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The impact of psychological factors on bereavement among frontline nurses fighting Covid-19

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ABSTRACT

The COVID-19 pandemic has considerably changed the workplace and social relationships of nurses. As potential factors, uncertainty, stigma, and exposure of nurses' families to risk have disturbed the process of providing healthcare services for patients infected by COVID-19. Accordingly, this study aimed at determining the impact of psychological factors on stigma among frontline nurses fighting COVID-19. The extant paper was carried out based on the descriptive-analytical method for April-June 2020. A total of 312 nurses working in educational-medical centers in Ardabil, Iran, were selected using the census method to participate in this research. To collect data, demographic features, stigma, mental health, perceived stress, and hardiness questionnaires were used. The collected data were analyzed using statistical correlation tests, multivariate regression, and descriptive tests through SPSS v.22 Software. The mean score of stigma in nurses equaled 28.36 ± 10.55. Results of the correlation coefficient showed a positive relationship between the mean score of stigma and stress ($P \leq 0.01$) as well as the negative relationship between mental health and hardiness ($P \leq 0.01$). Multivariate regression analysis indicated that mental health could be the predictor of stigma. Therefore, these factors should be identified and controlled to mitigate stigma under such critical circumstances.

1. Introduction

The world faced a phenomenon in the late 2019 when a viral disease spread in Wuhan, China, and led to intense fear and serious concern for all people. A novel and genetically altered virus of the Coronavirus family called SARS-COV-2 was the causative agent for the new diseases named COVID-19 (Zhu et al., 2020). This virus spread rapidly all around the world due to its potential outbreak then infected all of the world countries such as Iran within a short period of four months (The Lancet Infectious Diseases, 2020; Zangrillo et al., 2020). On March 11, 2020, the World Health Organization (WHO) announced the COVID-19 pandemic (WHO, 2020b).

It is known that psychological factors play an important role in how people deal with the threat of infection and thereby the damage caused, so in the management of any infectious disease, including covid-19 psychological factors need to be taken into account (Cullen et al., 2020). They refer to thoughts, feelings, and other cognitive features that affect the attitude, behavior, and functions of the human mind. These factors can affect a person's way of thinking and his decisions and relationships in daily life. Psychological factors can be positive such as happiness, affect and vitality, or negative such as anxiety, perceived stress and depressive symptoms (Long, 2013).

Covid-19 front-line caregivers are prone to "a variety of illnesses", complications and psychiatric illness due to the risk of exposure to the virus Also there are concerns about infection and caring for the loved ones, lack of personal protective equipment (PPE), longer working hours and conflicts (McGowan et al., 2020). Loss of appetite, fatigue, physical loss, sleep disturbance, irritability, inattention, numbness, fear and despair are but a few (Young et al., 2021). According to experiences of nurses in previous epidemics caused by the other types of Coronavirus such as MERS and SARS, healthcare staff especially nurses report a high level of fear of possible infection risk for themselves and their families. Many nurses are not willing to work during a disease outbreak due to possible infection and social stress. During pandemics, nurses indicate a high rate of psychological dysfunction symptoms such as stigma, stress, anxiety, fear and depression that may affect the performance quality and

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services provided by them (Kim & Choi, 2016).

In epidemics, stigma refers to the labeling, discriminatory attitude, or loss of care for the exposed or affected individuals (WHO, 2020a). Stigma may lead to behavioral and mental disorders with adverse effects on patients, physicians, nurses, and their families (Jahangasht, 2020). The stigmatized persons may experience discriminatory behaviors such as isolation, refusal to service provision, harassment and coercion (Overholt et al., 2018). Stigma is associated with violence against healthcare workers: more than 200 attacks on healthcare workers during the COVID-19 pandemic were reported by 19 May 2020 (Bagcchi, 2020). Evidence shows that stigma associated with COVID-19 is a major source of mental distress such as stress, anxiety and depression among the health workers. Lessons from previous outbreaks such and MERS and Ebola suggest that stigma tends to persist during and after an epidemic among healthcare workers (Peprah and Gyasi, 2020). Korean nurses who provided care for MERS-COV-infected patients were distanced from their important relatives such as family or friends and were banned from using elevators in their apartments. Also, their children were not allowed to attend schools and kindergartens (Park et al., 2018). In Mexico, doctors and nurses used a bicycle because they had limited access to public transportation and experienced physical assault. Similarly, it was reported in Malawi that healthcare workers were banned from using public transportation, were insulted and attacked, and were evicted from their rental apartments. In India, media reports showed that medical staff working with COVID-19-infected patients, experienced social insult and harassment. Moreover, they were asked to leave their rental apartments and faced attacks when doing their duties (Bagcchi, 2020). However, there have been various stigma experiences among healthcare workers in different countries; for instance, there is not any report of stigma during COVID-19 in the UK but medical employees have been appreciated because of their efforts during the pandemic (Duncan, 2020). Covid-19 frontline personnel experience mental health disorders following stigma, and mental health problems such as anxiety, depression, insomnia and stress have been observed in this population (Zolnikov & Furio, 2020).

Mental health includes our emotional, mental and social well-being, which affects the way we think, feel and act. It helps determine stress management, communication with others, and healthy choices, and is important at every stage of life, from childhood and adolescence to adulthood (Learn About Mental Health - Mental Health - CDC, n.d.). Exposure to negative incidents is usually accompanied by negative thoughts and feelings that may have negative effects on mental health (Duncan, 2020). The current studies on Chinese healthcare workers in the case of COVD-19 have highlighted the severe impact of this pandemic on the mental health of doctors and nurses. Some studies focusing on the analysis of stress in healthcare workers coping with COVID-19 have shown a high rate of depression, anxiety, insomnia, and distress among healthcare workers related to stressful experience (Lai et al., 2020; Zhu et al., 2020). Psychological variables such as Perceived Social Support and low self-confidence may lead to the perceived stress among healthcare workers (Beck, 2011). During acute health crises, caregivers express high pressure leading to a more stressful career. There is an increasing number of patients who need medical care which imposes more stress and pressure on medical resources (Galbraith et al., 2020). Excessive work and stress-related symptoms make health professionals particularly vulnerable to psychological distress, which increases the risk of developing psychiatric disorders (Kang et al., 2020). Mental hardiness and resilience can mitigate tensions and adverse effects of life (Souri & Hejazi, 2014).

Individual resilience and social-organizational support are introduced as vital protective factors against nurses' problems and stress, helping them to maintain their mental health (Kim & Park, 2017; Labrague et al., 2018). Leontiev considers the phenomenon of hardiness in the context of personal potential and defines hardiness as an integrated individual characteristic of the responsibility of success in overcoming various problems in one's life (Vasilievna & Vladimirovna, 2020). Hardiness is a flexibility factor that can protect a person from the negative consequences of unfortunate life events (Vagni et al., 2020). In fact, hardiness should be considered as a stress management strategy and a way to adapt to changed or uncertain situations (Vasilievna & Vladimirovna, 2020). Psychological hardiness is defined as a combination of attitude and beliefs allowing individuals to do hard and strategic activities when facing stressful and difficult situations to match themselves with strict conditions (Nasser Hassan et al., 2017). Studies show that resilient nurses have better mental health; besides, resilient and hardworking healthcare workers benefit from more psychological well-being (Gito et al., 2013).

Many countries worldwide have faced a health challenge due to the rapid outbreak of COVID-19 and the high death rate caused by this virus. Major factors affecting the health threat of caregivers include increased workload and working hours related to the rising number of infected patients, fear of infection or infection-caused death and stigma. It is hard for nurses to work under COVID-19 associated stressful conditions, together with stigma intensifying their mental stress (Makino et al., 2020). It will be important to identify and support health care workers who are struggling with the epidemic. Communities around the world have counted on their healthcare staff to meet the medical challenges posed by COVID-19. Health care workers are at the forefront who put themselves at risk for the sake of others. Yet, these health workers themselves are at a great risk of stress-related Health care providers need to be able to count on the health systems they work on to protect their mental health as well as their medical health. Providing mental health support to health care workers is an essential part of the overall mobilization of health care systems to combat COVID-19. During this pandemic, as in everyday life, there will be no health without mental health. The current study was conducted to determine the effect of psychological components of stigma among frontline nurses fighting COVID-19 in Ardabil, Iran. symptoms and even persistent problems with self-regulation (Krystal & McNeil, 2020).

2. Method

This was a descriptive-analytical study carried out for the April-June 2020 period during the COVID-19 pandemic in Ardabil, Iran. The statistical population of the study comprised nurses working in hospitals providing service for patients with COVID-19. Following ethical considerations, online questionnaires were sent to 488 nurses who met inclusion criteria. Inclusion criteria was comprised of clinical work experience for more than six months and a tendency to participate in the study. The incomplete questionnaires and nurses working in the wards that did not hospitalize corona-infected patients were excluded. Finally, 312 nurses who were caregivers of patients with COVID-19 filled out the questionnaires. Participants were briefed on confidentiality, informed consent to complete questionnaires and exclusion conditions.

2.1. Ethical considerations:

This study is approved with an ethical code of (IR.ARUMS.REC.1399.076) by the Ethics Committee of Ardabil University of Medical Sciences. After obtaining primary permissions, the researchers participated in various work shifts in various work environments. Before distributing questionnaires for participants, informed consent for the volunteer participation was obtained. The study also adhered to all ethical principles throughout the research period. The investigator also informed the respondents on using the study data and findings for research purposes only. Confidentiality, anonymity, and rights of the participants were fully ensured throughout the study period.

2.2. Instruments

Data were collected from demographic-professional features, the Stigma Scale, the mental dimension of quality of life or Mental

Component Summary (MCS), the Perceived Stress Scale, and the Hardiness Questionnaire. The demographic-professional features form comprised of age, gender, marital status, education level, professional situation, work experience, and employment status.

2.3. Stigma Scale

The stigma scale measures the stigma perceived by frontline nurses fighting COVID-19 during the corona pandemic. This scale was used in South Korea to measure the stigma rate in nurses during the MERS-COV epidemic. Stigma Scale includes 13 items that are scored at 5-point Likert-scale (0 = strongly disagree-4 = strongly agree). Overall score varied between 0 and 52; the higher the overall score, the higher the stigma perceived by nurses. Park et al. (2018) obtained a value of 0.78 for the Stigma Scale, while the value equaled 0.85 in the present paper.

2.4. Mental component Summary

Health Short Form (SF-36) is a standard tool used to measure health rate implication. This instrument measures the health-related function within two physical and mental components. MCS was employed in this research to evaluate the mental health of nurses. SF-36 scores range from 0 to 100, and higher scores indicate a better mental health situation. MCS is composed of four subscales of general health perceptions (GH), social functioning (SF), role emotional (RE), and mental health (MH). The internal consistency coefficient of Persian Version ranged from 0.77 to 0.9 for MCS subscales (Montazeri et al., 2005). The Cronbach's alpha value of MCS equaled 0.88 in the extant study.

2.5. Perceived stress Scale

This scale was developed by Cohen and colleagues within three 4, 10, 14-item versions to measure the perceived stress. This questionnaire is scored based on a 5-point Likert Scale (0 = never-4 = always). In this research, a 10-item version was used and items 4, 5, 7, 8 were scored reversely. The overall score ranged from 0 to 40. The higher the score, the higher the perceived stress among nurses (Liu et al., 2020). Cronbach's alpha coefficient of this questionnaire was calculated at 0.90 in Iran (Khalili et al., 2017). The extant study obtained Cronbach's alpha of 0.88.

2.6. Dispositional resilience Scale (DRS)

To measure hardiness, a short form of Dispositional Resilience Scale was employed. The main 45-item version of DRS was developed by Barton and then the short 15-item version was designed, which had acceptable validity and reliability. This instrument includes positive and negative items distributed among three subscales including commitment (5 items), control (5 items), and challenge (5 items). The responses are scored using a 4-point Likert Scale (0 = strongly disagree, 3 = strongly agree). Overall scores ranged from 0 to 45; the higher the score, the higher the hardiness (Bartone, 2007). Cronbach's alpha coefficient of the Iranian version equaled 0.81 (Mostaghni & Sarvghad, 2013). This rate equaled 0.88 in the extant paper.

The collected data were analyzed using statistical correlation tests, multivariate regression, and descriptive tests through SPSS v.22 Software.

3. Results

Overall, 312 nurses participated in this research. The age average of nurses was 23.53 ± 6.46, and the average clinical experience was about 9.96 ± 6.54. Majority of participants were female (74.0%) married (76.6%) nurses (84.0%) with BSc degree (85.9%) (Table 1).

Overall mean rates of stigma, hardiness, stress, and mental health equaled 28.36, 26.96, 18.28, and 51.93, respectively. Table 2 reports the relevant results.

Table 1
Demographic characteristics of nurses who worked during an COVID 19 outbreak (n = 312).

	Variables	Mean	SD	N	%
Age		23.53	6.46		
Gender	male			81	26.0
	female			231	74.0
Work experience		9.96	6.54		
Marital Status	single			73	23.4
	married			239	76.6
Educational Status	Associate			13	4.2
	Bachelor			268	85.9
	Master or PhD			31	9.9
Work Position	nurse			262	84.0
	staff			27	8.7
	supervisor			23	7.4

Table 2
Descriptive statistics the study variables (n = 312).

Variable	Mean	SD	Min	Max	Range
Stigma	28.36	10.55	00	52	0–52
Hardiness	26.96	4.77	10	41	0–45
Stress	18.28	6.82	00	38	0–40
Mental health	51.93	20.39	7.14	93.57	0–100

According to the obtained Pearson correlation coefficient, there was a positive association between mean scores of stress and stigma in nurses while there was a negative and significant relation between mean scores of mental health, hardiness, and stigma among nurses ($P \leq 0.01$). In Table 3, the results pertained to correlation coefficients are presented.

To find the contribution of each variable in the prediction rate of nurses' stigma, multivariate regression analysis was adopted. Mental health was identified as the robust predictor variable of stigma among nurses (Table 4).

4. Discussion

We needed a high volume of information and data to reduce stigma and tensions associated with COVID-19 during the pandemic in which the number of patients infected by COVID-19 is increasing. Multifaceted strategies should be used to find drivers and facilitators of stigma. It takes a long time to recognize a disease and its pathogenesis. The stigma, however, exists beyond the scientific understanding of diseases at all social levels. This problem appears during the outbreak of infectious diseases because of false information and xenophobia. At this stage of COVID-19, uncontrolled stigma may cause more severe social-mental diseases (Bhattacharya et al., 2020). Therefore, this study aimed to determine the impact of psychological factors on stigma among frontline nurses fighting COVID-19.

The mean score of stigma equaled 28.36 ± 10.55 in this research. Park et al. (2018) reported a mean score of 24.60 ± 11.94 for stigma among nurses during the MERS outbreak in South Korea. Uvais and

Table 3
Correlations among the study variables (n = 312).

Variable	1	2	3	4
Stigma	1.00			
Hardiness	0.265**-	1.00		
Stress	0.329**	**-0.581	1.00	
Mental health	−0.350**	**0.474	**-0.739	1.00

1 = Stigma, 2 = Hardiness, 3 = Stress, 4 Mental health.
*P < 0.05, **P < 0.01.

Table 4
Multiple regression analysis for Stigma.

Variables	B	Std.Error	Beta	T	Sig
(Constant)	37.067	6.184		5.994	0.00
Hardiness	−0.211	0.144	−0.096	−1.469	0.143
Stress	0.166	0.132	0.107	1.260	0.209
Mental health	−0.116	0.041	−0.225	−2.853	0.005

colleagues (Uvais et al., 2020) carried out a study on doctors during the COVID-19 outbreak and obtained a mean score of 28.26 ± 8.76 for stigma. The stigma score equaled 25.33 ± 8.12 in dialysis staff studied by Uvais and colleagues (Uvais et al., 2020). Results show that nurses working in hospitals in Ardabil during the COVID-19 pandemic experienced a higher level of stigma compared to nurses in previous studies. The difference may be rooted in cultural and racial diversities, social behaviors, and knowledge level of people. It is worth mentioning that the high rate of stigma perceived by nurses can be a critical factor for mental health disorders during the COVID-19 pandemic.

Findings indicate a positive and significant relationship between stigma and perceived stress. Moreover, there is a negative association between stigma and mental health. The abovementioned findings are in line with studies conducted during MERS, SARS, and COVID-19 epidemics (Park et al., 2018; Uvais et al., 2020a, 2020b). Park and colleagues (Park et al., 2018) found both direct and indirect (through stress) relationship between stigma and mental health. As frontline responders to patients suffering from COVID-19, nurses are obviously under specific conditions in which they are at risk of diseases and infection that cause mental health disorders such as stress in nurses. Finally, such disorders may increase the perceived stigma among them. Hence, the stressful cases in the workplace should be reduced to boost the mental health of nurses and mitigate their perceived stigma.

According to the results of the Pearson Correlation Coefficient, there was a negative and significant correlation between stigma and hardiness. Park and colleagues (Park et al., 2018) did not find any significant relationship between stigma and hardiness. Results show the higher the psychological hardiness of nurses, the lower their stress, and perceived stigma.

Multiple regression analysis introduced mental health as the predictor component for stigma during the COVID-19 pandemic. Growing evidence suggests that stigma associated with COVID-19 is a major source of mental distress such as stress, anxiety, and depression among frontline health workers, and affects individuals who suffer from mental health. COVID-19-induced stigma can profoundly plunge health workers into isolation. Many countries have suffered from lack of attention to stigma-related psychological and mental health issues (Peprah and Gyasi, 2020). Nurses may have to be socially distanced from their family members, close relatives, and friends due to the rapid spread of the virus. Meanwhile, frontline health workers charged to save and protect lives and society may encounter social distancing and stigmatization for the misconception that they remain carriers of the virus. Stigmatization of frontline health and social workers and volunteers can lead to higher rates of stress and burnout and potentially result in a lack of interest in fighting the outbreak. Stigmatizing people with COVID-19 and health workers means social isolation and could undermine the fight against the pandemic. Stigma is also seen as counterproductive and social injustice and may derail public health strategies and political investments to arrest the pandemic.

5. Research limitations

This study was only conducted on nurses working in educational-medical centers dealing with COVID-19 in Ardabil, Iran; therefore, caution should be taken when generalizing the results to nurses working in other regions. As the statistical population and sample were small and about two-thirds of participants were female, different stigma rates may be found in nurses if the study is carried out in a broader scale. Therefore, it is suggested to conduct further studies on a larger sample that covers a wider range of nurses working in the whole region or country. Moreover, the study can be repeated after the end of the pandemic under stable conditions due to the specific situation of nursing, high stress and workload, fatigue, and limited time for completing questionnaires during the COVID-19 outbreak. In a comparative study, results can be compared because nurses are available in an appropriate place to elaborate on the procedures and to fill out the questionnaires more precisely.

6. Conclusion

The extant study showed a positive and significant association between stigma and stress as well as a negative relationship between stigma, mental health, and hardiness. Results introduced mental health as a predictor factor for stigma during the COVID-19 pandemic. As a health crisis, stigma is a crucial issue for the health system, in need of control. There is a correlation between stigma and the psychological-physical health of health workers. Those workers who experience a high rate of stigma face more severe stress, and more mental diseases consequently. Systematic training and psychoanalysis sessions and consultation can be used as measures to fight the stigma. Hence, health managers can employ these methods to mitigate the stigma experience among nurses. The culture of open communications should be encouraged to create a proper atmosphere in which people and healthcare workers have free speech. On the other hand, sound health training in society can be used as a measure to avoid social harassment of healthcare workers and to reduce stigma. Social attempts can be made as effective activities such as sharing photos of nurses as heroes through social media to encourage nurses and fight perceived stigma among them.

CRediT authorship contribution statement

Islam Azizpour: the concept of study/design, helping to collect data, analysis, interpreting data and preparing a manuscript. Saeid Mehri, Hamed Rezakhani Moghaddam and Alireza Mirzaei: study design, data analysis, monitoring, administrative/technical/material support, final review. Aghil Habibi Soola with a detailed review of the proposal, article design and important reviews for important intellectual content.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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