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Research Article

Emergency methods, moral dilemma and coping styles among frontline nurses: an explorative study during the COVID-19 pandemic

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Background

Coronavirus disease 2019 (COVID-19) pandemic has greatly impacted China, especially the emergency services since 2020. For many, it raises unique ethical dilemmas, including psychological, moral, social, and economic issues, especially among frontline health workers.

Methods

We explored the moral dilemmas of two groups of frontline nurses during the pandemic through online questionnaires and the Corley Moral Distress Scale. We then investigated the effect of proper anti-epidemic emergency measures on alleviating moral dilemmas and improving their coping styles by exploring questions on anti-epidemic measures implemented.

Results

The average score of all the nurses' moral dilemmas was 131.27±14.52. They encountered many moral dilemmas during the pandemic. The frontline nurses' scores indicated more negative coping styles in the first group before systematic preparedness measures were in place.

Conclusions

This study suggests that the "Chinese emergency methods", a set of epidemic preparedness protocols and guidelines may affect the frontline nurses in reducing moral dilemmas and improving their coping styles.

The spread of coronavirus disease 2019 (COVID-19) globally raised unique moral dilemmas given the demands on society from all sectors of life, both nationally and across the globe.[1,2] In many countries, people who can (and cannot) afford health care have different infections and disease outcomes.[1]

The current pandemic outbreak caused a substantial challenge for the health systems, especially the frontline workers.[3–5] In China, the government quickly organized numerous medical workers and mobilized the system to respond to the new threat. While facing the demands of the pandemic, including increased patient loads, workforce shortages, and insufficient infrastructure, supplies and equipment, among many others, frontline workers experienced unprecedented moral dilemmas. From the beginning of the pandemic, the Chinese government implemented a series of measures to deal with the adverse effects the pandemic outbreak may bring to our society and medical staff.[6]

This study therefore explored the moral dilemmas and coping styles of the frontline nurses who encountered moral problems. We also investigated the role of the Chinese emergency methods in reducing the moral dilemma and improving the coping styles of frontline nurses.

METHODS

We collected the data between September 2020 and November 2020 using an online questionnaire.[7,8] We also conducted face-face interview with some nurses. The study was approved by the Medical ethics review group, the Department of Science and Education in Shandong Provincial Hospital, Shandong, China.

The moral dilemma of the nurses was evaluated using the scale designed by Corley.[7] The scale is divided into three dimensions, personal responsibility dimension, demand of patients dimension and hide the fact in the process

of nursing work dimension. The scale consists of 32 items in a 7-point Likert format. A higher score reflects a higher level of normal distress.

The coping styles of the nurses were evaluated using the Coping Style Questionnaire (CSQ) designed by Xiao in 1997, which is composed of six dimensions, a total of 62 items, including problem-solving (12 items), remorse (10 items), help (10 items), fantasy (10 items), retreat (11 items) and rationalization (11 items).[8] The questionnaire has good reliability and validity.[9] Method of scoring: each item has two answers, "yes" and "no". If the scores of problem-solving or help dimension are higher, this represents a mature coping style. If the rationalization dimension scores are higher, this represents a hybrid coping style. If the retreat, fantasy, or remorse dimensions get the highest score, that represents an immature coping style.

In the questionnaire, we also listed some intervention methods the Chinese government adopted to determine whether the intervention methods can affect the nurses' moral dilemmas and coping styles. (e.g., Are the medical resources sufficient for clinical treatment? Is there a place for the staff to rest and have leisure activities? Are there any psychological counsellors who visit the rest area to listen to difficulties or stories encountered by staff at work and provide support accordingly? Are there rules on using and managing medical resources to reduce worry? Is there pre-job training? Are the protective measures effective? Are there any people responsible for the medical and daily affairs? If yes, are they competent? Do you often get the pandemic information through the media (and is the role of the news a positive or negative?)

We applied SPSS 22 computer software to compare the differences in moral dilemmas and coping styles between group 1 and group 2. The differences were compared using a t-test. Statistical significance was taken at $P<0.05$

RESULTS

SCORES OF NURSES' MORAL DILEMMA

In total, 120 invites were sent, and 106 nurses responded, yielding an 88.3% response rate. The responses were then split into two groups. The first one corresponded to the situation when there were no systematic anti-pandemic measures (n=51), originating from Wuhan. The second group consisted of 55 responses from Hubei and Shandong Province when the anti-pandemic measures were systematically implemented (**Table 1**). The average score of all the nurses' moral dilemmas was 131.27±14.52, which indicated severe dilemmas encountered during the pandemic. The scores of all the nurses' demands of patients dimensions hide the fact in the process of nursing work dimension and personal responsibility dimension were 17.83±4.72, 10.31±2.63 and 103.13±12.26, respectively (**Table 2**). In the group 1, the scores of demand of patients dimension hide the fact in the process of nursing work dimension and personal responsibility dimension are 140.88±10.11, 19.29±4.17, 11.18±2.36 and 110.41±9.59, respectively. In group2 the scores of demand of patients dimension, hide the fact in the process of nursing work dimension and personal responsibility dimension are 122.36±12.13, 16.47±4.84, 9.51±2.64 and 96.38±10.51, respectively. The t-test results of the two groups were $P<0.001$ (moral dilemma), $P<0.001$ (personal responsibility dimension), $P=0.002$ (demand of patients dimension), and $P=0.001$ (hide the fact in the process of nursing work dimension; **Table 3**).

Table 1. Characteristics of the 106 frontline nurses

characteristics	No. of nurses	Ratio(%)
Gender		
male	35	33.0
female	71	67.0
Age		
≤30	57	54.0
>30	49	46.0
Education degree		
College degree	59	56.0
Bachelor degree	47	44.0
Work time		
1-5 years	55	52.0
>5years	51	48.0
Anti-pandemic group		
Group1	51	51.0
Group2	55	49.0
Total	106	100

SCORES OF NURSES' COPING STYLES

The Chinese government's measures had a positive impact on front-line nurses' coping styles. The scores of all the nurses' remorse, help, fantasy, retreat, rationalization and problem-solving dimensions were 0.249±0.151, 0.622±0.176, 0.262±0.129, 0.277±0.135, 0.448±0.159 and 0.693±0.187, respectively (**Table 4**). In group 1, the scores of remorse, help, fantasy, retreat, rationalization and problem-solving dimensions were 0.310±0.155, 0.584±0.172, 0.296±0.120, 0.319±0.130, 0.418±0.137 and 0.568±0.147, respectively. In group 2, the scores of remorse, help, fantasy, retreat, rationalization and problem-solving dimensions were 0.193±0.123, 0.656±0.174, 0.231±0.130, 0.238±0.129, 0.476±0.175 and 0.808±0.139, respectively. The t-test results of the two groups were P<0.001 (remorse), $P=0.035$ (help), $P=0.009$ (fantasy), $P=0.002$ (retreat), $P=0.060$ (rationalization), and $P<0.001$ (problem-solving), respectively (**Table 5**).

DISCUSSION

The COVID-19 pandemic has presented extraordinary challenges. The volume of admissions has placed unprecedented strain on the government. Inadequate supplies, including mechanical ventilators, personal protective equipment, and insufficient staff, create a Sisyphean task for the government.[4,5,9]

The pandemic requires resource allocation decisions.[10,11] Decision-making tools need to be developed to ensure that no person receives better or worse treatment due to his or her social status. Facing the outbreak of this

pandemic, the treatment for coronavirus pneumonia patients is nearly free in China. Because people do not need to worry about the cost of medical treatment, many patients with early symptoms received timely treatment and saved their lives.

This study showed that all frontline nurses had faced severe moral dilemmas during the pandemic. In that situation, they faced an unprecedented workload and much more severe or terminal patients nearing death. They were also in danger of infection.[12] They also face challenges from the allocation of scarce resources that can eventually cause moral distress and may affect one's mental health. In the "lockdown" of Wuhan and many other cities, everybody must deal with restrictions on freedom of movement. There will be questions about when and how it will all end?

The data in our study revealed that the frontline nurses in this pandemic suffered severe moral dilemmas and stress. The degree of the nurses' moral dilemma is more serious in group 1 than in group 2. The coping styles in group 2 are better improved than those in group 1.

Through our questionnaire survey, we found that the relief of nurses' moral dilemma and the improvement of coping style are closely related to the following government measures: (i) municipal management and guidance (residents take the residential area as a unit, and the people in charge of the area are responsible for entry and exit management, so as to realize the transparent flow of personnel in the residential unit to avoid the entry of potential infected people, thus reducing the infection rate between communities); (ii) media publicity (the media reports the situation of the pandemic including the exact number of new cases, confirmed cases, cured cases and deaths in real-time, so that the people can keep abreast of the epidemic situation, avoid unnecessary panic, and residents and medical staff can keep abreast of the epidemic situation and ease concerns); (iii) optimization of medical treatment channels and simplification of medical treatment procedures (designated medical hospitals have been set up to simplify and optimize admission procedures to ensure that patients receive treatment as soon as possible. Measures were taken to avoid redundant medical procedures and to reduce the burden of triage and treatment of medical staff). These included supply of medical resources and daily necessities (the transportation department and the traffic police department will coordinate, and the materials from different provinces will be delivered to communities and hospitals promptly), and coordination among hospital departments (hospital departments work together and put patient treatment first). In addition, there was psychological counselling for medical staff (set up special psychological counselling courses and psychological counselling offices for medical staff, and carry out one-to-one psychological counselling when necessary to relieve the psychological anxiety of front-line medical staff).

Moreover,from the results, we identified several interesting topics. The ideal places for rest and recreation were insufficient at the beginning of the pandemic, but it was not a critical influencing factor. The psychological counsellors played a vital role in improving the nurses' moral dilemmas and coping styles. The pre-job training is necessary to ease the anxiety about the disease. The detailed rules for managing medical resources and treatment are effective methods to relieve anxiety and improve coping styles at work. The information from media through our government and the inspiring content is favourable to the nurses. Experienced leadership can further reduce anxiety. The governmental efforts to provide enough medical supplies and vaccines play a vital role. Therefore, this study suggests that we should carry out special training related to epidemiological knowledge and preventive and therapeutic measures for medical and nursing staff before epidemiological emergencies to reduce the occupational anxiety that the outbreak may cause.

Due to the peculiarity of the epidemic, there is no control group in this study, with this introducing a possibility of bias. We also note the limited number of nurses in this study (106 in total), which will need to be increased substantially in subsequent studies to ensure accuracy.

In summary, global public health emergencies like COVID-19 change the usual disease treatment paradigm – a new disease with only scarce information about it.[13] The frontline nurses have an essential role in the treatment of the disease. Serious moral dilemmas and poor coping styles will adversely affect the fight against the pandemic. In such cases, the government or the provider teams can lean on the findings and lessons of this study, which can perhaps translate to positive impacts in fight against the pandemic.

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AUTHORSHIP CONTRIBUTIONS

All authors contributed to the conception, design and writing of the study.

COMPETING INTERESTS

The authors completed the Unified Competing Interest form at https://www.icmje.org/disclosure-of-interest/ (available upon request from the corresponding author) and declare no conflicts of interest.

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Table 2. Total score and dimension scores of moral dilemma (N=106

	Demand of patients	Hide the fact	personal responsibility	Total score of moral dilemma
Mean	17.8302	10.3113	103.1321	131.2736
N	106	106	106	106
Std. Deviation	4.72374	2.63444	12.25606	14.51930

Table 3. Independent samples test for moral dilemma

		t-test for equality of means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Demand of patients	Equal variances assumed	3.205	104	.002	2.82139	.88023	1.07587	4.56691
	Equal variances not assumed	3.223	103.458	.002	2.82139	.87528	1.08557	4.55721
Hide the fact	Equal variances assumed	3.417	104	.001	1.66738	.48791	.69983	2.63493
	Equal variances not assumed	3.432	103.885	.001	1.66738	.48589	.70383	2.63093
Personal responsibility	Equal variances assumed	7.161	104	.000	14.02995	1.95916	10.14485	17.91504
	Equal variances not assumed	7.186	103.974	.000	14.02995	1.95233	10.15840	17.90149
Total score of moral dilemma	Equal variances assumed	8.501	104	.000	18.51872	2.17842	14.19883	22.83861
	Equal variances not assumed	8.560	102.856	.000	18.51872	2.16348	14.22789	22.80955

Table 4. Total score and dimension scores of coping styles (N=106

	Remorse	Help	Fantasy	Retreat	Rationalization	Problem solving
Mean	.2491	.6217	.2623	.2772	.4476	.6925
N	106	106	106	106	106	106
Std. Deviation	.15071	.17621	.12906	.13535	.15941	.18650

Table 5. Independent samples test for coping styles

		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Remorse	Equal variances assumed	4.319	104	.000	.11708	.02711	.06332	.17083
	Equal variances not assumed	4.282	95.266	.000	.11708	.02734	.06279	.17136
Help	Equal variances assumed	-2.139	104	.035	-.07205	.03369	-.13885	-.00525
	Equal variances not assumed	-2.140	103.530	.035	-.07205	.03367	-.13883	-.00527
Fantasy	Equal variances assumed	2.672	104	.009	.06517	.02439	.01681	.11353
	Equal variances not assumed	2.681	103.995	.009	.06517	.02431	.01696	.11338
Retreat	Equal variances assumed	3.214	104	.002	.08103	.02522	.03103	.13104
	Equal variances not assumed	3.212	103.212	.002	.08103	.02523	.03100	.13106
Rationalization	Equal variances assumed	-1.901	104	.060	-.05819	.03061	-.11888	.00251
	Equal variances not assumed	-1.918	101.224	.058	-.05819	.03033	-.11835	.00198
Problem solving	Equal variances assumed	-8.632	104	.000	-.24002	.02781	-.29516	-.18488
	Equal variances not assumed	-8.613	102.175	.000	-.24002	.02787	-.29529	-.18475

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