

ORIGINAL ARTICLE

Perceived Stress and Adherence to Preventive Measures During COVID-19 Pandemic among Midwives in Malaysia Tertiary Teaching Hospital

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ABSTRACT

Introduction: Suffer psychologically the COVID-19 pandemic has placed a psychological strain on healthcare providers. Stress can influence behaviour, especially during a pandemic. **Method:** A cross-sectional study was conducted among 63 midwives in the tertiary teaching hospital from January 2021 until March 2021. The aim is to determine perceived stress and adherence to preventive measures during the COVID-19 pandemic among midwives in Hospital USM. A self-administered questionnaire consists of the COVID-19 preventive measures based on WHO/CDC and the Perceived Stress Scale (PSS-10). **Results:** The findings showed midwives in tertiary hospitals have a moderate perceived stress level (82.5%) during the COVID-19 pandemic. In addition, they also have a good level of adherence to preventive measures (82.5%). In terms of the association, there was a significant association between the level of adherence to preventive measures and the level of perceived stress ($p=0.001$) during the pandemic COVID-19 phase, while there was no significant association between socio-demographic characteristics (level of education, year of work experiences, and having children) with the level of perceived stress during pandemic COVID-19 phase. **Conclusion:** Authorities should take suitable actions by implementing awareness programs and mental health education to reduce midwives' stress while ensuring adherence to preventive measures. Psychological screening can help maintain their well-being and support quality care during health crises.

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the COVID-19 pandemic since March 2021. Healthcare workers especially midwives required to provide integrated care while combating this pandemic disease at hospitals as they deal with life-or-death situations.

INTRODUCTION

COVID-19 referred to as the Coronavirus disease-2019 is the fourth major coronavirus outbreak after Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) in 2002-2003, swine-origin pandemic (H1N1) influenza A virus in 2009 and Middle-East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012. (1). Coronavirus 2019 (nCoV-19) started to emerge in Wuhan, China. Following this, the disease has spread to at least 200 countries and public awareness has been alerted as a global pandemic (2). The main way of spreading is by droplets either in the form of respiratory or aerosols (3). The exposure time to symptoms onset is five to six days and may last until day 14 (4). Malaysia currently entering the third wave of

However, this current outbreak of disease is affecting worldwide from many aspects, especially those who work in the medical line. There are a lot of articles that discuss the impact of COVID-19 (1, 5-6). This is because the infected patient will need medical equipment such as medications and specific medical equipment to combat the virus. Healthcare workers (HCWs) tend to burn out easily especially nurses or midwives as they are the closest persons to patients (7). A midwife is defined as a trained healthcare professional who provides care and support to women during pregnancy, childbirth, and the postpartum period. Midwives are also skilled in offering holistic maternal and neonatal care. During the COVID-19 phase, midwives are at the core of the response to women who are still getting pregnant need

to receive treatments and are also in the process of giving birth (8). Midwives' work environment (labour room) can be defined as a "rushing" and "chaos" place and requires skilful and competent person when helping in the birth process. The situation changed as there will be some of the standard precautions that must be obeyed such as social distancing of one meter. Midwives play a key role in protecting maternal and newborn health during crises. They are trained in strict infection prevention to reduce COVID-19 risks. However, in rushed work environments, they may struggle to protect themselves. For instance, when pregnant women arrive at the hospital urgently to give birth, with limited access to healthcare facilities due to lockdowns or reduced hospital capacity, nurse midwives often do not have enough time to do the screening test for COVID-19. This exposure will increase the risk causing midwives to face unfavourable pressure and mental distress (9). In other words, the pregnant women's immune system is low compared to unpregnant women. They have a higher tendency to get infected. Furthermore, there were a few cases where the baby was diagnosed with COVID-19 after being delivered as the virus was passed from the mother to the baby through the placenta (10). Battling with COVID-19 causes the HCWs to become vulnerable, physiological and psychological suffering (11). Long duty hours, lack of PPE, and working in high-risk situations are the main causes of their misery and lead to higher stress levels in HCWs (12). The American Psychological Association addresses that stresses eventually will influence behaviour (13).

The stress faced by the HCWs can cause them to uncomplying the SOP. The situation is bothering as this can be one of the causes of the formation of a new cluster COVID-19. Midwives' perceived stress and adherence to preventive measures during the pandemic COVID-19 are vital in making sure that there will be less risk of burnout and that the quality of care is great. Other than that, it is well known that stress will affect behaviour and cause preventive measures could not be complied with appropriately and efficiently (7). The stress may be an associated factors in worsening the midwives' health (14). Thus, maintaining the midwives' health is very important, especially during this pandemic phase to reduce disease spread (9). Several studies showed an association between perceived stress and socio-demographic characteristics, such as women are associated with anxiety and Post-Traumatic Stress Disorder in the crisis of COVID-19 (15), having child can increase the stress level due to fear of COVID-19 (16). Besides, few studies showed that HCWs' characteristics influence compliance such as higher years of work experience had a positive impact on compliance to preventive measures (17), age is negatively significant with compliance of appropriate PPE (18) and a study done in Saudi Arabia was showed that there is significant between education level and compliance to the prevention of infection (19). Therefore,

maintaining midwives' mental health is vital as it may be modified risk factors in worsening COVID-19 cases. Consequently, the study aimed to assess the level of perceived stress and adherence to preventive measures during the COVID-19 pandemic among midwives in Tertiary Teaching Hospital, Universiti Sains Malaysia (USM).

MATERIAL AND METHODS

The cross-sectional study was conducted among midwives in one Malaysia Tertiary Teaching Hospital (Hospital USM), Northeast in Malaysia. A self-administered questionnaire was collected from January 2021 until March 2021. This study was conducted among midwives from different units including the antenatal ward, postnatal ward, labour room, and antenatal clinic with the following inclusion: qualified midwives and working at units based on an obstetric specialty within six months. Staff midwives who were on personal leave or not around during the time frame of collection were excluded from this study. The total sample size was 63 midwives recruited through the convenience sampling method.

Research Tools

The Perceived Stress Scale 10 (PSS-10) was a classic stress assessment questionnaire adopted with permission from the original authors that was designed to recognize the perception of stress during the last month (20,21). The adherence preventive measures questionnaire contains the SOP guidelines of prevention and control measures for COVID-19 developed based on WHO and CDC (22,23). The pilot study was done on 10% of midwives who did not form part as participants in actual data collection. The Cronbach's alpha coefficient for this study was 0.83 which counted as acceptable internal consistency. The questionnaires consisted of three sections, A, B, and C. Section A consists of the information on socio-demographic characteristics, identifies midwives' level of education, years of work experience, and having a child. Section B consists of using a questionnaire on the perceived stress scale consisting of 10 self-reported questions that have a 5-point scale ranging from 0 (Never) to 4 (Very often) and four positively selected items (4, 5, 7, and 8) were reversely score ranging from 0 (Very often) to 4 (Never) (20,21). The total score was 40 marks and score ranges were divided into low stress, moderate stress, and high stress. Section C was about the level of compliance with prevention measures guidelines released by WHO and CDC during the pandemic of COVID-19 phase (22,23). This section consists of 15 items, that had a 4-point scale ranging from 1 (Not at all) to 4 (Always) with a total of 60 marks, and score ranges were classified into poor compliance, moderate compliance, and good compliance using Bloom's cut-off points, 80%-100%, 60%-79%, and $\leq 59\%$ (12).

This study was approved by the Research Ethics Committee of Universiti Sains Malaysia (USM/ JPeM/20120669) and permission from the director of Hospital Universiti Sains Malaysia was obtained. The eligible midwives based on the inclusion criteria signed an informed consent form to give their permission before participating in the study. The midwives were gathered in a specific hall after their working shift to complete the self-administer questionnaire.

Statistical Analysis

Data were analyzed using the Statistical Package for Social Science (SPSS) version 26.0. Descriptive statistics were used to assess the socio-demographic characteristics, distribution of perceived stress scale items, and adherence to preventive measures items in frequency, percentage, and mean. Meanwhile for the association between dependent variable and independent variables using Pearson Chi-square. Statistical significance was considered at an alpha of 0.05.

RESULT

As presented in Table I, most of the midwives' level

Table I: Distribution of Socio-Demographic Characteristics among Midwives in Tertiary Teaching Hospital USM

Socio-demographic Characteristics	Number (n)	Percentage (%)
Level of Education		
Diploma	43	77.8
Degree	14	22.2
Year of Work Experiences		
<6 Years	9	14.3
6-10 Years	7	11.1
11-15 Years	19	30.2
>15 Years	28	44.4
Having Child		
No	8	12.7
1-2 Children	18	28.6
3-5 Children	23	36.5
>5 Children	14	22.2

of education was Diploma (n= 43, 77.8%), had experiences of work more than 15 years (n= 28, 44.4%), all nurses were married, and had three to five children (n=23, 36.5%). Table II showed around 52.4% to 69.8% of the midwives preferred to select 'sometimes' as the answer for every PSS question except for the question related to the ability to control the irritation in life which most of them (38.1%) selected 'fairly often'. Regarding the question asked often to have been upset because of something that happened unexpectedly, more than half (63.5%) of midwives preferred to answer 'sometimes'.

Table II: Distribution of perceived stress among Midwives in Tertiary Teaching Hospital USM

Questions	Never n (%)	Al- most Never n (%)	Some- times n (%)	Fairly Often n (%)	Very Often n (%)
In the last month, how often have you been upset because of something that happened unexpectedly?	6 (9.5)	3 (4.8)	40 (63.5)	10 (15.9)	4 (6.3)
In the last month, how often have you felt that you were unable to control the important things in your life?	11 (17.5)	11 (17.5)	33 (52.4)	6 (9.5)	2 (3.2)
In the last month, how often have you felt nervous and stressed?	4 (6.3)	2 (3.2)	44 (69.8)	10 (15.9)	3 (4.8)
In the last month, how often have you felt confident about your ability to handle your personal problems?	1 (1.6)	1 (1.6)	33 (52.4)	21 (33.3)	7 (11.1)
In the last month, how often have you felt that things were going your way?	0 (0)	9 (14.3)	31 (49.2)	21 (33.3)	2 (3.2)
In the last month, how often have you found that you could not cope with all the things that you had to do?	8 (12.7)	11 (17.5)	36 (57.1)	8 (12.7)	0 (0)
In the last month, how often have you been able to control irritations in your life?	2 (3.2)	12 (19.0)	22 (34.9)	24 (38.1)	3 (4.8)
In the last month, how often have you felt that you were on top of things?	4 (6.3)	14 (22.2)	41 (65.1)	4 (6.3)	0 (0)
In the last month, how often have you been angered because of things that happened that were outside of your control?	3 (4.8)	16 (25.4)	38 (60.3)	3 (4.8)	3 (4.8)
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	6 (9.5)	20 (31.7)	36 (57.1)	1 (1.6)	0 (0)

For the question mentioning 'how often have you felt nervous and stressed', around 69.8% of midwives preferred to select 'sometimes' and this question is the highest percentage result from all the items of PSS questions. Table III shows that 82.5% of midwives had experienced a moderate level of perceived stress during COVID-19. Meanwhile, mostly 82.5% of midwives had a good level of adherence to preventive measures during the COVID-19 phase.

As presented Table IV shows that there was a significant

Table III: Level of Perceived Stress COVID-19 among Midwives Tertiary Teaching Hospital USM

Variables	Number (n)	Percentage (%)	Mean (SD)
Level of Perceived Stress			1.92 (0.414)
Low level (0 - 13)	8	12.7	
Moderate level (14 - 26)	52	82.5	
High level (27 - 40)	3	4.8	
Level of Adherence Preventive Measures			2.789 (0.522)
Poor level (0 - 35)	3	4.8	
Moderate level (36 - 47)	8	12.7	
Good level (48 - 60)	52	82.5	

Table IV: Association between the level of Adherence to Preventive Measures with the level of perceived stress COVID-19 among Midwives in Tertiary Teaching Hospital USM

	n (%)			χ^2 (p-value)
	Low	Moderate	High	
Level of Adherence to Preventive Measures				25.419 (0.001*)
Poor level	1 (1.6)	2 (3.2)	0 (0)	
Moderate level	2 (3.2)	3 (4.8)	3 (4.8)	
Good level	5 (7.9)	47 (74.6)	0 (0)	

*p<0.05; significantly statistical

association between the level of adherence to prevention measures and with level of perceived stress ($p=0.001$). However, Table V shows that there was no significant between the level of perceived stress COVID-19 with the level of education ($\chi^2 = 1.972$, $p= 0.373$), years of work experience ($\chi^2 = 7.920$, $p=0.224$), and the association between having a child ($\chi^2 = 11.965$, $p= 0.063$).

Table V: Association Between Selected Socio-demographic Characteristics with Level of Perceived Stress COVID-19 among Midwives in Tertiary Teaching Hospital USM

	n (%)			χ^2 (p-value)
	Low	Moderate	High	
Level of Education				1.972 (0.373)
Diploma	5 (7.9)	41 (65.1)	3 (4.8)	
Degree	3 (4.8)	11 (17.5)	0 (0)	
Year of Work Experiences				7.920 (0.244)
<6 Years	1 (1.6)	6 (9.5)	2 (3.2)	
6-10 Years	1 (1.6)	6 (9.5)	0 (0)	
11-15 Years	2 (3.2)	16 (25.4)	1 (1.6)	
>15 Years	4 (6.3)	24 (38.1)	0 (0)	

CONTINUE

Table V: Association Between Selected Socio-demographic Characteristics with Level of Perceived Stress COVID-19 among Midwives in Tertiary Teaching Hospital USM (cont.)

	n (%)			χ^2 (p-value)
	Low	Moderate	High	
Having Child				11.965 (0.063)
No	0 (0)	6 (9.5)	2 (3.2)	
1-2 Children	4 (6.3)	14 (22.2)	0 (0)	
3-5 Children	2 (3.2)	21 (33.3)	0 (0)	
>5 Children	2 (3.2)	11 (17.5)	1 (1.6)	

DISCUSSION

This study aims to determine the level of perceived stress and level of adherence to preventive measures for COVID-19 among midwives in Tertiary Teaching Hospital in Northeast Malaysia. The PSS-10 questionnaire was widely used to assess the feeling of response to life events, including the COVID-19 outbreak. Thus, by using the scale, the finding of this study reveals that mostly 82.5% of midwives in tertiary teaching hospital had a moderate level of stress while eight midwives (12.7%) had a low level of stress and only around 4.8% of the midwives had a high level of perceived stress. As discussed in this finding, most midwives were under moderate stress probably caused by their having limited 'felt safety' regarding our hospital policy. According to our hospital policy, mothers who are not urgently for delivery and are admitted directly must undergo a COVID-19 swab test and are placed in an isolation room while awaiting the results. Positive cases are managed according to standard precaution guidelines. Our result was nearly similar to the study done by Purnami et al., (2019), that reveals around 75.8% of nurses in Indonesia had moderate perceived stress (24). A recent study done by P S, Ramawat (2020) (25), also showed similar findings in a small amount nurses with high levels of stress whereby 10 out of 190 nurses (5.3%) had a high level of perceived stress. Other than that, our study findings are compatible with the studies done in 2020 (26) and 2019 (27), which found that most nurses achieved a moderate level of perceived stress. As discussed in this finding, it is shown that our midwives are good at following the prevention measures used worldwide by WHO (2020) and CDC (2020). Our study also revealed findings that the level of adherence to preventive measures for COVID-19 was good (82.5%), a moderate level (12.7%) meanwhile, 4.8% of midwives have a poor level of compliance with prevention measures. This finding was similar to the study done by Olum, Chekwech, Wekha, Nassozi & Bongomin (28) found that around 96% of HCWs practised washing their hands before and right after touching the patient. Our study finding is also compatible with a study done by Biriha, Bayih, Alemu & Belay (29) and Ashinyo et

al., (2021) (30), whereby these studies was shown that a level of compliance preventive measure practice was good. Even though, our study findings were in contrast with a study by Kassie, Adane, Abebe, Ayele & Kassahun (31), where good compliance of preventive measures following guidelines WHO was only 38.7 % applied.

Adherence to infection prevention and control was important in decreasing the transmission of infection COVID-19 (18). However, the stress faced by the midwives may influence their compliance to preventive measures. Our study reveals there was an association between the level of perceived stress and the level of adherence to preventive measures of COVID-19 among midwives in Hospital USM ($p=0.001$). Babore et al., (32) stated that a higher positive attitude toward COVID-19 leads to a lower stress level. When providing health care, it is impossible to keep social distancing as the midwives must touch the patient. Other than that, the midwives also need to work in a team. Within a space that is crowded with a lot of HCWs who cooperate, it seems to be difficult to follow the guidelines of prevention measures. However, a study done by Brooks, Greenberg, Wessely & Rubin (33), reveals that HCWs with high levels of stress tend to have higher compliance in infection control. Ye et al., (34) also stated that it may happen due to the burden that midwives faced during the outbreak of pandemic diseases such as inadequate PPE and long work shifts.

As presented in Table V, the results show no association between level of education, year of work experience, and having a child with the perceived stress of COVID-19 among midwives. Therefore, the results reveal that selected sociodemographic factors such as education, work experience and having a child did not influence the midwives' perceived stress related to COVID-19. The findings were similar to a study done by Alharbi & Alshehry (27), which found that there is no significant association between the level of education and year of work experiences with perceived stress COVID-19. However, our findings contrary to a study by P S Ramawat et al., (2020) show there was a statistically significant association of level of education ($p=0.001$) and year of work experience with perceived stress COVID-19 ($p=0.003$) respectively (25).

CONCLUSION

This finding indicates the importance of handling stress properly during the pandemic phase as it can influence behaviour. The level of perceived stress among midwives in Tertiary Teaching Hospital USM was moderate and our midwives had a good level of adherence to prevention measures even during the outbreak of COVID-19. This study also showed a significant association between the level of adherence to preventive measures and the level of perceived stress during the COVID-19 pandemic. Even though the midwives are worried about being infected

and stressed by the pandemic, the midwives still give their best shot to comply with the standard precautions practices when dealing with people's lives. The findings may provide important awareness regarding stress and compliance to preventive measures among midwives for authorities management to implement proper actions when any outbreak or pandemic occurs to reduce stress levels of staffs. Therefore, interventions such as mental health education and regular psychological screening programs may help to reduce stress, and it also ensure the quality performance of the midwives in providing care during health crises.

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