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Assessment on knowledge and practice regarding management of COVID-19 infected pregnant women among the staff nurses, JNIMS hospital, Porompat, Imphal, Manipur

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Abstract

Background: Coronavirus disease 2019 (COVID-19) has been spreading globally with severe impacts on health and economics. Appropriate and authentic perception of information on COVID-19 is essential during pregnancy to avoid infection and stay safe and healthy in the changing global situation. Nursing is an essential component of medical care, and nurses' knowledge and practices about the prevention and control and management of the disease directly affects pregnant women's outcomes.

Material and Methods: A cross sectional descriptive study was conducted among the staff nurses working at JNIMS Hospital, Porompat, Imphal, Manipur. The sampling technique used was non-probability purposive sampling technique and sample of 106 staff nurses were selected. The data were collected using structured knowledge questionnaire and structured practice checklist statements. The data collected were analyzed through descriptive and inferential statistics by using SPSS version 22.0.

Results: The findings of the present study revealed that, 73(68.90%) of the staff nurses had moderately adequate knowledge. Chi-square test showed that statistically significant association between knowledge and selected demographic characteristics of age and working experience p-value were 0.024 and 0.038. Regarding the practice, majority of the staff nurses 65 (61.30%) had moderately appropriate practice and statistically found to be significant association between practice and selected demographic characteristics of age and working experience p-value were 0.029 and 0.041. The correlation coefficient in terms of knowledge and practice score among the staff nurses was +0.23 which shows that there is a positive relationship exists between knowledge and practice of the staff nurses regarding management of COVID-19 infected pregnant women.

Conclusion: The study shows that, more than half of the staff nurses had moderately adequate knowledge and moderately appropriate practice regarding management of COVID-19 infected pregnant women. From the chi-square test result was found out that there was statistically significant association between level of knowledge and practice with the selected demographic characteristics. So, the descriptive studied found out the knowledge and practice regarding management of COVID-19 infected pregnant women among the staff nurses and recommendation for further educational and training program regarding infection control measures and management of COVID-19 for nurses.

Keywords: knowledge, practice, staff nurses, COVID-19 infected, pregnant women, management of COVID-19

Introduction

Novel corona virus was reported in Wuhan, China in December 2019. Since the first case of pneumonia was described, SARS-CoV-2 infection (coronavirus disease 2019) rapidly spread worldwide, being declared a pandemic infection on March 11 by the World Health Organization (WHO). Since its emergence the new COVID-19 has resulted in 43.7 million infections and over 1 million deaths as of October 25' 2020 [1]. In most cases, COVID-19 causes mild symptoms including dry cough, tiredness and fever, though fever may not be a symptom for some older people. Other mild symptoms include aches and pains, nasal congestion, runny nose, sore throat or diarrhoea. Some people become infected but do not develop any symptoms and do not feel unwell. Most people recover from the disease without needing special treatment. Around 1 out of every 6 people who get COVID-19 becomes seriously ill and has difficulty breathing [2].

The new coronavirus has resulted in 43.7 million infections and over 1 million deaths as of October 25, 2020 among which 20% of deaths are in the United States followed by Brazil (14%), India (10%), Mexico (7.8%), and the United Kingdom (4%) [3]. A study was published in the Department of Obstetrics and Gynaecology at Tertiary Care Hospital attached to a Medical College, located in Central Mumbai covered the period from May 2020 to August 2020. The study involved 977 deliveries, among these, 141 patients tested COVID-19 positive with an incidence of 14.43%. Although the pregnant women with COVID-19 infection tended to present with mild respiratory symptoms, the risk of severe pneumonia during this period is high. There is no significance between the effect of COVID-19 infection and maternal and perinatal outcome. The majority of the women were discharged without any major complications and there was no evidence of vertical transmission of the COVID-19 infection. However, long-term follow-up of these babies to see any delayed effects is necessary [4]. Medical health workers should also be properly guided to proper sources of information during these times. When push comes to shove, medical staff should also be equipped with medical knowledge, proper attitude, and good precautionary measures. Given current global situation, medical institutes to spread knowledge become a necessity and plans should be placed to implement such dissemination in early stages of medical and public health emergencies [5]. Pregnant women need constant obstetrics consultations and adequate care during the antepartum, intrapartum and postpartum period for eventful outcome. COVID-19 infections may be a health threat for both mother and the growing child in utero. Appropriate and authentic perception of information on COVID-19 is essential during pregnancy to avoid infection and to stay safe and healthy in the changing global situation [8]. Recent estimates indicate a COVID-19 infection fatality rate of 0.68% in the general population, while a large study of symptomatic women of reproductive age (15–44 years) in the United States has reported up to a 70% increased risk of death in pregnant women. However, data is not yet peer review, some case studies have reported that SARS-CoV-2 infection during pregnancy may increase risk of perinatal complications, like fetal distress, preterm birth and perinatal death [10]. For women with severe or critical COVID-19, delivery was considered for new or worsening oxygen requirement if they were at or near term. COVID-19 was not considered an indication for caesarean delivery except in cases of fetal heart tracing abnormalities that were not improved with adequate maternal respiratory support or worsening maternal respiratory status with anticipated need for intubation and immediate prone positioning, which precluded fetal monitoring. Urgent delivery among women with severe COVID-19 pneumonia occurred within a dedicated operating room in the COVID-19 unit. Women with severe or critical illness received COVID-19 therapies according to National Institutes of Health guidelines [13].

Objectives of the study

- assess the level of knowledge regarding management of COVID-19 infected pregnant women among the Staff nurses.
- assess the level of practice regarding management of COVID-19 infected pregnant women among the Staff nurses.

- assess the association between the level of knowledge and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses.
- assess the association between the level of practice and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses.
- assess the correlation between the level of knowledge and practice regarding management of COVID-19 infected pregnant women among the Staff nurses.

Hypothesis of the study

The hypothesis will be tested at 0.05 level of significance.

H₁: There will be significant association between the level of knowledge and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses.

H₂: There will be significant association between the level of practice and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses.

H₃: There will be significant correlation between the level of knowledge and practice regarding management of COVID-19 infected pregnant women among the staff nurses.

Operational definition

1. **Assessment:** It refers to the process of statistical measurement of knowledge and practice from the scores obtained from structured knowledge questionnaire and structured preventive practice checklist regarding the management of COVID-19 infected pregnant women among the staff nurses who are working at JNIMS Hospital, Porompat, Imphal.
2. **Knowledge:** It refers to the facts and information that a staff nurse has regarding the management of COVID-19 infected pregnant women ascertained by structured knowledge questionnaire.
3. **Practice:** It refers to measures taken or anticipatory action taken by staff nurses for management of COVID-19 infected women. It refers to the activity or skills or actions of staff nurses regarding the management of COVID-19 infected pregnant women.
4. **Management:** It refers to the health care interventions given to COVID-19 infected pregnant women by staff nurses to maintain and improve quality of care and treatment of disease.
5. **COVID-19:** COVID-19 is a highly contagious respiratory disease caused by SARS-CoV-2 virus.

Materials and Methods

For this study, non-experimental quantitative research approach and a cross sectional descriptive research design were used. The research variables were knowledge and practice of the staff nurses regarding management of COVID-19 infected pregnant women. The study was conducted at JNIMS Hospital, Porompat, Imphal, Manipur. The data were collected from 106 staff nurses who were working in the JNIMS Hospital, Porompat, Imphal, Manipur. The sample were selected by employing non-probability purposive sampling technique. The structured knowledge questionnaire and structured practice checklist were used for data collection. Reliability of the questionnaire was tested by *Cronbach's Alpha* "α". Its value

was found to be 0.703 and 0.71 respectively, which is acceptable and statistically reliable to measure scale of scores for the main study. Data were entered into Statistical Package for Social Sciences (SPSS) software version of 22.0 and further analysed by using descriptive and

inferential statistics including narration.

Results

The following tables represent the demographic variables of the staff nurses under study.

Table 1: Frequency and percentage distribution of demographic variables of the staff nurses. N=106

Sl. No.	Demographic characteristics	No. of respondents	Per cent (%)	
1.	Age	Below 25 yrs.	21	19.81
		26-35 yrs.	47	44.34
		36-45 yrs.	38	35.85
2.	Gender	Male	6	5.66
		Female	100	94.33
3.	Religion	Hindu	62	58.5
		Islam	3	2.8
		Christian	33	31.1
		Others	8	7.5
4.	Marital Status	Unmarried	46	43.4
		Married	60	56.6
5.	Educational qualification	GNM	69	65.1
		B.Sc. Nursing	30	28.3
		Post basic B.Sc. Nursing	4	3.8
		M.Sc. Nursing	3	2.8
6.	Types of family	Nuclear Family	56	52.8
		Joint Family	50	47.2
7.	Present permanent residence	Rural	44	41.5
		Urban	62	58.5
8.	General working experience	Less than 5yrs	49	46.2
		6-10 yrs.	24	22.6
		11-15 yrs.	26	24.5
		More than 16 yrs.	7	6.6
9.	Had any formal training on management of COVID-19	Yes	65	61.3
		No	41	38.7
10.	Source of information regarding COVID-19	Electronic & mass media	46	43.4
		Journal & books	6	5.7
		Health training	43	40.6
		Others	11	10.4
Total number of respondents		106	100.0	

A total of 106 staff nurses responded to the questionnaire and checklist. Table 1 is showing Demographic characteristics of the staff nurses. It shows that majority of them i.e. 47 (44.34%) are in the age groups of 26-35years. Majority of them i.e. 100(94.33%) are female and 6 (5.66%) are male staff nurses, 62 (58%) belongs to Hindu religion, 60(56.6%) were married, 69(65.1%) had done GNM, 56

(52.8%) belonged to nuclear family, 44 (41.5%) of the staff nurses are from rural areas, 7 (6.6%) have more than 15 years of working experience, 65 (41%) respondents had trained for management of COVID-19 and majority of them i.e. 46(43.4%) received information through electronic and mass media.

Table- 2: Frequency and percentage distribution of level of knowledge regarding general information on COVID-19 among the staff nurses. N=106

Knowledge level on general information on COVID-19	No. of Respondents	Per cent (%)
Inadequate knowledge	11	10.4%
Moderately adequate knowledge	70	66.0%
Adequate knowledge	25	23.6%
Total	106	100.0%

From the table - 2.1, it is observed that out of 106 staff nurses, majority of them i.e. 70 (66.0%) have moderate knowledge, 25 (23.6%) have adequate knowledge and only

11 (10.4%) have poor knowledge regarding general information on COVID-19 among the staff nurses.

Table 3: Frequency and percentage distribution of level of knowledge regarding signs and symptoms of COVID-19 infected pregnant women among the staff nurses. N=106

Knowledge level on signs and symptoms of COVID-19 infected pregnant women	No. of Respondents	Per cent (%)
Inadequate knowledge	45	42.5%
Moderately adequate knowledge	34	32.1%
Adequate knowledge	27	25.5%
Total	106	100%

From the table 2.2, it is observed that out of 106 staff nurses, majority of them i.e. 45(42.2%) have poor knowledge, 35 (33%) have moderate knowledge and 26

(24.5%) have adequate knowledge regarding signs and symptoms of COVID-19 infected pregnant women among the staff nurses.

Table 4: Frequency and percentage distribution of level of knowledge regarding management of COVID-19 infected pregnant women among the staff nurses. N=106

Knowledge level on management of COVID-19 infected pregnant women	No. of Respondents	Per cent (%)
Inadequate knowledge	38	35.8%
Moderately adequate knowledge	52	49.1%
Adequate knowledge	16	15.1%
Total	106	100%

From the table 2.3, based on the score obtained by the staff nurses, it is observed that out of 106 staff nurses, majority of the respondents i.e. 52 (49.1%) have moderate knowledge,

38 (35.8%) have poor knowledge and 16 (15.1%) have adequate knowledge regarding the management of COVID-19 infected pregnant women among the staff nurses.

Table 5: Frequency and percentage distribution of overall level of knowledge regarding management of COVID-19 infected pregnant women among the staff nurses. N=106

Overall Level of Knowledge	No. of Respondents	Per cent (%)
Inadequate knowledge	17	16.0%
Moderately adequate knowledge	73	68.9%
Adequate knowledge	16	15.1%
Total	106	100.0%

Table 2.4 shows the overall level of knowledge obtained by the staff nurses, it is observed that out of 106 staff nurses, majority of the respondent i.e. 73(68.90%) have moderate knowledge, 17 (16.00%) have poor knowledge and only

16(15.10%) have adequate knowledge regarding management of COVID-19 infected pregnant women among the staff nurses.

Table 6: Frequency and percentage distribution of level of practice regarding management of COVID-19 infected pregnant women among the staff nurses. N=106

Practice Level	No. of Respondents	Per cent (%)
Inappropriate practice	8	7.5%
Moderately inappropriate practice	65	61.3%
Appropriate practice	33	31.1%
Total	106	100.0%

From the table 3.1, it is observed that out of 106 staff nurses under study, majority of the them i.e. 65 (61.30%) staff nurses have moderately appropriate practice followed by 33 (31.10%) staff nurses that have appropriate practice and

only 8 (7.50%) that have inappropriate practice regarding management of COVID-19 infected pregnant women among the staff nurses.

Table 2: Mean, median and standard deviation of practice regarding management of COVID-19 infected pregnant women among the staff nurses. N=106

Practice	No. of items	Mean	Median	Standard Deviation
Overall	18	12.19	12	2.53

The present study table-3.2 shows mean, median and standard deviation of practice regarding management of COVID-19 infected pregnant women among the staff nurses. The overall mean is 12.19, median 12 and SD is 2.53.

The above Table no. 4 shows the association between the level of knowledge and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses with demographic variables. The p-value of age and general working experience were 0.024 and 0.038 which are significant association with the knowledge score. The p-value of gender, marital status, religion, types of family, present permanent residence, educational qualification, source of information on COVID-

19 and were 0.326, 0.156, 0.505, 0.158, 0.622, 0.168, 0.368 and 0.162 respectively which are insignificant association with the knowledge score. Therefore, the first hypothesis (H_1) "There will be significant association between the level of knowledge and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses" is accepted.

The above Table 5 shows the association between the level of practice and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses with demographic variables and depicts that the p-value of age and general working experience were 0.024 and 0.041 which are significantly associated with practice scores.

Table 4: Association between the level of knowledge and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses.

Sl. No.	Demographic characteristics		Knowledge Level			Total %	Chi square value	p-value
			Inadequate knowledge %	Moderately adequate knowledge %	Adequate knowledge %			
1.	Age	Below 25 yrs.	8 (38.10)	12 (57.14)	1 (4.76)	21(19.81)	11.203	0.024*
		26-35 yrs.	6 (12.77)	31 (65.96)	10 (21.28)	47 (44.34)		
		36-45 yrs.	3 (7.89)	30 (78.95)	5 (13.16)	38 (35.85)		
2.	Gender	Male	2 (33.33)	3 (50.00)	1 (16.67)	6 (5.66)	2.242	0.326
		Female	15 (15.00)	70 (70.00)	15 (15.00)	100 (94.34)		
3.	Marital status	Unmarried	11 (23.91)	29 (63.04)	6 (13.04)	46 (43.40)	3.713	0.156
		Married	6 (10.00)	44 (73.33)	10 (16.67)	60 (56.60)		
4.	Religion	Hindu	10 (16.13)	44 (70.97)	8 (12.90)	62 (58.49)	5.312	0.505
		Islam	1 (33.33)	2 (66.67)	0 (0.00)	3 (2.83)		
		Christian	5 (15.15)	22 (66.67)	6 (18.18)	33 (31.13)		
		Others	1 (12.50)	5 (62.50)	2 (25.00)	8 (7.55)		
5.	Types of Family	Nuclear Family	11 (19.64)	36 (64.29)	9 (16.07)	56 (52.83)	3.688	0.158
		Joint Family	6 (12.00)	37 (74.00)	7 (14.00)	50 (47.17)		
6.	Present permanent residence	Rural	7 (15.91)	29 (65.91)	8 (18.18)	44 (41.51)	0.826	0.662
		Urban	10 (16.13)	44 (70.97)	8 (12.90)	62 (58.49)		
7.	Educational qualification	GNM	12 (17.39)	46 (66.67)	11 (15.94)	69 (65.09)	9.094	0.168
		B.Sc. Nursing	5 (16.67)	22 (73.33)	3 (10.00)	30 (28.30)		
		Post basic B.Sc. Nursing	0 (0.00)	4 (100.00)	0 (0.00)	4 (3.77)		
		M.Sc. Nursing	0 (0.00)	1 (33.33)	2 (66.67)	3 (2.83)		
8.	General working experience	Less than 5yrs	12 (24.49)	30 (61.22)	7 (14.29)	49 (46.23)	13.304	0.038*
		6-10 yrs.	2 (8.33)	19 (79.17)	3 (12.50)	24 (22.64)		
		11-15 yrs.	2 (7.69)	19 (73.08)	5 (19.23)	26 (24.53)		
		More than 16 yrs.	1 (14.29)	5 (71.43)	1 (14.29)	7 (6.60)		
9.	Any training on management of COVID-19	Less than 5yrs	11 (16.92)	47 (72.31)	7 (10.77)	65 (61.32)	2.002	0.368
		6-10 yrs.	6 (14.63)	26 (63.41)	9 (21.95)	41 (38.68)		
10.	Source of information of COVID-19	Electronic & mass media	5 (10.86)	40 (86.95)	1 (2.17)	46 (43.39)	9.209	0.162
		Journal & Books	2 (33.33)	4 (66.66)	0 (00.00)	6 (5.66)		
		Health training	2 (4.65)	37 (86.04)	4 (9.30)	43 (40.56)		
		Others	0 (00.00)	10 (90.90)	1 (9.09)	11 (10.37)		
		Total	17 (16.04)	73 (68.87)	16 (15.09)	106 (100.0)		

P-value <0.05%, significant

Table 5: Association between the level of practice and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses. N=106

Sl. no.	Demographic characteristics		Practice Level			Total %	Chi-square value	P-value
			Inappropriate practice %	Moderately appropriate practice %	Appropriate practice %			
1.	Age	Below 25 yrs.	5 (23.81)	12 (57.14)	4 (19.05)	21 (19.81)	10.79	0.029*
		26-35 yrs.	1 (2.13)	30 (63.83)	16 (34.04)	47 (44.34)		
		36-45 yrs.	2 (5.26)	23 (60.53)	13 (34.21)	38 (35.85)		
2.	Gender	Male	0 (0.00)	5 (83.33)	1 (16.67)	6 (5.66)	1.41	0.494
		Female	8 (8.00)	60 (60.00)	32 (32.00)	100 (94.34)		
3.	Marital status	Unmarried	5 (10.87)	27 (58.70)	14 (30.43)	46 (43.40)	1.29	0.524
		Married	3 (5.00)	38 (63.33)	19 (31.67)	60 (56.60)		
4.	Religion	Hindu	7 (11.29)	33 (53.23)	22 (35.48)	62 (58.49)	6.4	0.171
		Islam	1 (9.09)	8 (72.73)	2 (18.18)	11 (10.38)		
		Christian	0 (0.00)	24 (72.73)	9 (27.27)	33 (31.13)		
5.	Types of family	Nuclear Family	5 (8.93)	37 (66.07)	14 (25.00)	56 (52.83)	2.171	0.338
		Joint Family	3 (6.00)	28 (56.00)	19 (38.00)	50 (47.17)		
6.	Present permanent residence	Rural	1 (2.27)	29 (65.91)	14 (31.82)	44 (41.51)	3.043	0.218
		Urban	7 (11.29)	36 (58.06)	19 (30.65)	62 (58.49)		
7.	Educational qualification	GNM	3 (4.35)	45 (65.22)	21 (30.43)	69 (65.09)	3.201	0.202
		B.Sc. Nursing	5 (13.51)	20 (54.05)	12 (32.43)	37 (34.91)		
8.	General working experience	Less than 5yrs	5 (10.20)	30 (61.22)	14 (28.57)	49 (46.23)	4.119	0.041*
		6-10 yrs.	1 (4.17)	15 (62.50)	8 (33.33)	24 (22.64)		
		11-15 yrs.	2 (6.06)	20 (60.61)	11 (33.33)	33 (31.13)		
9.	Any training on management of COVID-19	Yes	3 (4.62)	41 (63.08)	21 (32.31)	65 (61.32)	2.073	0.355
		No	5 (12.20)	24 (58.54)	12 (29.27)	41 (38.68)		
10.	Source of information of COVID-19	Electronic & mass media	6 (13.03)	27 (58.69)	13 (28.26)	46 (43.39)	5.434	0.489
		Journal & Books	0 (00.00)	4 (66.66)	2 (33.33)	6 (5.66)		

	Health training	1 (2.32)	26 (60.46)	16 (37.20)	43 (40.56)		
	Others	1 (0.09)	8 (72.72)	2 (18.18)	11 (10.37)		
	Total	8 (7.55)	65 (61.32)	33 (31.13)	106 (100.0)		

*P-value <0.05%, significant

The p-value of gender, marital status, religion, types of family, present permanent residence, educational qualification, had any formal training on management of COVID-19 and source of information on COVID-19 were 0.494, 0.52, 0.171, 0.338, 0.218, 0.202, 0.355 and 0.489 respectively which are insignificant association with the

practice scores. Therefore, the second hypothesis (H₂) “There will be significant association between the level of practice and their selected demographic variables regarding management of COVID-19 infected pregnant women among the staff nurses” is accepted.

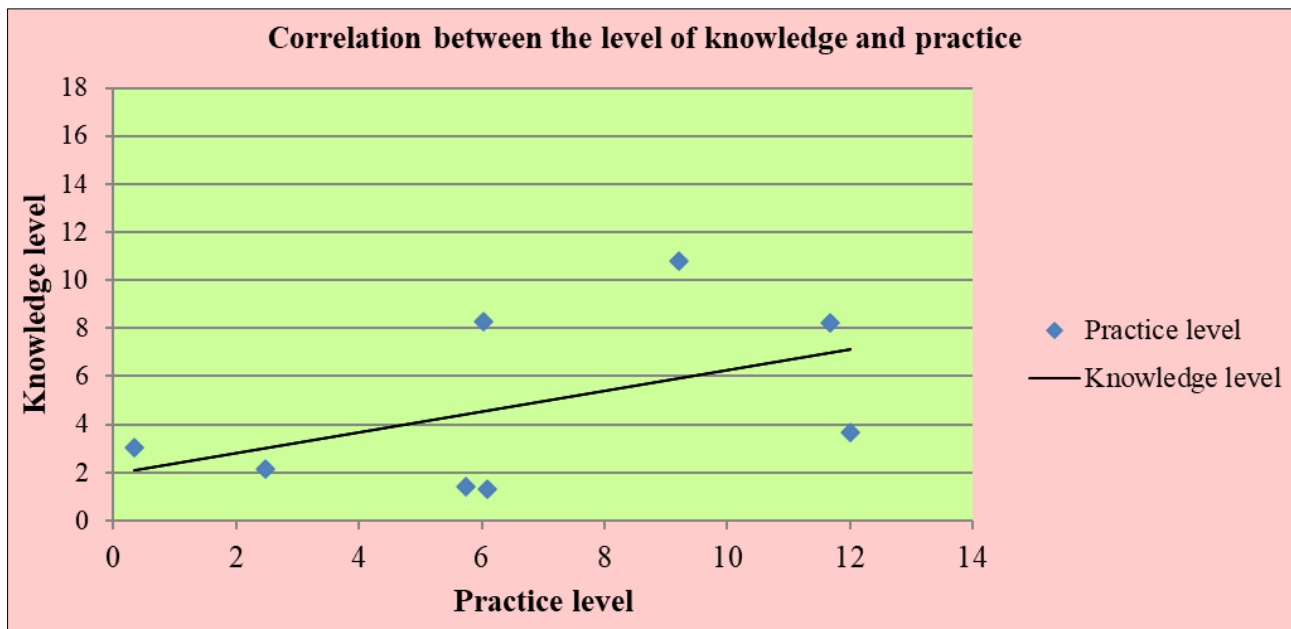


Fig 1: Scattered diagram showing correlation between the level of knowledge and practice regarding management of COVID-19 infected pregnant women among the staff nurses

The above fig. 4 shows that there is positive correlation between the knowledge and practice on the management of COVID-19 infected pregnant women as $r = 0.23$ with the p-value (0.043) at level of significant. This concludes that there is significance between knowledge and practice regarding management of COVID-19 infected women. Therefore, the third hypothesis (H₃): “There will be significant co-relation between the level of knowledge and practice regarding management of COVID-19 infected pregnant women among the staff nurses” is accepted.

Discussion

This study was done on Assessment on Knowledge and Practice regarding Management of COVID-19 infected Pregnant Women. So the findings can be implemented in future to enhance information about management of COVID-19 infected pregnant women through social media or various other health programs in pandemic period. Overall, 47(44.34%) of staff nurses were in the age group 26-35 years and 21(19.81%) of staff nurses were in the age group 20-25 years. View of general working experience, majority 49(46.2%) of the staff nurses had less than 5 years of experience and minority, 7(6.6%) had more than 16 years of experience. Knowledge level of the staff nurses, 17 (16.00%) had poor knowledge and 73(68.90%) had moderate knowledge and only 16(15.10%) had adequate knowledge regarding management of COVID-19 infected pregnant women.

These findings were supported by the descriptive study conducted by Xin Wen (2020) to study the knowledge, attitude and practice (KAP) of nursing staff and influencing factors on COVID-19 in selected medical institutions at Zhejiang China among 7716 nursing staff. Respondents participated on online survey and data were collected through questionnaire. From that study, 47.8% were under 30 years old and 50.2% were aged between 31 to 49 years, 76.6 had undergraduate course completed, 58.9% had a working experience of less than 10 years. The study showed that 65.3% had good knowledge, 74.3% had favorable attitude and 55.8% had good practice towards COVID-19. The findings revealed that staff nurses who worked in isolation ward had higher knowledge, attitude and practice than general wards and non-frontline nursing staffs had lower confidence as compared to frontline staff. The study concluded that the higher the working experience the more confident is the nurse to deal with health emergencies. Regarding the practice level, 106 staff nurses, 65 (61.30%) staff nurses have moderately appropriate practice followed by 33 (31.10%) staff nurses who have appropriate practice and only 8(7.50%) have inappropriate practice regarding the management of COVID-19 infected pregnant women. This finding was supported by Rastogi Aaushi *et al.* (2020) who conducted a cross sectional study on Knowledge, Attitude and Practice toward Prevention and Management of COVID-19 among 1110 nursing professionals in India. Data were collected using e-questionnaire through online survey. The study participants consisted of 68.4% females and

31.6% males. The study revealed that mean knowledge score, overall attitude score and the overall practice score were 16.82 ± 3.3 , was 9.77 ± 2.03 and 18.37 ± 3.29 respectively. The study conducted show a statistically significant associated between knowledge level and practice score with selected demographic variables of age and area of posting whereas significant association between attitude level and selected demographic variables (age, gender, location and type of working and marital status) were observed. The study showed a positive correlation between practice score ($p < 0.05$) with the knowledge score ($r = 0.1526$) and attitude score ($r = 0.4398$). This study concluded that half of nurses had moderate knowledge score towards prevention and management of COVID-19, held a positive attitude towards the COVID-19 pandemic and had high practice scores.

Recommendations

Keeping in view of the present study findings, the following recommendations have been made: A similar study can be conducted on a large scale to validate the findings and generalize. A similar study can be carried out in other settings with the different population characteristics and adequate sample size. A similar study can be undertaken among the medical doctors and antenatal mothers. More scientific research could be conducted on other pandemic diseases regarding the practice on its prevention and management. Both qualitative and quantitative approaches are essential for developing rational and effective responses to the pandemic situations. A planned training programme can be conducted to assess the knowledge, attitude and practice regarding management of COVID-19 infected pregnant women among the staff nurses. Strengthening public and private organizations may help build understanding of vulnerable group's needs and provide motivation and help them in meeting those needs regarding management of COVID-19. The support of central, national and local agencies in expanding opportunity for the staff nurses will speed the process on management of COVID-19 infected pregnant women.

Conclusion

Based on the findings of the present study, it can be concluded that, during any pandemic situation everyone can be risk and in danger situations. Also a pregnancy is a state when normal physiological and immunological changes will be there. However, sometimes in this type of situation pregnant women are more vulnerable than the average person to these changing conditions. The findings of the study have provided a vision to staff nurses by assessing the knowledge and practice regarding management of COVID-19 infected pregnant women in the study area, which could help in designing suitable intrusions and be used as a base for further wide scale studies in other parts of the country. Thus, research questions of this study are answered. The study shows that majority of the staff nurses had moderate knowledge and moderately appropriate practice had performed. Their knowledge on certain training of COVID-19 was still weak especially on signs and symptoms of COVID-19 infected pregnant women and management guidelines. Continued professional education is needed among health care workers to improve knowledge hence decreasing negative information and promoting positive preventive and therapeutic practices. So, COVID-19

education involving teaching and non-teaching hospitals should take a proactive outlook and focus on eliminating misinformation in such critical state of affairs.

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