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PERCEIVED COPING MECHANISM AMONG REGISTERED NURSES TOWARDS COVID-19 RISK IN A SELECTED PRIVATE HOSPITAL, MELAKA, MALAYSIA

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ABSTRACT

This study aims to identify coping mechanisms, assess the association between registered nurses' demographic data and Covid-19 risk, and determine the level of knowledge on the Covid-19 virus among registered nurses in a private hospital in Melaka. Using a descriptive study design, a cross-sectional survey was conducted in the mentioned hospital through simple random sampling, ensuring homogeneity among the 101 participants who met the inclusion criteria. While primarily quantitative, this research design can also incorporate qualitative elements for descriptive purposes. The study revealed that a substantial proportion (77.9%) of registered nurses in the Melaka private hospital exhibited an acceptable level of knowledge about Covid-19. However, over half (64.4%) had not received any related training, contributing to a lack of confidence (56.4%) in managing the pandemic in their respective units. Coping mechanisms were assessed, indicating positive thinking among nurses, with a mean score above 2.7 (M=2.912, SD=0.479). The study underscores the importance of knowledge in boosting nurses' confidence in handling

the Covid-19 pandemic. Training is crucial for continuous learning, especially given the evolving nature of viruses. Nurses equipped with knowledge demonstrate positive coping mechanisms, reinforcing the need for ongoing educational initiatives to enhance preparedness in the face of emerging health challenges like Covid-19.

Keywords: *Cross-sectional, Perceived coping mechanism, Registered nurse, Covid-19, Private hospital.*

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1. INTRODUCTION

Pandemics are global occurrences involving widespread transmission of infectious diseases, causing significant social, economic disruption, and substantial fatalities (Anzai et al., 2020; Madhav et al., 2017). Healthcare professionals, particularly those in direct patient care roles such as doctors, nurses, chiropractors, and clinical social workers, face heightened risks in such scenarios like the current COVID-19 pandemic. Identifying effective stress coping strategies for healthcare professionals becomes crucial amid these challenges. Among healthcare practitioners, nurses, due to the nature of their work, spend substantial time with patients, and the demand on registered nurses has surged, amplifying stress levels (Lin et al., 2015). Nurses, often in close proximity to

patients, bear an increased risk of exposure to viruses, making it imperative to explore coping mechanisms (Hope et al., 2011; Corman et al., 2020).

Coping encompasses the ideas and actions employed to manage internal and external demands amid stressful events (Folkman, 2010). Nurses, while embracing their professional duties during challenging and hazardous times, perceive coping as integral to their role and professional commitment (Kim, 2018). Coping, as suggested by Zeidner et al. (1996), may be more critical than the stress level itself. Nurses' dedication to patient care, even amidst potential infection risks, underscores the need to investigate their well-being for productivity, retention, and the delivery of safe, quality care (Bellagamba et al., 2015). Ensuring healthcare practitioners take precautions in handling COVID-19 cases is vital to curb its spread and protect both healthcare providers and patients.

Certain demographic factors, including being female and a younger healthcare worker, contribute to a lower likelihood of accepting occupational risks compared to doctors and older individuals (Koh et al., 2012). As information about COVID-19 continually evolves, the lack of studies on nurses' compliance and practices toward infection control during this outbreak is evident. Nurses, being at the forefront of healthcare responses, must have a strong commitment to their roles. Conducting this study aims to guide nurses in navigating their daily practices amidst COVID-19 challenges. Previous pandemics have shown that healthcare workers, including nurses, could adapt by controlling emotions and adjusting to the situation (Shih et al., 2009).

2. REVIEW OF LITERATURE

The alterations in patients' perception of nursing care quality, coupled with changes in nursing practices, have contributed to additional stress for nurses (Bellagamba et al., 2015; Huang et al., 2020). The rapid evolution of nursing practices and healthcare objectives has substantially impacted nurses, leading to diminished clinical decision-making abilities and waning interest in the profession, often culminating in intentions to leave (Shang et al., 2014). There is a critical need for research investigating interventions addressing the recurrently present stressors faced by healthcare workers, particularly critical care nurses (Kelly & Lefton, 2017).

The recent COVID-19 pandemic has profoundly impacted nurses globally, with concerns about infecting their families leading some to consider abandoning their profession (McAndrew et al., 2018). Compassion fatigue, burnout, and moral distress in nurses result in symptoms ranging from headaches and anxiety to insomnia and hypertension. Nurses also experience physical, emotional, and relationship changes at home due to stressors from work (Tranter et al., 2016). Coping strategies, such as balancing priorities, flexibility in work hours, and team-building, are crucial in mitigating stress (Chang et al., 2005; Eghbali et al., 2020). Folkman et al. (2010) proposed three coping strategies: problem-focused coping, emotion-focused coping, and meaning-focused coping. To address these challenges, recent studies highlight the importance of nurses engaging in personal self-examination and participating in care programs that provide mechanisms for

learning, responding to feedback, and developing impactful compassion (Ross et al., 2020; Smith et al., 2017).

Healthcare workers (HCWs), especially nurses with direct contact with COVID-19 patients, face heightened exposure to traumatic events, amplifying fears and anxiety (Pappa et al., 2020). Anxiety prevalence among HCWs, particularly nurses, ranges from 15% to 92% due to various stressors, including fear of infection, lack of protective equipment, and uncertainties about institutional support (Alwani et al., 2020; Luo et al., 2020; Zhu et al., 2020; Shanafelt et al., 2020). McEachan et al. (2016) highlight the potential for poor knowledge among health workers regarding prevention measures, increasing the risk of virus spread.

To address nurses' anxiety and fears related to COVID-19, supporting their mental, psychological, and emotional health is crucial through evidence-based measures (Mo et al., 2020). Personal resilience and social and organizational support play vital roles in protecting nurses against adversity and stress, enabling them to endure the burdens imposed by the pandemic (Cooper et al., 2020; Maben & Bridges, 2020).

3. RESEARCH METHODOLOGY

3.1 Design, Sampling and sample size

A descriptive study design was used in this cross-sectional survey among registered nurses towards COVID-19 risk in a selected private hospital in Melaka, Malaysia. Simple random sampling was employed to ensure homogeneity, limiting participation to registered nurses exclusively. This method provides an equal chance of selection. The total population

comprised 160 registered nurses, and RaoSoft recommended a sample size of 114 with a 5% margin error, 95% confidence interval, and 50% response distribution. Accounting for a 10% attrition rate, the final sample size was set at 125. The study achieved an 81% response rate, with 101 questionnaires returned. The subsequent section outlines the total registered nurses participating in the study.

3.2 Research Instrument

The questionnaire comprises three sections: Part A gathers demographic data, including age, gender, marital status, number of children, education level, years working as a registered nurse, current department, and whether infection control training was received. Part B assesses COVID-19 knowledge, utilizing a True/False/Not Sure scale adapted from Zhong et al. (2020), covering clinical presentations (items 1–4), transmission routes (items 5–8), and prevention/control (items 9–13). Each correct response earns 1 point, with a total score ranging from 0 to 13, higher scores indicating better COVID-19 knowledge. Part C adapts Carver's (2013) Cope Inventory, evaluating responses to stress with 20 items divided into positive reinterpretation, active coping, denial, acceptance, and planning. Respondents' express agreement or disagreement on a 5-point Likert scale (0 – strongly disagree to 4 – strongly agree). The instrument is designed to measure nurses' coping strategies during challenging or stressful events, providing insights into their responses to COVID-19 challenges (Carver, 2013).

3.3 Pilot Study, Reliability and Validity

A pilot study involving 30 registered nurses from the same Melaka hospital was conducted. These participants, meeting inclusion criteria, were excluded from the main research study. The instrument underwent content validity assessment by a panel of experts from the selected private hospital. Modifications were made based on feedback from experts, including the Head of the Emergency Department, the Head of the Medical Ward, and the Head of the Operation Theater Ward, to ensure relevance to the local context. Questionnaire reliability was assessed using Cronbach's alpha, a measure of internal consistency. A high reliability coefficient, above 0.7, indicates strong correlation among survey/test items (Tavakol & Dennick, 2011). The obtained Cronbach's alpha score was 0.885, indicating good reliability within the 0.7 to 0.95 range. Specifically, the Cronbach's alpha for 'knowledge on COVID-19 was 0.760, and for 'COPE Inventory,' it was 0.866, as indicated in Table 1. The reliability testing was conducted in Melaka, where the research took place in a selected private hospital.

Table 1. Reliability Analysis (n=30)

Variables	Cronbach's Alpha	No of Items
Knowledge on Covid-19	0.760	9
COPE inventory	0. 866	20

3.4 Data Collection Procedure

Data collection utilized a self-administered questionnaire approved by the Ethics and Research Committees of the International Medical University Joint-Committee and the CEO

of the selected private hospital. Registered nurses meeting inclusion criteria received the questionnaire, consent, and study information forms. Prior to distribution, respondents provided verbal and written consent. Completed questionnaires were collected within 15-20 minutes and sealed in envelopes for confidentiality.

3.5 Ethical Consideration

The study received approval from the International Medical University Joint-Committee on Research and Ethics (IMUJC) with project ID: BN I-2020 (PR-42) on October 22, 2020. Prior to commencement, the Chief Executive Officer of the private hospital granted approval. Participants were briefed on the study's objectives, and their informed consent was obtained. To ensure confidentiality, participants remained anonymous, and their involvement was entirely voluntary.

4. RESULTS

4.1 Demographic Data

A total number of 125 registered nurses (n=125) were recruited in this study with response rate of 81% was achieved. Only 101 questionnaires (n=101) were returned (Table 2).

Table 2. Respondents' socio-demographic data (n=101)

Characteristics	N	Frequency (%)
Age:		
21-30	61	60.4%
31-40	36	35.6%
41 years old and above	4	4%
Gender:		

Male	3	3%
Female	98	97%
Marital Status:		
Single	43	42.6%
Married	57	56.4%
Divorced	1	1%
Widow/Widower	0	0%
Number of children:		
0	56	55.4%
1	18	17.8%
2	16	15.8%
3	10	9.9%
4	1	1%
Level of professional education:		
Diploma in Nursing	74	73.3%
Post-Basic in Nursing	18	17.8%
Bachelor Degree in Nursing	9	8.9%
Working experience:		
1 – 5 years	45	44.6%
6 - 10 years	38	37.6%
10 years and above	18	17.8%
Working department:		
Medical/surgical unit	58	57.4%
Paediatric unit	16	15.8%
ICU/HDU	15	14.9%
Emergency Department (ED)	12	11.9%

The socio-demographic data analyzed include age, gender, marital status, number of children, education level, working experience, and department. Of the respondents, 60.4% were aged 21-30, 97% were female, and 56.4% were married. Regarding children, 55.4% had none, and 73.3% held a Diploma

in Nursing. Work experience distribution was 44.6% for 1-5 years, 37.6% for 6-10 years, and 17.8% for 10 years and above. In departments, 57.4% worked in medical/surgical units, 15.8% in pediatric units, 14.9% in ICU/HDU, and 11.9% in the Emergency Department. The chosen demographic data aimed to explore associations between nurses' characteristics and COVID-19 risks.

Table 3. Total level of knowledge among registered nurses on COVID-19 (n=101)

Knowledge Questions	True	False	Not sure
The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, and body aches.	94 (93.1%)	5 (5%)	2 (2%)
There currently no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection.	96 (95%)	1 (1%)	4 (4%)
Not all persons with COVID-19 will develop to severe cases. Only those who are elderly and have chronic illnesses are more likely to be severe cases.	87 (86.1%)	8 (7.9%)	6 (5.9%)
Eating or touching wild animals would result in the infection by the COVID-19 virus.	24 (23.8%)	47 (46.5%)	30 (29.7%)
Persons with COVID-19 cannot infect the virus to others if they do not have fever.	11 (10.9%)	86 (85.1%)	4 (4%)

The COVID-19 virus spreads via respiratory droplets of infected individuals.	98 (97%)	0	3 (3%)
The COVID-19 virus is an airborne.	69 (68.3%)	15 (14.9%)	17 (16.8%)
Ordinary residents can wear face masks to prevent the infection by the COVID-19 virus.	86 (85.1%)	6 (5.9%)	9 (8.9%)
Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus.	99 (98%)	0	2 (2%)

Table 3 presents the overall knowledge level of registered nurses regarding COVID-19, assessed through nine questions with correct answers highlighted. Correct response rates ranged from 14.9% to 98%, resulting in an aggregate correct answer rate of 77.9%, indicating an acceptable level of COVID-19 knowledge. Notably, 98% recognized the effectiveness of isolating and treating infected individuals to curb the virus spread. Additionally, 97% correctly identified respiratory droplets as a mode of COVID-19 transmission, demonstrating awareness. About 85.1% acknowledged the preventive role of face masks for ordinary residents. For recognizing main symptoms like fever, fatigue, dry cough, and body aches, 93.1% answered correctly. However, 68.3% mistakenly believed in airborne transmission. Only 46.5% correctly understood that eating or touching wild animals does not result in COVID-19 infection. These findings suggest variations in understanding,

particularly regarding less common modes of transmission. The participants, with a mean knowledge score of 1.354 and a standard deviation of ±0.212, demonstrated an acceptable level of COVID-19 knowledge. Notably, 77.9% answered all items correctly.

4.2 COVID-19 training and Confidence level on handling COVID-19 patients

The results reveal that 64.4% of registered nurses did not undergo COVID-19 training, and 56.4% lacked confidence in managing the pandemic in their respective units.

4.3 Coping mechanism with COPE Inventory

Table 4. Mean and standard deviation of total Cope Inventory among registered nurse (n=101)

No	Item	M	SD
1	I try to grow as a person because of Covid-19 risk in clinical area.	2.89	0.811
2	I try to get advice from someone about what to do.	2.93	0.652
3	I concentrate my efforts on doing something about the risk.	3.06	0.705
4	I put my trust in God.	3.33	0.838
5	I discuss my feelings with someone.	2.86	0.813
6	I get used to the idea that it happened in my clinical area.	2.92	0.744
7	I talk to someone to find out more about the situation.	3.00	0.632
8	I daydream about other things other than this.	2.08	0.977

9	I seek god's help.	3.14	0.825
10	I make a plan of action.	3.05	0.684
11	I accept that this has happened and that it can't be changed.	2.44	1.024
12	I try to get emotional support from friends or relatives.	2.78	0.879
13	I look for something good in what is happening.	2.80	0.825
14	I think about how I might best handle the problem.	2.94	0.630
15	I ask people who have had similar experiences what they did.	2.92	0.703
16	I try to find comfort in my religion.	3.09	0.928
17	I learn to live with it.	2.94	0.772
18	I do what has to be done, one step at a time.	2.95	0.623
19	I pray more than usual.	2.89	0.823
20	I learn something from the experience.	3.24	0.680
	Total	**2.912**	**0.479**

(Range: Negative 1.0 - 1.4, Natural 1.5 – 2.6, Positive 2.7 – 4.00)

Table 4 presents the mean and standard deviation of the total COPE Inventory for registered nurses at the selected private hospital in Melaka. The highest mean score is observed in 'I put my trust in God' (M= 3.33, SD=0.838), while the lowest mean score is in 'I daydream about other things other than this' (M=2.08, SD=0.977). Overall, with a mean score above 2.7 (M=2.912, SD=0.479), it indicates that the nurses remain resilient and positive during the COVID-19 pandemic.

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Table 5. Relationship between socio-demographic and coping mechanism among the registered nurses

	Age	Gender	Marital status	Number of children	Level of professional education	Working experience	Working department
Coping mechanism	0.062	0.039*	0.204	0.677	0.921	0.175	0.026*

***p<0.05*

Our findings revealed that there is correlation between gender (p=0.039) and working department (p=0.026) with the coping mechanism towards COVID-19 risk (Table 5). Thus, the null hypothesis is rejected.

5. DISCUSSION

5.1 Knowledge on COVID-19

The COVID-19 outbreak in 2019, marked by symptoms like fever, fatigue, dry cough, and gastrointestinal issues, prompted global concern. The initial confusion between Covid-19 and common pneumonia or tuberculosis highlighted the urgency for accurate information. This study, conducted in a private Melaka hospital with 81% (n=101) registered nurses, revealed acceptable knowledge (77.9%). Comparing this to a study on Ebola virus knowledge among Nigerian secondary school children (Ilesanmi & Alele, 2016), it indicates a moderate knowledge level among registered nurses. Despite their educational backgrounds, including graduate diplomas, undergraduate degrees, and post-basic qualifications, the knowledge level remained at 77.9%. Accurate knowledge about

the causes, consequences, and preventive methods is crucial during infectious disease outbreaks (Piltch-Loeb et al., 2019). Given the severity of the COVID-19 pandemic and its global impact, maintaining a high level of knowledge among healthcare providers, who are at the forefront of patient care, is essential.

5.2 COVID-19 Training and Confidence Levels of the Nurses

The study highlighted a concerning gap in COVID-19 training, with only 35.6% of registered nurses receiving adequate training. This gap impacts the confidence levels of nurses, with only 43.6% feeling confident in handling COVID-19 cases. A similar pattern was observed during the Ebola outbreak in 2015, where poor knowledge among healthcare professionals urged the need for intensive training (Abebe et al., 2016). The importance of training and awareness was further underscored by a study in Trinidad and Tobago following the H1N1 epidemic, emphasizing the need for public understanding and preventative measures (Johnson & Hariharan, 2017). Given the recent developments in COVID-19 vaccines, the study emphasizes the ongoing necessity for training. While vaccines enhance immunity, comprehensive training ensures healthcare providers stay updated on accurate information and prevention strategies.

5.3 Coping Mechanism among the Nurses

The unprecedented nature of the COVID-19 pandemic has affected daily life and placed significant stress on healthcare practitioners. Coping mechanisms among registered nurses in the private Melaka hospital demonstrated a positive attitude,

with a mean coping score of 2.912. This aligns with a study by Windarwati (2021), which found that nurses adopted a positive attitude to motivate themselves (98.3%). The data from the COVID-19 Handling Team of the Indonesian National Nurses Association revealed the impact on healthcare workers, with 69 nurses testing positive and 21 losing their lives to the disease. This underscores the need for effective coping mechanisms in the face of such challenging circumstances (Liu et al., 2020). The study aimed to identify coping strategies among nurses to mitigate stressors during the COVID-19 pandemic.

The findings indicate that the registered nurses (n=101) in this hospital possess acceptable knowledge (77.9%) about COVID-19 and exhibit positive coping mechanisms (M=2.912, SD=0.479). However, the study also reveals a deficit in training (35.6%), affecting confidence levels (43.6%) among nurses in handling COVID-19 cases. Notably, over half of the nurses employ emotion-focused coping, with religious coping, such as 'putting trust in God,' being a prevalent choice. Additionally, significant relationships were observed between socio-demographic factors and coping mechanisms, particularly gender (p=0.039) and working department (p=0.026), indicating potential areas for targeted support and intervention.

6. CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

Blood transfusion is an intricate and multifaceted process that involves various disciplines and stages. Verifying patient details prior to transfusion is crucial to minimize potential risks and mitigate the chances of errors, as mistransfusion can lead to severe clinical consequences. This investigation revealed that

the staff nurses at the chosen private medical center exhibit a deficiency in their understanding of blood transfusion. The findings of the present study also indicated variations in knowledge levels, with certain aspects being more proficiently grasped by nurses in general wards as opposed to those in specialized units. Nonetheless, the knowledge deficit observed across both groups could be addressed through targeted training initiatives. Hence, the implementation of ongoing education and training programs becomes imperative to enhance the knowledge of staff nurses, ensuring patient safety and reducing the likelihood of medical errors.

Implications for nursing practice and research are profound in the context of the ongoing pandemic. Nurses, serving on the front lines, have encountered not only financial challenges but also psychological distress, including fear, uncertainty, worry, anxiety, and panic (Chew & Eysenbach, 2010; Liu et al., 2020; Huang et al., 2020). These emotions emphasize the crucial role of personal protective equipment (PPE) in mitigating the spread of COVID-19. Proper PPE application is integral to infection prevention and control in healthcare settings, and comprehensive training is imperative for healthcare providers, especially nurses who have continuous patient interactions. When utilized correctly, PPE components such as gloves, aprons, eye protection, masks, and gowns act as physical barriers against infectious particles, safeguarding both healthcare providers and patients from transmission risks (PHE, 2020b; Brown, 2019). Conducting training sessions specifically focused on COVID-19 for nurses is paramount, not only for enhancing infection control measures but also for fostering positive thinking and coping mechanisms. The study

contributes to raising awareness among nurses about the significance of adopting positive coping strategies amid the pandemic, thereby improving their overall well-being.

In conclusion, ongoing education is crucial for enhancing nurses' knowledge. The nursing profession involves continuous learning, and the pursuit of knowledge is perpetual. With life's evolution and collective efforts to improve the world, healthcare providers must maintain a positive mindset and adaptive coping mechanisms to fulfill their ethical responsibilities in the ever-changing healthcare landscape.

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