in the current study.

Commitment to Social Distancing Scale (CSDS): To assess this variable, a researcher-made questionnaire was utilized. At first, in order to compile the items of the questionnaire, recommendations of the valid data sources such as the WHO, Iran's Ministry of Health and Medical Education (MOHME) and the scales which were used in previous studies for SARS-CoV-2 were utilized [27]. Finally, 19 items were designed for assessing commitment to the recommended behaviors for social distancing and were scored by a five-point Likert scoring system. In order to examine the content validity of the questions, the questionnaire was given to three experienced physicians and three experienced psychologists so that they could evaluate its accordance and understandability. Seventeen out of 19 items were approved. The selected items were then given to a sample of 70 individuals in a general

population. The obtained Cronbach's alpha for this questionnaire was 0.83. In order to examine the validity of the CSDS, the correlation coefficient between the items of the questionnaire were compared with each other and with the total scale. The correlation of the items with each other ranged from 0.133 to 0.707 and the correlation of the items with the total score ranged from 0.386 to 0.674. The internal consistency of the scale was 0.834 and omitting none of the items led to a higher Cronbach's alpha coefficient for the scale. To evaluate construct validity, the exploratory factor analysis was used. The Kaiser-Meyer-Olkin (KMO) statistic was 0.859 which indicated the sufficiency of our sample size for applying exploratory factor analysis. Moreover, Bartlett's test of sphericity was significant ($\chi^2= 2223.187$, $DF=105$, $Sig= 0.01$). On the whole, four factors were identified which altogether explained 57.79% of the variance. The explained variance for the four factors were 32.57, 10.43, 7.53 and 7.25 respectively. Given the fact that the factor loading for factors 2 to 4 did not explain the variance to a high extent, and knowing that not many theoretical or logical bases were available for obtaining other factors from this scale, the questionnaire was considered to be single-factor.

Results

First, the variables were compared according to the demographic characteristics. Age was not correlated with any of the variables. The results of the independent t-tests and one-way ANOVA indicated that avoidance and being committed to social distancing vary among individuals with different levels of education. Post-hoc tests indicated that the higher the educational level gets, the less avoidance and the more commitment to social distancing there is. Furthermore, there was a gender difference in the levels of commitment to social distancing in which women indicated more commitment.

Table 1. Comparing the Variables of the Study in Different Ages and Educational Levels

Variable		Sum of squares	Df	Mean square	F	P
Commitment to social distancing	Between group	1055.80	4	263.95	3.92	0.01
	Within group	34303.05	510	67.26		
	Total	35358.85	514			
Avoidance	Between group	539.81	4	134.95	4.31	0.01
	Within group	15935.66	510	31.24		
	Total	16475.47	514			
		Mean	T	Df		P
	Women	62.42	3.80	513		
	Men	59.36				
Commitment to social distancing						0.01

Table 2. The Correlation between Variables

	Corona anxiety	Commitment	Impact of the event	Intrusive thoughts	Avoidance	Hyper-arousal
Corona anxiety	1					
Commitment	0.30**	1				
Impact of the event	0.76**	0.22**	1			
Intrusive thoughts	0.80**	0.20**	0.86**	1		
Avoidance	0.27**	0.06	0.68**	0.29**	1	
Hyper-arousal	0.80**	0.27**	0.88**	0.82**	0.32**	1

Significant in 0.019 (Two-tailed)

In order to predict commitment to social distancing, commitment to social distancing entered the model as the criterion variable and gender, education, corona anxiety and impact of the event subscales were entered to the model as the predictor variables in enter multiple regression.

Prior to the regression, the assumptions related to it such as normality and linearity were considered. The results indicated that the total model was significant (adjusted $r^2 = 0.148$, $f = 18.78$, $Sig = 0.01$). All predictors could predict commitment to social distancing significantly (Table 3).

Table 3. Predicting Commitment to Social Distancing

Model	Standard Beta	T	P
(constant)		31.63	0.01
Corona anxiety	0.35	4.13	0.01
Intrusive thoughts	-0.22	-1.81	0.070
Hyper arousal	0.15	2.14	0.033
Gender	-0.18	4.39	0.01
Education	0.15	3.72	0.01

Discussion

Unlike previous studies whose main focus was solely on the negative psychological effects such as anxiety and PTSD symptoms, the current study aims at assessing the extent to which PTSD symptoms and corona anxiety could predict social distancing which is an important factor for preventing COVID-19.

The results showed that gender can significantly predict commitment to social distancing. The results of the study on gender are consistent with the studies that showed that females are more adherence to public health instructions about COVID-19 [12, 28]. Women often adhere to social distancing as an important solution to prevent COVID-19 infection while men find social distancing a less effective solution among all coping strategies against this disease [29, 30]. Also, Women are more likely to approve social distancing and maintain greater personal health compared to men [31, 32]. Women, on the other hand, are more likely to avoid crowds and physical contact with others to prevent respiratory illness [33].

On the other hand, the results revealed that higher education leads to active searching for relevant information and more awareness about COVID-19. This investigation is consistent with studies whose findings indicated that the fear of getting infected and perceiving the danger of the disease could predict being committed to quarantine [22, 34, 35]. People with higher academic levels are more aware of the benefits and importance of quarantine and social distancing in disease control, and as a result, are more committed to it. By acknowledging the need to use public health tools such as quarantine and social distancing to control the spread of the disease, these people have become more committed to tackling health-related issues [36]. They are also involved in organizations and scientific environments that inform them of ways to prevent coronavirus infection; increasing the chances of their adherence to social distancing as a prevention technique [37].

The findings of the current study show the relationship between corona anxiety, impact of the event and its subscales (except for avoidance) with commitment to social distancing. The results of predicting social distancing indicated that corona anxiety and hyper-arousal subscale can significantly predict commitment to

social distancing. To explain these findings, it can be said that when faced with such threatening situations, some individuals tend to estimate the risk of the disease and take it seriously. Therefore, they comprehend the importance of prevention methods such as social distancing and quarantine [22, 35]. In fact, in case the anxiety associated with the coronavirus and the estimated risk of it, is not severe enough to cause malfunctioning, and instead leads to data gathering and understanding the importance of observing hygiene and health-care (such as social distancing) in controlling this disease, higher adherence to social distancing can be resulted. Results of some research show that anxious people are more committed to social distancing than non-anxious people [29, 30]. Fear is an adaptive response in such situations which can trigger defensive self-care behaviors against the danger [38]. In fact, individuals who have a better understanding of being in danger and experience more moderate fear of being infected, are more committed to social distancing [22, 35].

This study had some limitations as well which may have affected the validity of the findings. The data of this study were collected from the general population and are not generalizable to other populations; specially the vulnerable population and patients with background disease who are at serious risk of coronavirus. Thus, in order to generalize the findings of this study on the correlation between corona anxiety and PTSD symptoms with commitment to social distancing, a specific study needs to be done with a sample of vulnerable population.

Conclusion

Understanding the danger posed by the coronavirus plays an important role in maintaining social distancing. The results of this study showed that women and educated people are more committed to social distancing. Therefore, to prevent the spread of the coronavirus, it is necessary to provide sufficient information and education about the risks caused by it and the role of social distancing in improving health and well-being.

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

In order to observe the ethical principles of research and to respect the rights of the participants, the research aims and its process were explained to all the participants. The option of leaving the study at any point was also introduced. They were ensured that their information will always be confidential and the collected data will be published without revealing any personal information and the data will be analyzed in clusters.

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References

- Lu H, Stratton CW, Tang YW. Outbreak of pneumonia of unknown etiology in Wuhan, China: The mystery and the miracle. *Journal of medical virology*. 2020;92(4):401-2.
- Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *The Lancet*. 2020;395(10223):507-13.
- Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. *Jama*. 2020;323(11):1061-9.
- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020;395(10223):497-506.
- Mahase E. China coronavirus: WHO declares international emergency as death toll exceeds 200. *BMJ: British Medical Journal (Online)*. 2020;368.
- Cao Z, Zhang Q, Lu X, Pfeiffer D, Jia Z, Song H, et al. Estimating the effective reproduction number of the 2019-nCoV in China. *MedRxiv*. 2020.
- WHO. World health organization quality of life (WHOQOL)-BREF Switzerland, Geneva2004.
- Schabas R. Severe acute respiratory syndrome: Did quarantine help? *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2004;15.
- Greenberger M. Better prepare than react: reordering public health priorities 100 Years after the Spanish flu epidemic. *American journal of public health*. 2018;108(11):1465-8.
- Webster RK, Brooks SK, Smith LE, Woodland L, Wessely S, Rubin GJ. How to improve adherence with quarantine: Rapid review of the evidence. *Public Health*. 2020.
- Everett JA, Colombatto C, Chituc V, Brady WJ, Crockett M. The effectiveness of moral messages on public health behavioral intentions during the COVID-19 pandemic. 2020.
- Pollak Y, Dayan H, Shoham R, Berger I. Predictors of adherence to public health instructions during the COVID-19 pandemic. *medRxiv*. 2020.
- Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*. 2020;17(5):1729.
- Felix G. Mediating Effect of Coping Strategies between Personality and Anxiety during COVID-19. *International Journal of Behavioral Sciences*. 2021;14(4):225-31.
- Ojiaku CM, Iorfa S, Mefoh PC, Ezeuzo O, Odinko IC. COVID-19-Induced Anxiety and Covid-19 Precautionary Measures as Predictors of Mental Wellbeing of Nigerians. *International Journal of Behavioral Sciences*. 2020;14(3):149-54.
- Zhang W-r, Wang K, Yin L, Zhao W-f, Xue Q, Peng M, et al. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychotherapy and psychosomatics*. 2020;89(4):242-50.
- Torales J, O'Higgins M, Castaldelli-Maia JM, Ventriglio A. The outbreak of COVID-19 coronavirus and its impact on global mental health. *International Journal of Social Psychiatry*. 2020:0020764020915212.
- Xu K, Cai H, Shen Y, Ni Q, Chen Y, Hu S, et al. Management of corona virus disease-19 (COVID-19): the Zhejiang experience. *Journal of Zhejiang University (medical science)*. 2020;49(1):0-.
- Jiang X, Deng L, Zhu Y, Ji H, Tao L, Liu L, et al. Psychological crisis intervention during the outbreak period of new coronavirus pneumonia from experience in Shanghai. *Psychiatry Research*. 2020:112903.
- Moghanibashi-Mansourieh A. Assessing the anxiety level of Iranian general population during COVID-19 outbreak. *Asian journal of psychiatry*. 2020;51:102076.
- González-Sanguino C, Ausín B, Castellanos MÁ, Saiz J, López-Gómez A, Ugidos C, et al. Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. *Brain, behavior, and immunity*. 2020;87:172-6.
- Cava MA, Fay KE, Beanlands HJ, McCay EA, Wignall R. Risk perception and compliance with quarantine during the SARS outbreak. *Journal of Nursing Scholarship*. 2005;37(4):343-7.
- Soper D. A-priori sample size calculator for multiple regression [Software]. Available from <http://www.danielosoper.com/statcalc> (20/11/2017). 2015.
- Weiss DS. The impact of event scale: revised. *Cross-cultural assessment of psychological trauma and PTSD: Springer*; 2007. p. 219-38.
- Panaghi L, Mogadam JA. Persian version validation in impact of event Scale-Revised. *Tehran University Medical Journal TUMS Publications*. 2006;64(3):52-60.
- Alipour A, Ghadami A, Alipour Z, Abdollahzadeh H. Preliminary validation of the Corona Disease Anxiety Scale (CDAS) in the Iranian sample. *QUARTERLY JOURNAL OF HEALTH PSYCHOLOGY*. 2020;8(32):163-75.
- Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging infectious diseases*. 2004;10(7):1206.
- Mohammadpour M, Ghorbani V, Khoramnia S, Ahmadi SM, Ghvami M, Maleki M. Anxiety, Self-Compassion, Gender Differences and COVID-19: Predicting Self-Care Behaviors and Fear of COVID-19 Based on Anxiety and Self-Compassion with an Emphasis on Gender Differences. *Iranian Journal of Psychiatry*. 2020;15(3):213.
- Atchison CJ, Bowman L, Vrinten C, Redd R, Pristera P, Eaton JW, et al. Perceptions and behavioural responses of the general public during the COVID-19 pandemic: A cross-sectional survey of UK Adults. *MedRxiv*. 2020.
- Kwok KO, Li KK, Chan HH, Yi YY, Tang A, Wei WI, et al. Community responses during the early phase of the COVID-19 epidemic in Hong Kong: risk perception, information exposure and preventive measures. *MedRxiv*. 2020.

31. Liao Q, Cowling B, Lam WT, Ng MW, Fielding R. Situational awareness and health protective responses to pandemic influenza A (H1N1) in Hong Kong: a cross-sectional study. *PLoS one*. 2010;5(10):e13350.
32. Park J-H, Cheong H-K, Son D-Y, Kim S-U, Ha C-M. Perceptions and behaviors related to hand hygiene for the prevention of H1N1 influenza transmission among Korean university students during the peak pandemic period. *BMC infectious diseases*. 2010;10(1):1-8.
33. Pouyan Fard S, Taheri AA, Ghvami M, Ahmadi SM, Mohammadpour M. Individual, gender differences and corona: The relationship between personality traits and gender differences with corona self care behaviour. *Shenakht journal of psychology & psychiatry*. 2020;7(4):67-77.
34. Teh B, Olsen K, Black J, Cheng AC, Aboltins C, Bull K, et al. Impact of swine influenza and quarantine measures on patients and households during the H1N1/09 pandemic. *Scandinavian journal of infectious diseases*. 2012;44(4):289-96.
35. Hsu C-C, Chen T, Chang M, Chang Y-K. Confidence in controlling a SARS outbreak: experiences of public health nurses in managing home quarantine measures in Taiwan. *American journal of infection control*. 2006;34(4):176-81.
36. Johal SS. Psychosocial impacts of quarantine during disease outbreaks and interventions that may help to relieve strain. 2009.
37. GÜNER HR, Hasanoglu I, Aktaş F. COVID-19: Prevention and control measures in community. *Turkish Journal of Medical Sciences*. 2020;50(SI-1):571-7.
38. Tang W, Hu T, Hu B, Jin C, Wang G, Xie C, et al. Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *Journal of affective disorders*. 2020.