

Prevalence of Anxiety, Depression and Stress among Antenatal Women Attending a Tertiary Care Centre in Kerala during COVID-19 Pandemic

Nageswaran Gomathy A¹, Devakumar Indu², Nambisan Bindu³

¹MBBS, House Surgeon, Government Medical College, Trivandrum, Kerala

²Additional Professor, Department of Community Medicine, Government Medical College, Trivandrum, Kerala

³Additional Professor, Department of Obstetrics and Gynecology, SAT Hospital, Trivandrum, Kerala

Correspondence : Dr Nageswaran Gomathy A, Email: gomathyarthy@gmail.com

Abstract:

Introduction: Anxiety, depression and stress can cause negative impacts on the foetus and pregnancy. The COVID-19 pandemic provides a unique stressor requiring an assessment of its impact in the Indian set up. **Objectives:** 1. To assess prevalence of anxiety and depression among antenatal women attending the antenatal OPD at a tertiary care centre during COVID-19 pandemic using Hospital Anxiety and Depression Scale (HADS). 2. To determine stress perceived by antenatal women using the Perceived Stress Scale (PSS). **Method:** Antenatal women attending the outpatient clinic between November 2020 and January 2021 were consecutively enrolled into the study after obtaining consent and a semi-structured interviewer administered questionnaire was used to collect data. The outcome variables, including sociodemographic details, HADS and PSS scores, were analysed using SPSS software, and results expressed appropriately, with quantitative variables expressed as mean and standard deviation, and qualitative variables as proportions. **Results:** Prevalence of anxiety among antenatal mothers was estimated to be 39%, of which 87.8 % had income below the poverty line. Prevalence of depression was estimated to be 11.4 %. Stress levels were high in 41.9 % of the women. Anxiety showed a positive correlation with stress (correlation coefficient of 0.711). **Conclusion:** High prevalence of anxiety and stress among antenatal women, especially from poor income backgrounds, points to an urgent need for reassurance and counselling.


Keywords: Antenatal, Anxiety, COVID-19, Depression, Pandemic, Stress

Introduction:

Pregnancy is a vulnerable time for both the mother and the baby and any psychological stressor during this period can have far reaching consequences. Sustained, elevated prenatal psychological distress increases the risk of perinatal depression, as well as prenatal infection and illness rates.^[1]

Since the COVID-19 pandemic began in Wuhan^[2] in late 2019, countries and governments have

worked tirelessly to ensure the countering of the spread by issuing strict lockdown measures. All the restrictions in place, as well as the potential consequences of contracting the disease, have instilled a lot of worry among the general population, especially among pregnant women. A study in Canada^[3] done in April 2020 found substantially elevated psychological distress compared to similar pre-pandemic pregnancy cohorts, with 37% reporting clinically relevant symptoms of

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depression, 57% reporting clinically relevant symptoms of anxiety, and 68% reporting elevated pregnancy-related anxiety. A study done in Ireland^[4] shows over 35 % of pregnant women were self-isolating to avoid getting the disease. Almost half of women questioned (46.5 %; 33/71) altered their primary method of transportation. Bulk-buying was reported by many participants (66.2 % food, 42.3 % Hand sanitizer).

Hence although anxiety, depression and stress have been widely studied in the India^[5,6] previously, the rising pandemic provides a unique stressor which requires a fresh look in the Indian set up. It is against this background, that this study was done to assess the burden of anxiety and depression among antenatal population attending a tertiary care hospital in Kerala, South India, with the goal of helping obstetricians, public health professionals and psychiatrists become better prepared for the effect of the pandemic on the mental health care set up.

Objectives:

1. To assess prevalence of anxiety and depression among antenatal women attending the antenatal Outpatient clinic (OP) at a tertiary care centre dedicated to maternal and child health care, during the COVID-19 pandemic, using Hospital Anxiety and Depression Scale (HADS).^[7]
2. To determine stress perceived by antenatal women coming to the antenatal OPD during COVID-19 pandemic in terms of the Perceived Stress Scale (PSS).^[8]

Method:

A hospital based cross sectional study was conducted in the antenatal OPD of a mother and child health care tertiary centre in Kerala, India. The study was done from November 2020 and January 2021, and all consecutive antenatal women who attended the antenatal OPD and consented to be in the study were included, while those who had a pre-existing psychiatric illness were excluded.

In a study done by Niloufer et al,^[9] using the HADS questionnaire in a tertiary care setting, the prevalence of depression was found to be 49.7%. Applying this in the formula $4pq/d^2$ where 'p' is the prevalence of depression and 'd' is the relative precision of 20 %, the sample size was fixed as 105, after allowing a non-response rate of 5%.

A semi structured interviewer administered questionnaire was used to collect the data. The first part of the questionnaire dealt with sociodemographic details and medical history. The rest of the questionnaire comprised of the HADS scale^[7] and Perceived Stress Scale.^[8]

The Hospital Anxiety and Depression Scale (HADS) is a fourteen-item scale commonly used by doctors to determine the levels of anxiety and depression that a person is experiencing. Seven items relate to anxiety and seven relate to depression. Each item on the questionnaire is scored from 0-3 and a person can score between 0 and 21 for either anxiety or depression. A score between 0-7 is considered normal, 8-10 borderline abnormal (borderline case), and above 11 is considered as abnormal (case) as per the scale. The scale has been validated for use in Malayalam^[10] and has also been validated for use in hospital, primary care, and general population.^[11]

Stress perceived by the women was assessed using Perceived stress scale - a 10 item version. This scale comprises of 10 items with choices on a 5-point agreement scale. The questions were designed to tap the degree and frequency of stressful thoughts during previous one month. These questions are of general nature and can be applied to any subgroup of population. Perceived stress scale is reviewed as a questionnaire with good psychometric properties.^[12]

The data was collected in MS excel spreadsheets, by directly uploading into a Google Form and analysed with SPSS software, version 25. The sociodemographic variables studied included the patients age, education level, husband's education

level, ration card colour, income per month, and occupation. The outcome variables included anxiety and depression scores using HADS scoring, stress scores using Perceived Stress Scale. Other variables studied included obstetric score, gestational age, and co morbidities. During the analysis, the participants were categorised as low (below poverty line) or high income (above poverty line) based on ration card colour. Yellow (most economically backward) and pink (below poverty line) ration cards were considered low income, and blue (nonpriority subsidy, above poverty line) and white cards (nonpriority) as high income. For the results, all quantitative variables were expressed in mean and standard deviation and all qualitative variables were expressed as proportions.

Ethical considerations: The study was undertaken after obtaining consent from the Institutional Human Ethics Committee.

Results:

The population studied had a mean age of 25.6 years ± 4.25 years, with the youngest being 19 years and oldest participant aged 36 years. Among the study population 13.33% had education up to high school, 34.3% up to higher secondary school and others degree and above. Very few were illiterate or studied up to primary school. Majority of the study subjects (86.7%) were home makers while 12.3% were skilled workers. The socioeconomic status was assessed based on their ration card and 81.1% belonged to BPL families.

The population studied had a mean gestational age of 30.3 weeks ± 7.0 with 67.6 % in the third trimester and 27.6% in the second trimester. The mean age of first conception was 23.0 years ± 3.28 with 43.8% being primigravidae. Regarding contact history with respect to COVID, 2.9% had contracted COVID-19 during the current pregnancy and were recovering from it, 3.9% had been secondary or primary contacts of lab confirmed COVID-19 positive patients and 86.7% had no history of COVID-19 or

known contacts. The most common co morbidities seen were diabetes complicating pregnancy (14%), hypertension (13%) and thyroid problems (4.8%). (Table 1)

Table 1: Socio-demographic characteristics of study population (n=105)

Demographic variables		Number(%)	
Age (years)	<20	10 (9.52%)	
	21-25	47 (44.76%)	
	26-30	32 (30.47%)	
	31-35	12 (11.42%)	
	>36	4 (3.81%)	
Education	Husband	Wife	
	<SSLC	43 (40.95%)	15 (14.29%)
	Upto plus 2	29 (27.62%)	36 (34.28%)
	Diploma	9 (8.57%)	14 (13.33%)
	UG degree	23 (21.9%)	36 (34.28%)
PG degree	1 (0.95%)	4 (3.81%)	
Religion	Hindu	83 (79%)	
	Christian	13 (12.4%)	
	Muslim	9 (8.6%)	
Type of family	Joint	2 (1.9%)	
	Nuclear	87 (82.9%)	
	Extended	2 (1.9%)	
Income	BPL	86 (81.1%)	
	APL	20 (18.9%)	
Occupation	House wife	91 (86.7%)	
	Unskilled worker	1 (1%)	
	Skilled worker	13 (12.3%)	
Gestational age	1st Trimester	5 (4.8%)	
	2nd Trimester	29 (27.6%)	
	3rd Trimester	71 (67.6%)	
History of contact with COVID	Contracted COVID	3 (2.9%)	
	From hot spot	2(2%)	
	Health care worker	5 (4.8%)	
	Contact of COVID patient	4 (3.9%)	
	No history of contact	91 (86.7%)	
Comorbidities	Diabetes	15 (14%)	
	Hypertension	14 (13%)	
	Thyroid disorders	5 (4.8%)	
	Others	11 (10.4%)	

Table 2: Relation between demographic variables and anxiety (n= 105)

Demographic variable	Anxiety		Chi square value	p value
	Yes n (%)	No n (%)		
Age (yrs)				
<30	32 (78.04%)	57 (89.06%)	20.34	0.236
> 30	9 (21.9%)	7 (10.93%)		
Income				
Below poverty line	36 (87.8%)	49 (76.6%)	4.336	0.502
Above poverty line	5 (12.2%)	15 (23.4%)		
Contact history				
No	35 (85.3%)	6 (87.5%)	3.86	0.696
Yes	6 (14.7%)	8 (2.5%)		
Occupation				
Unemployed	36(87.8%)	55 (85.5%)	3.497	0.321
Employed	5(12.2%)	9 (14.5%)		
Obstetric score				
Primigravidae	20(48.8%)	26 (40.6%)	0.675	0.411
Multigravida	20(51.2%)	38 (59.4%)		

Table 3: Relation between demographic variables and depression (n=105)

Demographic variable	Depression		Fischer's exact test value	p value
	Yes n (%)	No n (%)		
Age				
<30 yrs	9(75%)	80(86%)	16.17	0.328
>30 yrs	3(25%)	13 (14%)		
Contact history				
No	10 (83.3%)	81 (87.1%)	8.28	0.246
Yes	2 (16.7%)	12 (12.9%)		
Obstetric score				
Primigravida	5 (41.7%)	41 (44.1%)	0.025	0.874
Multigravida	7 (58.3%)	52 (55.9%)		

Prevalence of anxiety in the population (n=105) was 39% (n=41) of which 19% (n=20) were anxiety cases and 20% (n=21) borderline cases as per HADS. Among those who had higher than 7 scores on the anxiety scale, 75.6% were aged between 21 and 28 year, whereas only 2.4% were aged below 21 year and 22% were aged more than 28 years of age. However, the association between anxiety scores and age was not found to be significant ($p > 0.05$). (Table 2) Majority of anxious women (87.8%) belonged to Below Poverty Line category. No significant association was found between anxiety and socioeconomic status ($p > 0.05$). (Table 2) Also, 85.3% of anxious women had no history of high-risk contact. There was no significant association between anxiety and history of contact with COVID-19. (Table 2)

Prevalence of depression was 11.4 % (n=12), of which 1% (n=1) was scored as depression case, and 10.4% (n=11) scored as borderline cases. In this study, 75% of those who were depressed were in the age group of 21-29 years. All the women who were depressed belonged to below poverty line category. Also, 83.3% had no high-risk contact. (Table 3) The mean score on the stress scale was 17.5 ± 1.029 and 41.9 % of the women scored higher than this mean score for the total population. Upon scoring for individual items on the stress scale, the highest mean scores were obtained for item 3 (mean score of 2.11 ± 1.24) and item 4 (mean score of 2.01 ± 1.04) of the Perceived Stress Scale, which tested how often the women felt like they were unable to control the things in their life, and how often they felt nervous and “stressed” respectively. Among those with stress, 11.5% were less than 20 years old, 75% were between 21 and 29 years and 13.6% were aged 30 and above. Majority of them (79.6%) were from lower income (Below Poverty Line) category and 84.1% had no history of COVID-19 or history of high-risk contact.

It was seen that 61 % of women with anxiety were in the third trimester, and 51.2% were primigravidae, whereas 50% of depressed women were in the first and second trimesters.

Higher anxiety scores correlated positively with higher stress scores (Spearman correlation coefficient of ± 0.717), with 46.5 % of women with anxiety having high stress scores as well.

Discussion:

The findings of this study corroborate with the findings of other studies done during the pandemic period, in Turkey,^[13] Canada,^[14] and Delhi^[15] each of which found prevalence of anxiety to be 64.5%, 57%, and 9.8 %, and prevalence of depression to be 56.3%, 37% and 13.2% respectively. Also, there is an increase in the prevalence of anxiety when compared to a previous study done in the similar Southern Indian setting of Mysore, India during the pre-pandemic period,^[16] which estimated the prevalence of antenatal anxiety to be 27%. It is also known that the pandemic brought multiple causes of worry, about not only the influences of the virus on the outcome of pregnancy, but also financial constraints. Indeed, a previous study done in coastal south India,^[17] had estimated the prevalence of depression to 16.3 % with one of the reasons cited as being financial constraints. A similar finding is reflected by this study in the result that 87.8 % of anxious women had income that was below the poverty line.

It is also highly relevant to appreciate that the results of this study substantiate those of a review done in Malaysia^[18] on the psychological impact of COVID-19 on antenatal women, which had found that the most common types of distress were anxiety and worry, followed by depression. The higher prevalence of anxiety as compared to depression in this study population also reflects this. Another interesting outcome from this study is that 85 % of anxious women also had no history of high-risk contact. In addition, higher anxiety scores also showed a positive correlation with higher stress scores. The participants also scored highest on questions that asked how often the women felt like they were unable to control the things in their life. This highlights the need to investigate factors causing high degrees of stress in the population and making

efforts to tackle these. It also supports evidence from other comparable studies conducted during this period, such as, the study by Nanjundaswamy, et al,^[19] that concluded that the obstetricians mentioned the need for resources to help them manage anxieties among mothers and the need for training in simple counselling techniques.

Also, unlike most other comparable studies done in the same time period in which the questionnaires were administered online, in this study, the questionnaire was administered directly by the researcher, adding to the strength of the data collected as the effectiveness of face-to-face interviewing was utilised.

An important aspect of how psychological problems have been affected by the ongoing pandemic is reflected on how the prevalence varies with age groups. It was noted from the analysis that among those women with stress, 11.5% were less than 20 years old, 75% were between 21 and 29 years and 13.6% were aged 30 and above, and this is comparable to another study done in Mumbai,^[20] which found that scores of Perceived Stress Scale, Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7) administered online in antenatal women in age group 21–30 years were higher than of women in the age group of 31–40 years. This could perhaps be reflective of the constant changes in the financial and social dynamics of this age group, contributing to increased levels of anxiety, and the need for targeting training in coping strategies in these women.

Conclusion:

This study concludes that antenatal women during the pandemic show a high prevalence of anxiety, more as compared to similar pre pandemic studies, and more as compared to the prevalence of depression. In addition, the subgroup of the population that was most anxious was those aged 21 to 29 years, and in the third trimester and from the lower socioeconomic class, even though the associations were not found to be statistically

significant. In addition to substantiating the findings of similar studies done during the same period, a distinctive conclusion of this study is that high anxiety correlated with high stress, highlighting the need to pay specific attention to women who appear to be exceedingly stressed during this period.

Recommendations:

Screening of antenatal women for psychological problems must be given importance and these issues addressed at the earliest by appropriate interventions, such as counseling and treatment.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Original Research Article

Awareness of nursing assistants regarding COVID-19 epidemiology and preventions: a hospital based cross-sectional study

Arunima Baby Sasikala, Pranav V. Vasisht*, Indu D., Sorna P. N., Malathi M.

Department of Community Medicine, Government Medical College, Thiruvananthapuram, Kerala, India

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*Correspondence:

Dr. Pranav V. Vasisht,

E-mail: pranavvasisht@gmail.com

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ABSTRACT

Background: COVID-19 is a disease caused by a beta coronavirus belonging to the larger family coronaviruses. It is very important that health care workers have adequate knowledge regarding COVID-19 and epidemiological characteristics for disease prevention. This study was meant to assess awareness of nursing assistants working in a tertiary care institution in Kerala regarding COVID-19 infection, modes of transmission, symptoms, isolation, and preventive measures instituted for self-protection and hospital sanitation. The objectives of this study was to assess the awareness including the knowledge attitude and practices of hospital staff about basic infection control practices and epidemiological characteristics.

Methods: The study was conducted in medical college, Thiruvananthapuram. Study objective was to study awareness of nursing assistants working in the hospital about COVID-19 preventive measures and epidemiology. Participants selected by simple random sampling with sample size 100. Data was collected using semi structured questionnaire was entered into MS Excel and analysis done using appropriate statistical software. Total score calculated for each of the questions for each participant by summing up the responses for each choice in the question, individual domain and grand total scores calculated. Finally a grand total was calculated for each participant.

Results: Out of total participants 77 (68.8%) scored between 35-49 (good), 36 (31.2%) (average) between 18 and 34, and 0 below 18 (poor).

Conclusions: The results obtained indicate the nursing assistants had good knowledge about COVID-19 epidemiology which will prevent hospital infections of COVID-19.

Keywords: Awareness, COVID-19, Epidemiology, Nursing assistants, Prevention

INTRODUCTION

COVID-19 is a disease caused by a type of beta coronavirus belonging to the larger family of coronaviruses. They usually cause common cold and similar infections in human beings. They along with rhinoviruses are respiratory pathogens. Their involvement in causing severe diseases in humans with mortality and extreme morbidity has been noticed in the recent years of the 21st century by the onset of diseases like MERS (Middle-East respiratory syndrome) and SARS (severe acute respiratory syndrome). Both the above mentioned diseases are caused by coronaviruses. SARS was reported

in China during 2003 and MERS IN 2014 in the Middle East countries. The causative agent of SARS spread to humans from the civet cats and MERS from the camels.^{1,2} Both the diseases had mortality rates ranging from 11% and 35% respectively.^{3,4} The present disease COVID-19, which has started to cause a pandemic around the world affecting over 194 countries is estimated to have a case-fatality rate of 4%.⁵ COVID-19 started as a reporting of atypical pneumonia cases in Wuhan city of China in late 2019 in December. Further investigations into the etiology of the disease led to the discovery of the new strain of virus causing the illness, which was a mutant strain of coronavirus and was named as the novel corona

virus. The symptoms of the disease are fever and respiratory symptoms like dry cough, shortness of breath and fatigue and myalgia. Very few cases leads to the progression of illness to pneumonia requiring assisted ventilation. Majority of patients developing the infection only develop milder illness and especially the old aged people and those with comorbidities are prone to develop severe illness. By January the disease spread to countries around the globe from China and by April 7 2020 infected over 15 lakh people and caused over 81,000 deaths.

It was possible to curb the infection in China by lockdown of affected cities and provinces and by carrying out cleaning drives and case detection, contact tracing, isolation of cases, testing and quarantining of suspects and providing supportive care to the confirmed cases. No effective drug is available so far against the disease and also there is a non-availability of an effective vaccine till date. Intensive supportive care is instituted to all severely ill patients. All around the world it has resulted in the adoption of protective measures by people by initiatives taken by governments and generation of awareness through various measures like wearing of masks, hand-washing, social distancing etc. lockdowns were established in many countries around the globe including India where a nation-wide lockdown for 21 days is announced. The people at the greatest risk of contracting the illness are the health care workers, including doctors, nurses, nursing assistants, and also other staffs like hospital cleaning and house-keeping staff who are directly or indirectly exposed to the patient or his belongings.⁶ There has been a reported shortage of personal protective equipment and related accessories in many places. Taking all of this into consideration it is very important that the health care workers have adequate basic knowledge regarding COVID-19, its epidemiological characteristics like mode of spread and preventive aspects concerned with infection control such that each one among them is protected themselves from contracting the illness even when they themselves are involved in their work in places where COVID-19 patients are treated.⁷ This study was meant to assess the awareness of nursing assistants working in a tertiary care institution in the Indian state of Kerala regarding COVID-19 infection, modes of transmission, symptoms, isolation, and preventive measures instituted for self-protection and hospital sanitation.

The objectives of this study was to assess the awareness including the knowledge attitude and practices of hospital staff about basic infection control practices and epidemiological characteristics.

METHODS

Study setting

The study was conducted in a tertiary care institution in the Indian state of Kerala in the city of

Thiruvananthapuram. Kerala is the state that first reported case of the novel corona virus disease in India towards the end of January amongst a group of medical students who were studying medicine in Chinese universities located at Wuhan, which was the epicenter of the outbreak of the disease from where it was spread to the rest of the world including India.⁸ There was 1 case reported initially with subsequent detection of 2 more cases, which led to massive state wide exercises to curb the infection spreading to the local population. All travelers from china and affected countries were tested, positive cases were isolated and treated in designated isolation wards and asymptomatic people were sent for home quarantine. Almost all hospitals inside the state imparted knowledge related to infection prevention and control practices to all hospital staffs through training sessions conducted by experts in that field. During the second phase of infection that started by March of 2020, massive ramp-up of contact-tracing, case-detection, testing and treatment and training for a wide spectrum of workers was given state-wide. Similar training sessions were conducted in Government Medical College, Thiruvananthapuram also which is our study setting, which is declared as a COVID hospital which is dedicated for the testing and treatment of COVID-19 patients that too for severe cases.

Study population

The nursing assistants are the study population chosen for this study. They even though do not involve in direct patient care are associated with it indirectly by helping nursing staffs as well as doctors in providing patient care. They were given training classes regarding infection prevention and control well before the declaration of the hospital, our setting as a COVID hospital by the state government. An assessment of their knowledge regarding COVID-19 will be imperative in knowing the impact of such training sessions on the knowledge, attitude and practices amongst the nursing assistants which will help in preventing them from acquiring the illness as well in transmitting it to others.

Sample size and sampling technique

The estimated sample size for the study was calculated as 100. It was calculated by assuming that a proportion of 50% of the nursing assistants have adequate knowledge regarding the illness and its prevention and by setting an absolute precision of 20%. There are about 273 nursing assistants working at Government Medical college Hospital, Thiruvananthapuram. The detailed list was obtained from the nursing superintendent from which all who give consent for participating in the study were recruited randomly into the study since all of them are working in the hospital and at any time they can be posted in the wards meant for housing COVID confirmed persons and also that all of them had attended the training sessions.

Selection criteria

There were no specific exclusion criteria. All the nursing assistants had to work in covid care settings, all were given training classes.

Study design

The study design used in the conduct of the study was a Hospital based cross-sectional study, among the nursing assistants working in the setting during the study period.

Study period

The study was conducted between 14 June 2020 and 31 July 2020.

Data collection

Data was collected from the study participants by using a semi-structured questionnaire using face to face interview. The questionnaire was administered to the participants by the interviewer and responses are marked.

Statistical analysis

We formulated a semi structured questionnaire with questions on various modes of transmission of COVID-19 which contained multiple choices with yes/no responses. Some of the choices were a yes were others were no. Similarly questions with choices and each choice having an yes/no response was asked in the questionnaire about the symptoms, prevention, substances that can destroy the virus, expression of symptoms in patients and transmission from asymptomatic persons, articles of patients that can transmit infection, concentration and strength of bleach solution used in wards, and each correct response was assigned a score of 1 and wrong response 0.

Total score was calculated for each of the questions for each participant by summing up the responses for each choice in the question. A question on steps of hand washing was asked and scoring was done out of 6 based on enumeration of the steps by the participant, one point for each step. Finally a grand total was calculated for each participant. There were 9 items in the questionnaire as follows: 1) knowledge regarding transmission of covid-19, 2) knowledge on symptoms of COVID-19, 3) knowledge about prevention of COVID-19, 4) knowledge destructibility of COVID-19 virus, 5) knowledge about isolation period, 6) knowledge about bleach solution, 7) knowledge about transmission during patient care, 8) knowledge about glove use, and 9) hand washing knowledge

We calculated individual domain scores and total score and analysis was done using appropriate statistical software after entering the data into MS Excel.

We expressed quantitative variables in mean and standard deviation and qualitative variables in proportion. Significance was tested using appropriate tests of significance.

Ethical considerations

Clearance was obtained from institutional ethics committee and the institutional research committee before commencing study. All data collected were kept confidential, anonymity was maintained and there was no financial burden on study participants.

RESULTS

Age distribution

The histogram shown below illustrates the age distribution if participants enrolled into our study.

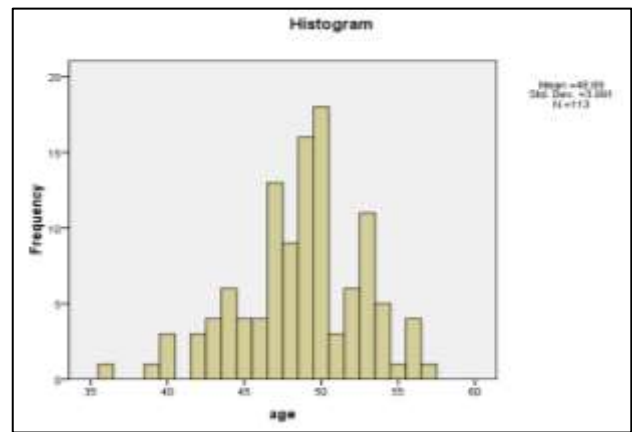


Figure 1: Age distribution of study participants.

Gender distribution

The gender distribution of the study participants is shown in the following pie chart. Males comprised of 6.2% (n=7) and females comprised of 93.8% (n=106).

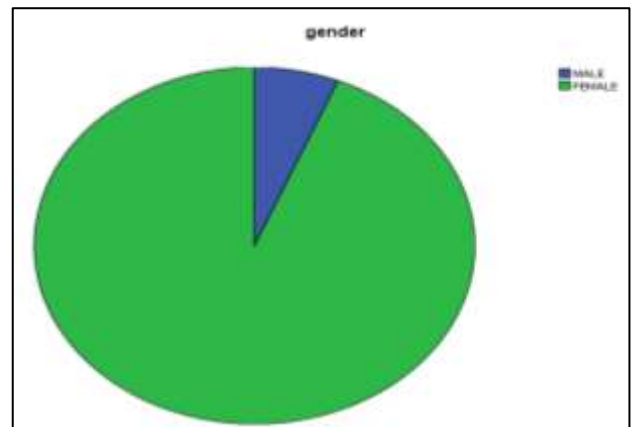


Figure 2: Gender distribution of study participants.

Years of experience

Years of experience of the study participants can be inferred from the table and bar diagram depicted below.

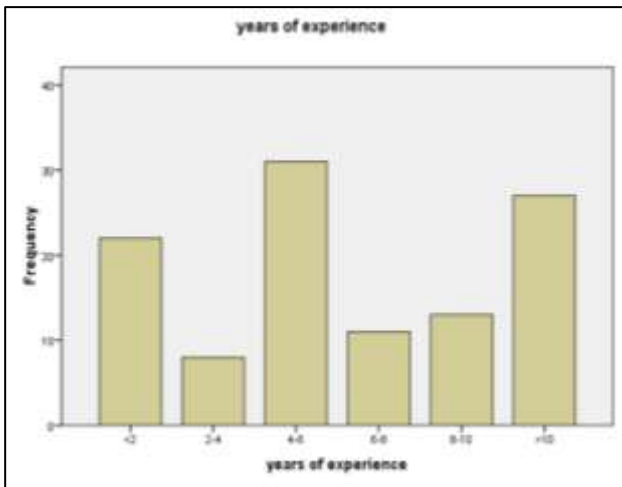


Figure 3: Years of experience of study participants.

Knowledge scores of individual domains

The following tables provide information pertaining to the various questions asked to the study participants using our questionnaire to assess knowledge regarding various parameters related to COVID-19, as mentioned in the methodology.

Table 1: Knowledge regarding transmission of COVID-19.

Knowledge of transmission of COVID-19	Yes (%)	No (%)
Cough	113 (100)	0 (0)
Sneeze	110 (97.3)	3 (2.7)
Talk	100 (88.5)	13 (11.5)
Sharing articles	97 (85.8)	16 (14.2)
Food	21 (18.6)	92 (81.4)
Water	24 (21.2)	89 (78.8)
Insects	15 (13.3)	98 (86.7)
Contact with infected person	94 (83.2)	19 (16.8)
Rodents	5 (4.4)	108 (95.6)

Table 2: Knowledge on epidemiology of COVID-19.

Variables	Yes (%)	No (%)
Knowledge on symptoms of COVID-19		
Fever	97 (85.8)	16 (14.2)
Cough	95 (84.1)	18 (15.9)
Throat pain	111 (98.3)	3 (2.7)
Runny nose	93 (83.2)	20 (17.7)
Breathlessness	105 (92.9)	8 (7.1)
Jaundice	106 (96.8)	7 (6.2)
Hematemesis	107 (94.7)	5 (4.4)
Knowledge about asymptomatics		
Occurrence in asymptomatics	83 (73.5)	30 (26.5)
Transmission from asymptomatics	64 (56.7)	49 (43.4)
Knowledge about prevention of COVID-19		
Using masks	109 (96.5)	4 (3.5)
Hand hygiene	107 (94.7)	6 (5.3)
Social distancing	99 (87.6)	14 (12.4)
Avoiding non-veg food	96 (85)	17 (15)
Cough hygiene	107 (94.7)	6 (5.3)
Steam inhalation	11 (9.7)	102 (90.3)
Ginger tea	12 (10.6)	101 (89.4)
Vitamin tablets	12 (10.6)	101 (89.4)
Naturopathy	13 (11.5)	100 (88.5)
Knowledge destructibility of COVID-19 virus		
Soap and water	107 (94.7)	6 (5.3)
Bleaching powder	99 (87.6)	14 (12.4)
Sunlight	35 (31)	78 (69)
Hand sanitizer	99 (87.6)	14 (12.4)
Neem	31 (27.4)	82 (72.6)
Turmeric	31 (27.4)	82 (72.6)

Table 3: Knowledge on prevention of hospital based transmission of COVID-19.

Knowledge on prevention of hospital based transmission	Yes (%)	No (%)					
Knowledge about isolation period	67%	33%					
Knowledge about bleach solution	Yes (%)	No (%)					
Percentage of bleach solution used	27 (23.9)	86 (70.1)					
Preparation of bleach solution	14 (12.4)	99 (87.6)					
Knowledge about transmission during patient care	Yes (%)	No (%)					
Bed sheet	107 (94.7)	6 (5.3)					
Syringe	102 (90.3)	11 (9.7)					
Medicine bottle	80 (70.8)	33 (29.2)					
Cotton	104 (92.1)	9 (7.9)					
Urinary catheter	97 (85.9)	16 (14.1)					
Food plate	105 (92.9)	8 (7.1)					
Knowledge about glove use	Yes (%)	No (%)					
Should hand sanitizer be used after removing gloves	106 (93.8)	7 (6.2)					
Can glove used for one patient used for another patient	2 (1.8)	111 (98.2)					
Hand washing knowledge score	0	1	2	3	4	5	6
Number of participants (%)	0 (0%)	0 (0%)	0 (0%)	44 (38.9%)	52 (46%)	17 (15%)	0 (0%)

Total score

We classified the total number of participants into three categories based on the total knowledge scores. The total score of the questionnaire was 49.

Table 4: Total score regarding knowledge about COVID-19.

Total score (mean and SD)	37.44 (5.99)	49
Total score	Number	Percentage
35-49 (good)	77	68.8%
18-34 (average)	36	31.2%
<17 (poor)	0	0%

The results indicate that there is adequate knowledge among the nursing assistants regarding the modes of transmission of the novel corona virus, its symptoms, presence and transmission of symptoms from asymptomatic, prevention and the destructibility of SARS CoV₂, and glove usage. However there was a decreased awareness regarding preparation of 1% bleach solution which is used for cleaning isolation wards and a very few participants had knowledge regarding the percentage of bleach solution used.

DISCUSSION

There were no similar studies published during the period or before the period of this study. This is one of the first studies to be conducted regarding the topic during the initial phases of COVID-19 pandemic. This study would definitely provide necessary light into those areas of health staff training and education which is needed for infection control. According to a latest study published which assessed the awareness and practices amongst

health care professionals of which results for nursing assistants specifically is unavailable, fifty two percent of health care professionals had awareness and 72% were practicing adequate measures to combat COVID-19. The majority (81.9%) believed that the sign and symptoms are similar to a common flu and the main strata of population that could be affected by COVID-19 are elderly (79%). Seventy three percent of participants did not attend any lecture, workshop or seminar on COVID-19 for awareness purpose. Sixty seven percent of health care professionals were practicing universal precaution for infection control and 57.4% were using sodium hypochlorite as a surface disinfectant in dental surgeries.⁷ Another study conducted in China, which studied the implementation of COVID prevention and control measures. The average overall implementation rate of COVID-19 prevention and control measures was 80.0% (143.97/180). The average implementation rates for hygienic behavior management and access management were lower, at 75.3 and 78.7%, respectively. Number of medical staff and transformational leadership score of nursing home's manager were associated with total implementation score ($p < 0.05$). A total of 69.8% (322/461) of the nursing home managers had serious resource problems, and inadequate protective supplies (72.0%) and staff shortages (47.7%) were the two primary problems.⁸

A study on nursing students of Saudi Arabia which calculated the overall average score in the knowledge questionnaire was 9.85 (SD = 1.62, range = 0-12), which is equivalent to 82.1%. the study concluded that the majority of the students always performed most of the preventive behavior identified in the survey, except "washing hands with soap and water for at least 20 seconds after blowing my nose, coughing, or sneezing" (39.2%) and "daily cleaning and disinfecting frequently touched surfaces" (41.6%).⁹

CONCLUSION

The present study had concluded that nursing assistants in the institution had adequate knowledge regarding transmission (mean score 6.62 out of 9), symptoms (5.26 of 7), transmission from asymptomatics (1.29 of 2), preventive measures (6.58 of 9), destructibility (4.10 of 6), isolation period (0.86 of 1), transmission from patient care (5.26 of 6), glove usage (1.92 of 2). The total mean score of the participants were 38.36 out of 49. It indicates that the classes conducted in the institution for creating awareness about the novel coronavirus infection has adequate impact and it had helped in increasing the knowledge of the participants which would not only help in increasing the awareness but also in reducing the spread of infection in the hospital staff from patients and also among the hospital staffs. Various initiatives of the government and the mass media and the health workers might have also helped in increasing awareness about SARS CoV₂, which will only have a positive impact among the community. These types of initiatives will help in spreading awareness and have a wider impact on the health sector as a whole, tackling diverse challenges of present day and the future with a sense of unity and commonality.

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Ethical approval: The study was approved by the Institutional Ethics Committee, Government medical college, Thiruvananthapuram

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