



# Association Between COVID-19 Anxiety, Psychological Distress, and Decision-making Styles in Nurses of a Selected Hospital in Yazd Province, Iran

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## Abstract

**Background and aims:** During the COVID-19 pandemic, nursing was known as a stressful occupation. This high work pressure and stress can make nurses susceptible to psychological consequences. The state of mental health of nurses can be effectively related to their job performance. This study aimed to investigate the relationship between COVID-19 anxiety, psychological distress, and general decision-making styles in nurses.

**Methods:** This cross-sectional study was conducted in a selected hospital in Yazd province in 2022. An available sampling method was used in this research, and 100 nurses were included in the study. Corona Disease Anxiety Scale, Kessler's Questionnaire (K10), and Scott, and Bruce's decision-making styles questionnaire were employed to collect data. The obtained data were analyzed using Mann-Whitney and correlation test in SPSS-24.

**Results:** Based on the results, a positive relationship was found between COVID-19 anxiety and psychological distress ( $P=0.05$ ,  $r=0.19$ ). In this study, a positive correlation was observed between COVID-19 anxiety in nurses and spontaneous ( $P=0.008$ ) and dependent ( $P<0.001$ ) decision-making styles. Eventually, psychological distress was significantly correlated with avoidant ( $P=0.005$ ) and dependent ( $P=0.005$ ) decision-making styles.

**Conclusion:** Considering the importance of mental health and nurses' job performance, it is recommended that measures should be taken to reduce anxiety and improve their mental health. Holding mental health training workshops and increasing social and organizational support can also be effective in this regard.

**Keywords:** Anxiety, COVID-19, Psychological distress, Decision-making, Nurses

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## Introduction

Nurses are generally exposed to various tensions according to the nature of their duties. Facing these tensions in the hospital can cause multiple psychological consequences such as anxiety.<sup>1</sup> High workload and close exposure to the suffering and death of patients are among the factors that can intensify this anxiety.<sup>2,3</sup> In addition to the mentioned factors, the spread of the COVID-19 could significantly endanger the mental health of nurses and their lives.<sup>4,5</sup> In a systematic review study, Al Maqbali et al investigated the effect of COVID-19 on the prevalence of anxiety, stress, depression, and sleep disorders among nurses. Their findings showed that about one-third of nurses suffered from psychological consequences during the outbreak of COVID-19.<sup>6</sup> During the COVID-19 pandemic, it was reported that the level of depression, anxiety, and stress in nurses of Torbat-e-Heydariyeh hospital was moderate.<sup>7</sup>

Therefore, the results of the studies demonstrated that the conditions during the COVID-19 pandemic have significantly affected nurses' mental health.

Psychological distress can be defined as a set of symptoms of perceived anxiety and depression.<sup>8</sup> Stressful factors in the nursing profession, including workload, job demand, and the like, can be associated with adverse psychological and physical consequences. In addition, critical conditions caused by epidemics, including an increase in the number of patients with the disease and the subsequent increase in workload, can make nurses susceptible to stress.<sup>6</sup> In this regard, several factors can effectively improve nurses' mental health. Some studies introduced job satisfaction and perceived social support as influential factors.<sup>9</sup> The quality of health services depends to a large extent on the quality of nurses' mental health. In addition to personal problems, the decline in nurses' mental health can cause

an increase in medical errors. Dastyar indicated that medication error increases significantly with COVID-19 anxiety in nurses.<sup>10</sup>

Decision-making in performing care behaviors and health activities is critical to reducing medical errors. It is integral to nursing and can affect the patient's health.<sup>11</sup> A decision-making style is a pattern a person represents while facing a situation.<sup>12</sup> A review of past studies demonstrates that the way people make decisions can be affected by various factors such as anxiety. Further, anxiety can affect people's decision-making and cause risk avoidance or excessive risk acceptance.<sup>13</sup> Stressful factors can disrupt cognitive processes, leading to errors and accidents.<sup>14</sup> Stenfors et al showed that stressful factors such as high job demands are significantly associated with employees' cognitive disorders.<sup>15</sup> In another study, it was found that COVID-19 anxiety is positively and significantly related to cognitive failures in hospital employees.<sup>16</sup>

The researchers believe that considering the range of psychological consequences of the spread of COVID-19, it is essential to study the mental health of health workers during and after the disease outbreak. Considering the important role of nurses in the health workforce, it is of great importance to pay attention to their psychological and cognitive performance. Moreover, the role of mental health and nurses' job performance in improving healthcare services is vital. Previous studies have examined the relationship between COVID-19 anxiety and various psychological consequences such as anxiety and stress, but cognitive consequences, including decision-making styles, have received less attention. Therefore, the present study aimed to investigate the relationship between anxiety, psychological distress, and decision-making styles in the nurses of a selected hospital.

### Materials and Methods

The present cross-sectional study was conducted from July to August 2022. Nurses working in a hospital formed the statistical population of the research. The chosen hospital was a public and referral Corona hospital in Yazd province. The inclusion criteria included age under 50 years and work experience of more than six months. On the other hand, nurses with a history of taking antidepressants and psychotropic drugs and people with family problems were excluded from the study. The sample size was determined using formula 1. Considering  $\alpha=0.05$ ,  $\beta=0.2$ , and  $r=0.278$ , the sample size was determined equal to 100. The parameter values were estimated using a pilot sample ( $n=15$ ). This study employed the available sampling method to include 100 qualified nurses from the relevant hospital.

$$n = \left( \frac{z_{1-\frac{\alpha}{2}} + z_{1-\beta}}{0.5 \ln \left( \frac{1+r}{1-r} \right)} \right)^2 + 3 \quad (1)$$

Considering the special conditions of the hospital during

the COVID-19 pandemic, the goals and methods were explained to the supervisors. Then, the questionnaires were given to them, and the completed questionnaires were referred after 2-3 days.

### Data Collection Tools

#### Demographic Questionnaire

This questionnaire was prepared to collect information such as age, work experience, gender, and marital status.

#### Corona Disease Anxiety Scale Questionnaire

This questionnaire, which was designed by Alipour et al in Iran,<sup>17</sup> was used to assess COVID-19 anxiety in nurses. It has 18 questions and a Likert-type scoring method, thus for each question, four options are considered from never (with a score of 0) to always (with a score of 3). The minimum and maximum scores of the entire questionnaire equal 0 and 54, respectively, and a higher score indicates more COVID-19 anxiety in a person.<sup>17,18</sup> The content validity and reliability of this questionnaire were confirmed in the study of Alipour et al.<sup>17</sup> In the present study, Cronbach's alpha coefficient of the entire questionnaire was 0.91.

#### Kessler Questionnaire (K10)

This questionnaire was presented by Kessler et al to evaluate psychological distress in people. It has ten questions and a Likert-type scoring method; accordingly, for each question, five options are considered from never (with a score of 0) to always (with a score of 4). Its minimum and maximum scores are 0 and 40, respectively, and higher scores represent more psychological distress.<sup>19</sup> The construct validity and reliability of the Persian version of this questionnaire were confirmed in the study of Yaghubi.<sup>20</sup> In the present study, Cronbach's alpha coefficient of this questionnaire was equal to 0.85.

#### Decision-making Styles Questionnaire

Scott and Bruce first presented this questionnaire in 1995.<sup>21</sup> It has 25 questions, and the decision-making style of people is examined in five rational styles (rational, intuitive, dependent, avoidant, and spontaneous). In the rational decision-making style, a person looks for solutions and attempts to choose the best and most logical option. Intuitive style is based on inner feelings and experiences. In the dependent style, a person depends on the support and guidance of others to make decisions. Spontaneous style is mentioned to make decisions in emergencies and in the shortest possible time. In the avoidance style, a person somehow avoids and postpones decision-making. This questionnaire is scored on a 5-point Likert scale (never = 1 to always = 5). The content validity and reliability of the Persian version of this questionnaire have been confirmed previously.<sup>22</sup> In the study by Barati et al, the Cronbach's alpha coefficient of the entire questionnaire was 0.64. Additionally, Cronbach's alpha coefficient of rational,

intuitive, dependent, spontaneous, and avoidant styles was equal to 0.71, 0.62, 0.43, 0.80, and 0.69, respectively.<sup>23</sup>

### Statistical Analysis

This study used frequency, percentage, mean, and standard deviation (SD) to describe the data. The normality of the data was checked using the Kolmogorov-Smirnov test. Median and interquartile range indicators were utilized to describe non-normal data. Mann-Whitney and Spearman correlation tests were applied for statistical analysis. The obtained data were analyzed by SPSS 24.

### Results

In this study, the mean  $\pm$  SD of age and work experience of all nurses were  $32.98 \pm 6.96$  and  $8.99 \pm 6.43$  years, respectively. In addition, 86% and 64% of nurses were married and women, respectively.

Among the five decision-making styles, the intuitive style had the highest score, while the lowest score was related to the avoidant decision-making style. The results of decision-making styles in nurses are presented in Table 1.

In this study, the mean  $\pm$  SD COVID-19 anxiety score was  $9.13 \pm 7.38$ , showing a low level of COVID-19 anxiety. Further, the mean  $\pm$  SD psychological distress score was equal to  $7.67 \pm 5.32$ . Considering the non-normal distribution of COVID-19 anxiety and psychological distress variables, Spearman's correlation test was used to examine their correlation with decision-making styles. The results of examining the relationship between COVID-19 anxiety and decision-making styles are provided in Table 2. Furthermore, the results of examining the relationship between psychological distress and decision-making styles are summarized in Table 3.

The results of the Spearman correlation test revealed that there is a positive and significant relationship between COVID-19 anxiety and spontaneous decision-making ( $P=0.008$ ) and dependent ( $P<0.001$ ) styles (Table 2). Moreover, there was a significant relationship between psychological distress and dependent ( $P=0.005$ ) and avoidant ( $P=0.005$ ) decision-making styles (Table 3). Based on the results of the Spearman correlation test, a positive and significant relationship was found between COVID-19 anxiety and psychological distress

( $P=0.05$ ,  $r=0.19$ ).

The findings of this study represented no significant relationship between demographic variables and decision-making styles. Table 4 presents the results of examining the relationship between demographic variables, anxiety, and psychological distress.

Based on data in Table 4, COVID-19 anxiety ( $P=0.05$ ) and psychological distress ( $P=0.03$ ) increased significantly with age. Additionally, a positive and significant relationship was found between work experience and

**Table 1.** The Results of Investigating Decision-making Styles in Nurses of a Selected Hospital in 2022

Decision-making Styles	Mean $\pm$ SD	Minimum	Maximum
Rational	18.02 $\pm$ 8.22	10	24
Intuitive	18.07 $\pm$ 3.26	9	24
Avoidant	12.67 $\pm$ 4.24	5	25
Spontaneous	13.20 $\pm$ 3.52	5	22
Dependent	15.53 $\pm$ 2.85	8	24

Note. SD: Standard deviation.

**Table 2.** The Relation Between COVID-19 Anxiety and Decision-making Styles in Nurses

Decision-making Styles	COVID-19 Anxiety	
	Correlation coefficient	P Value*
Rational	0.13	0.19
Intuitive	0.06	0.54
Avoidant	0.12	0.25
Spontaneous	0.27	0.008
Dependent	0.37	<0.001

Note. \* Spearman correlation test.

**Table 3.** The Relation Between Psychological Distress and Decision-making Styles in Nurses

Decision-making Styles	Psychological Distress	
	Correlation coefficient	P Value*
Rational	- 0.15	0.15
Intuitive	- 0.18	0.07
Avoidant	0.29	0.005
Spontaneous	0.05	0.62
Dependent	0.29	0.005

Note. \* Spearman correlation test.

**Table 4.** Comparison of the Mean COVID-19 Anxiety and Psychological Distress of Nurses According to Demographic Variables

Variables	Level	COVID-19 Anxiety Median (IQR)	P Value*	Psychological Distress Median (IQR)	P Value*
Gender	Men	7.50 (8)	0.58	5 (10)	0.30
	Women	9 (10)		7 (8)	
Marital status	Single	7 (7)	0.46	3.5 (8)	0.17
	Married	8 (8)		7 (8)	
Age (y)	$\leq 37$	7 (8)	0.05	6 (7)	0.03
	< 37	10 (6)		9 (10)	
Work experience (y)	$\leq 10$	8 (9)	0.32	6 (7)	0.004
	< 10	10 (7)		10 (9)	

Note. IQR: Interquartile range. \*Mann-Whitney

psychological distress ( $P=0.004$ ).

### Discussion

The present study was conducted to investigate the relationship between COVID-19 anxiety, psychological distress, and decision-making styles of nurses. The findings confirmed a positive and significant relationship between COVID-19 anxiety and psychological distress. A positive and significant association was also found between COVID-19 anxiety and dependent and spontaneous decision-making styles. Similarly, there was a positive and significant association between the psychological distress score and dependent and avoidant decision-making styles.

Making the right decision in an emergency is essential because any wrong decision may have adverse consequences. Researchers believe that stress and anxiety may harm people's decision-making and performance. In this study, the increase in anxiety could be effective on the decision-making styles of nurses in such a way that the rise in the anxiety score was significantly associated with the increase in the spontaneous and dependent decision-making styles. Thus, anxious people relied more on the support and guidance of others in making decisions or were in a rush and urgency in making decisions. Some researchers indicate that psychological consequences in people cause a disturbance in their cognitive performance, forcing them to make quick decisions without logical evaluation.<sup>24</sup> The results of Polat et al demonstrated that anxiety has a significant negative effect on independence in decision-making and can cause indecision in nurses. They also reported a positive relationship between people's age and intuitive and rational decision-making styles; thus, nurses with experience making decisions in critical situations are more independent and ask for help and support from others less than.<sup>13</sup> Maner et al believed that the increase in anxiety in people can lead to a decrease in risk acceptance and an increase in the avoidance of decision-making (avoidance style)<sup>25</sup>; nonetheless, no relationship was not observed in this respect in the present study.

Researchers believe that job pressure and tensions among health workers play a significant role in the occurrence of physical and psychological consequences. The occupational nature of health workers is such that it makes them susceptible to psychological effects such as anxiety and burnout. The results of studies have shown that constant stress and anxiety can be associated with the appearance of job burnout symptoms. A study reported that job stress in nurses is significantly related to job burnout and their general health.<sup>26</sup> The findings of this study demonstrated that increased COVID-19 anxiety is associated with more unfavorable psychological distress in nurses. The results of a study in China revealed that nurses are exposed to high anxiety and depression during the outbreak of the COVID-19 disease.<sup>27</sup> Mousavi et al reported a positive and significant correlation between psychological symptoms such as stress, anxiety, and depression with job burnout in nurses,<sup>28</sup> which conforms to the results of

the present study. In a study, Fallah et al investigated the relationship between COVID-19 anxiety and depression, anxiety, and stress scale (DASS components) in nurses and administrative staff of a hospital. Their findings showed no significant relationship between COVID-19 anxiety and DASS components,<sup>29</sup> which contradicts the results of the present study. Barzgar et al found that occupational stress in nurses can significantly affect their job burnout.<sup>30</sup> They reported a significant relationship between the age and stress of nurses, which is in line with the results of the present study. These contradictory results can be due to the difference in the study population and the time of the study. Nurses' familiarity with the nature of the disease over time, the implementation of the vaccination program, and the state of the disease in countries and cities are among the factors that can affect the results of studies.<sup>29</sup> Nevertheless, considering the negative impact of anxiety on the mental health and job performance of nurses, it is necessary to take necessary measures to reduce anxiety in nurses and improve their mental health.

In this study, it was found that the psychological distress score in nurses is positively and significantly related to the avoidant and dependent decision-making styles, thus nurses with more unfavorable psychological distress are more dependent on the support of others in making decisions or postponing decisions. As mentioned earlier, constant anxiety can be associated with symptoms such as job burnout. Michailidis and Banks concluded that burnout in employees has a significant correlation with the avoidance of decision-making, which is in conformity with the results of the current study. It is predicted that people with a low level of mental health are emotionally and cognitively distant from work and avoid making more decisions to deal with work pressure.<sup>24</sup>

People's personality traits can also be effective in psychological factors and decision-making styles. Dilawar et al showed that job stress is negatively related to rational and intuitive decision-making styles in people with low emotional intelligence. However, this relationship is positive in people with high emotional intelligence. Moreover, their results revealed that job stress has a positive and significant relationship with avoidant and dependent decision-making styles in people with low emotional intelligence. Conversely, this relationship was negative in people with high emotional intelligence.<sup>31</sup> According to the mentioned cases, the presentation of contradictory results in different studies can be caused by the difference in the studied population and their personality characteristics.

The present study has some limitations that can affect the results. The present study is cross-sectional, and its results may not be confirmed in a longitudinal study. Furthermore, the present study was conducted in a selected hospital in Yazd province. The personality traits of nurses were not investigated. Conducting longitudinal studies can better determine the relationships between variables. To clarify the exact relationships of the variables, conducting more studies in other hospitals in Iran and the

world is necessary. Additionally, it is suggested that future studies should be performed by considering personality variables such as introversion and extroversion.

### Conclusion

Overall, a positive correlation was found between COVID-19 anxiety in nurses and spontaneous and dependent decision-making styles. In addition, psychological distress was significantly related to avoidant and dependent decision-making styles. The findings of this study demonstrated that nurses' mental health status can influence their decision-making. Considering the importance of mental health in nurses' personal and work lives, reducing anxiety and improving their mental health are recommended, and holding mental health training workshops and increasing social support can be effective.

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### Authors' Contribution

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### Competing Interests

The authors declare that there is no conflict of interests.

### Ethical Approval

We explained the objectives and the method to the participants through supervisors, and nurses were assured that their information and details would remain confidential. Further, informed consent was obtained from all nurses. The ethical protocol of the study was approved at Yazd Shahid Sadoughi University of Medical Sciences with code IR.SSU.SPH.REC.1401.043.

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