

## ASSESSMENT ON THE KNOWLEDGE, ATTITUDE AND PRACTICE OF COVID-19 PROTOCOLS AMONGST MEDICAL WORKERS IN JOS, PLATEAU STATE

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### Abstract

**Objective:** To assess knowledge, attitudes, and practice on COVID-19 amongst medical HCW in Plateau State Specialist Hospital (PSSH) Jos.

**Methodology:** The study population consisted of all medical health care workers in Plateau State Specialist Hospital (PSSH) who consented to the study. The study was a cross-sectional study and consecutive sampling was employed. The knowledge, attitude and practice of COVID-19 amongst HCW was assessed using a pretested questionnaire which was analyzed using SPSS version 22.

**Results:** The nurses had the highest percentage of 58%, followed by doctors with 31%. The major source of information was television with 68%, followed by google with 9%. The knowledge of the medical HCW in PSSH was good with over 80% of the number of

questions on knowledge answered correctly with the mark over 70%. Their attitude was fair with 62% of the number of questions gotten correctly with a score of over 70%. Similarly, their practice was also fair with 66% of the questions gotten correctly with over 70%. However, one of the questions on practice was poor with only 45% of the workers answering it correctly. There was a significant association between the attitude and the Job cadre of medical HCW of PSSH.

**Conclusion:** The knowledge of medical HCW in PSSH on COVID-19 was good. Their attitude and practice were fair. There was a significant association between their knowledge and job cadre. The study showed that there is an attitude and practice gap about COVID-19 amongst the medical HCW in PSSH.

**Key words:** Attitude, COVID-19, Healthcare Workers, Knowledge, Practice

### Introduction

The corona virus disease 2019 (COVID-19) is a novel infectious disease caused by severe acute respiratory syndrome corona virus 2 (SARS-COV-2).<sup>1-2</sup> It started in Wuhan, China in December 2019 and has spread worldwide becoming a pandemic.<sup>3-4</sup> The basic risks factor for contacting this disease is viral exposure when people travel to places where the viral infection is prevalent. The virus is primarily spread between people during close contact, through small droplets produced by coughing, sneezing, or breathing.<sup>2,3,5</sup> Infection may also occur when people's hands encounter contaminated food and surfaces and then touching their faces.<sup>4</sup>

Up to 25 million cases were reported across the World with more than 800, 000 deaths as of 30<sup>th</sup> August 2020.<sup>6</sup> The symptoms of this disease include fever, cough, fatigue, myalgia, shortness of breath, loss of smell and taste, while majority of individuals may be asymptomatic.<sup>3,5,7</sup> The usual onset of these symptoms varies from two to fourteen days.<sup>7</sup> Some may progress to pneumonia, viral sepsis, acute respiratory distress

syndrome, kidney failure, multiple organ failure, cytokine release syndrome and death.<sup>3, 8-10</sup>

Real-time reverse transcription polymerase chain reaction (rRT-PCR) from a naso-pharyngeal or oropharyngeal swab, bronchial washouts, sputum sample and even blood is currently used to diagnose this infection<sup>5</sup>. Chest-x-ray and computer tomographic scan can be helpful to make diagnosis but are not recommended for routine screening.<sup>11-12</sup>

The preventive measures adopted to curb the spread of the Infection include social distancing/physical distancing, self -isolation, mandatory quarantine, handwashing and wearing of facemask.<sup>13-14</sup> The aim of these preventive measures is to reduce contact of infected persons with people who are not infected and to prevent spread from infected people to large groups. In many regions social distancing and stay-at-home orders (lock-downs) have been able to reduce the transmission rate and delay in the epidemic peak paving the way for eventual vaccine production.<sup>14</sup> The Centers for Disease Control has recommended the use of face mask in public settings where other social distancing measures are difficult to maintain to limit transmission by asymptomatic individuals.<sup>14</sup>

The treatment for COVID-19 is mainly symptomatic and supportive.<sup>15</sup> This may include fluid therapy, oxygen support, improving personal hygiene, diet and supporting other affected vital organs. Extracorporeal membrane oxygenation (ECMO) has also been

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recommended for respiratory failure.<sup>16-17</sup> Remdesivir, a broad-spectrum antiviral medication has been issued an Emergency Use Authorization (EUA) in the United State for those hospitalized with severe disease, while researchers continue Working on more effective treatments.<sup>18</sup>

The severity of COVID-19 varies. Mild-cases, resembling other common upper respiratory disease recover within two weeks, while those with severe or critical disease may take three to six weeks to recover<sup>16-17</sup>. Children make up a small proportion of cases with less than 1% being under 10 years. Those older than 70 years, pregnant women, and people with pre-existing conditions including hypertension, diabetes mellitus and cardiovascular disease may be at higher risk for severe infection with COVID-19.<sup>17</sup>

The rate of infection of COVID-19 among HCW is said to be 5.5 times higher than the community. Transmission from an HCW to another HCW is said to be 0.8% compared to the 0.1% among non-HCW.<sup>19</sup> At the beginning of the Covid-19 pandemic in China, almost one-third of the people initially infected were HCW. The hospital is the place where people go when they are sick which makes HCW as frontlines because of the nature of their work when there is a new infection, putting them at risk before much is known about the disease.<sup>20-22</sup> A study in Greece showed that 50% of all high-risk exposures were to HCW<sup>23</sup>. Another study by Zheng et al obtained results that 50% of the HCW infected were nurses, closely followed by doctors with 33%. The medical staff were more likely to be infected than non-medical staff.<sup>24</sup>

The knowledge of HCW about COVID-19 have been shown to positively affect their attitude and practice in preventing the disease,<sup>25-26</sup> there is therefore the need to assess the Knowledge, attitude and practice of HCW in the state because HCW at the frontline face substantial risk of infection in this COVID-19 outbreak.

## Materials and Methods

The study was a cross-sectional questionnaire-based study among medical health care workers in PSSH. The study was conducted from 1st of April to 30th May 2020. A self-made questionnaire was distributed to HCW who consented to the study. The HCW included doctors, nurses, pharmacist, nurse aids and pharmacist assistants.

The self-administered questionnaire consisting of socio-demographic questions, and 27 questions based on knowledge, attitude and practices related to COVID-19. A total of 109 medical HCW were recruited using consecutive proportionate sampling method.

Ethical clearance was obtained from the Health Research Ethics Committee of the Hospital.

## Data analysis

The data collected were analyzed using SPSS version 22. Frequency tables and bar chart were used to describe the data. Chi-square was used to test the

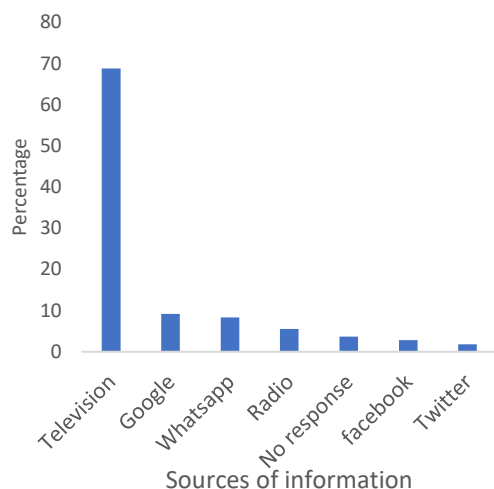
association between attitude and job cadre, and practice and educational level. The level of significance was set at  $P < 0.05$  and confidence level at 95%.

## Results

The male to female ratio of the medical HCW was 1:1, the highest age group was the age group between 31-40 years with 28%, while the least age group was >50 years with 15%. The level of education with the highest percentage was diploma with 31%, closely followed by B.NSc by 22% and MBBS with 20%. Similarly, the Job cadre with the highest percentage was the nurses with 58%, followed by doctors with 31%.

**Table 1: Demographic distribution of clinical staff in PSSH**

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
<b>Sex</b>		
Male	50	45.9
Female	50	45.9
No response	9	8.3
Total	109	100.0
<b>Age group</b>		
<30	21	19.3
31-40	31	28.4
41-50	23	21.1
>50	17	15.6
No response	17	15.6
Total	109	100.0
<b>Education</b>		
Primary	0	0.0
Secondary	1	0.9
Diploma	34	31.2
B.Sc	10	9.2
B.NSc	24	22.0
MBBS	22	20.2
Masters	3	2.8
Resident	3	2.8
Consultant	4	3.7
No response	8	7.3
Total	109	100.0
<b>Job in the hospital</b>		
Doctor	34	31.2
Nurse	64	58.7
Pharmacist	10	9.2
Nurse aide/Pharm tech	1	0.9
Total	109	100.0



**Figure 1. Sources of information**

The knowledge of the medical HCW in PSSH was very good with over 80% of the number of questions on knowledge answered correctly with the mark over 70%. However, the variable question on the knowledge on treatment was poor with only 38 (34%) getting the answer correctly.

**Table 2: Frequency of knowledge for medical staff in PSSH**

Variables	Correct No. (%)	I don't know No. (%)	Incorrect No. (%)	Total No. (%)
V2	104(95.4)	1(0.9)	4(3.7)	109(100.0)
V3	107(98.2)	2(1.8)	0(0.0)	109(100.0)
V4	102(93.6)	7(6.4)	0(0.0)	109(100.0)
V5	108(99.1)	1(0.9)	0(0.0)	109(100.0)
V6	105(96.3)	4(3.7)	0(0.0)	109(100.0)
V7	103(94.5)	6(5.5)	0(0.0)	109(100.0)
V8	89(81.7)	18(16.6)	2(1.8)	109(100.0)
V9	101(92.7)	6(5.5)	2(1.8)	109(100.0)

V10	104(95.4)	3(2.7)	2(1.8)	109(100.0)
V11	38(34.6)	32(29.3)	39(35.8)	109(100.0)
V12	60(55.0)	5(4.6)	44(40.4)	109(100.0)
V13	78(71.6)	13(11.9)	18(16.5)	109(100.0)

The attitude of the medical HCW was fair with 62% of the number of questions gotten correctly with a score of over 70%. The least correct questions gotten was 52% on variable 16. The practice was also fair with 66% of the questions gotten correctly with over 70%. The least correct questions gotten was variable 24 with 45%.

**Table 3: Distribution of Attitude and Practice of medical staff in PSSH**

Variables	Correct No. (%)	Incorrect No. (%)	I don't know No. (%)	Total No. (%)
V14	86(78.9)	20(18.3)	3(2.8)	109(100.0)
V15	68(62.4)	37(33.9)	4(3.7)	109(100.0)
V16	57(52.3)	50(45.9)	2(1.8)	109(100.0)
V17	88(80.7)	20(18.3)	1(0.9)	109(100.0)
V18	89(81.7)	16(14.7)	4(3.7)	109(100.0)
V19	96(88.1)	6(5.5)	7(6.4)	109(100.0)
V20	102(93.6)	1(0.9)	6(5.5)	109(100.0)
V21	67(61.5)	36(33.0)	6(5.5)	109(100.0)
Practice				
V22	69(63.3)	36(33.0)	4(3.7)	109(100.0)
V23	80(73.4)	25(22.9)	4(3.7)	109(100.0)
V24	50(45.9)	46(42.2)	13(11.9)	109(100.0)
V25	85(78.0)	21(19.3)	3(2.8)	109(100.0)
V26	106(97.2)	0(0.0)	3(2.8)	109(100.0)
V27	91(83.5)	14(12.8)	4(3.7)	109(100.0)

There was no significant association between the practice and the educational level of the medical workers of PSSH.

Var.	Education				
	Sec.	Diploma	B.Sc	BNSc	MBBS
V22					
Yes	0(0.0)	11(35.5)	3(9.7)	9(29.0)	5(16.1)
No	1(1.5)	22(32.8)	7(10.4)	14(20.9)	16(23.9)
Total	1(1.0)	33(33.7)	10(10.2)	23(23.5)	21(21.4)
V23					
Yes	1(1.4)	22(29.7)	6(8.1)	20(27.0)	17(23.0)
No	0(0.0)	10(41.7)	4(16.7)	4(16.7)	4(16.7)
Total	1(1.0)	32(32.7)	10(10.2)	24(24.5)	21(21.4)
V24					
Yes	0(0.0)	15(33.3)	7(15.6)	10(22.2)	12(26.7)
No	1(2.1)	18(37.5)	3(6.3)	10(20.8)	7(14.6)
Total	1(1.1)	33(35.5)	10(10.8)	20(21.5)	19(20.4)
V25					
Yes	0(0.0)	26(32.9)	6(7.6)	20(25.3)	17(21.5)
No	1(5.0)	7(35.0)	4(20.0)	4(20.0)	4(20.0)
Total	1(1.0)	33(33.3)	10(10.1)	24(24.2)	21(21.2)
V26					
Yes	1(1.2)	27(32.1)	8(9.5)	21(25.0)	20(23.8)
No	0(0.0)	6(42.9)	2(14.3)	3(21.4)	0(0.0)
Total	1(1.0)	33(33.7)	10(10.2)	24(24.5)	20(20.4)

Var.	Education				$\chi^2$	p
	Maste-rs	Reside-nt	Cons-ultant	Total		
V22						
Yes	1(3.2)	1(3.2)	1(3.2)	31(100.0)	1.801	0.970
No	2(3.0)	2(3.0)	3(4.5)	67(100.0)		
Total	3(3.1)	3(3.1)	4(4.1)	98(100.0)		
V23						
Yes	3(4.1)	2(2.7)	3(4.1)	74(100.0)	4.647	0.703
No	0(0.0)	1(4.2)	1(4.2)	24(100.0)		
Total	3(3.1)	3(3.1)	4(4.1)	98(100.0)		
V24						
Yes	1(2.2)	0(0.0)	0(0.0)	45(100.0)	11.437	0.121
No	2(4.2)	3(6.3)	4(8.3)	48(100.0)		
Total	3(3.2)	3(3.2)	4(4.3)	93(100.0)		
V25						
Yes	3(3.8)	3(3.8)	4(5.1)	79(100.0)	9.137	0.243
No	0(0.0)	0(0.0)	0(0.0)	20(100.0)		
Total	3(3.0)	3(3.0)	4(4.0)	99(100.0)		
V26						
Yes	2(2.4)	2(2.4)	3(3.6)	84(100.0)	6.391	0.495
No	1(7.1)	1(7.1)	1(7.1)	14(100.0)		
Total	3(3.1)	3(3.1)	4(4.1)	98(100.0)		

There was significant association between the attitude and the Job cadre of medical HCW of PSSH. Two-third of the variables on attitude and Job Cadre had

significant relationship. About one-third of the variables on attitude were not significantly associated with Job cadre.

**Table 5: Association of Attitude and Job cadre for medical staff in PSSH**

Variable	Doctor	Nurse	Phar-macist	Nur-se aide/P ha-rm tech	Total	$\chi^2$	p
V14							
Yes	4 (20.0)	11 (55.0)	4 (20.0)	1(5.0)	20 (100.0)	8.146	0.043
No	28 (32.6)	52 (60.5)	6 (7.0)	0(0.0)	86 (100.0)		
Total	32 (30.2)	63 (59.4)	10 (9.4)	1(0.9)	106 (100.0)		
V15							
Yes	11 (29.7)	21 (56.8)	5 (13.5)	0(0.0)	37 (100.0)	3.302	0.347
No	22 (32.4)	42 (61.8)	3 (4.4)	1(1.5)	68 (100.0)		
Total	33 (31.4)	63 (60.0)	8 (7.6)	1(1.0)	105 (100.0)		
V16							
Yes	14 (28.0)	30 (60.0)	5 (10.0)	1(2.0)	50 (100.0)	1.449	0.694
No	19 (33.3)	33 (57.9)	5 (8.8)	0(0.0)	57 (100.0)		
Total	33 (30.8)	63 (58.9)	10 (9.3)	1(0.9)	107 (100.0)		
V17							
Yes	3 (15.0)	12 (60.0)	5 (25.0)	0 (0.0)	20 (100.0)	8.742	0.033
No	30 (34.1)	52(59.1)	5 (5.7)	1 (1.1)	88 (100.0)		
Total	33 (30.6)	64 (59.3)	10 (9.3)	1 (0.9)	108 (100.0)		
V18							
Yes	3 (18.8)	8 (50.0)	4 (25.0)	1 (6.3)	16 (100.0)	12.733	0.005
No	30 (33.7)	54 (60.7)	5 (5.6)	0 (0.0)	89 (100.0)		
Total	33(31.4)	62(59.0)	9(8.6)	1(1.0)	105 (100.0)		
V19							
Yes	26(27.1)	61(63.5)	8(8.3)	1(1.0)	96 (100.0)	5.557	0.135
No	4(66.7)	1(16.7)	1(16.7)	0(0.0)	6(100.0)		
Total	30(29.4)	62(60.8)	9(8.8)	1(1.0)	102(100.0)		
V20							
Yes	32(31.4)	61(59.8)	9(8.8)	0(0.0)	102(100.0)	103.000	0.000
No	0(0.0)	0(0.0)	0(0.0)	1(100.0)	1(100.0)		
Total	32(31.1)	61(59.2)	9(8.7)	1(1.0)	103(100.0)		
V21							
Yes	5(13.9)	27(75.0)	4(11.1)	0(0.0)	36(100.0)	9.249	0.026
No	28(41.8)	33(49.3)	5(7.5)	1(1.5)	67(100.0)		
Total	33(32.0)	60(58.3)	9(8.7)	1(1.0)	103(100.0)		

**Discussion**

The Knowledge on COVID-19 has been shown to be positively associated with their attitude and practice (25-

28). Therefore, the rationale for this study was to investigate the KAP of medical HCW of PSSH to increase the awareness towards prevention and control of COVID-19 among HCW. Healthcare workers have been shown to be at increased risk of contracting the disease compared to the general population.<sup>19,23</sup>

The findings of this study showed that more than half of the medical work force were nurses, closely followed by doctors, the educational qualification with the highest frequency was diploma which was one-third, followed by BN.Sc and MBBS with about one-fifth each. The result can be explained by the fact that the direct care of patients is done by doctors and nurses. The result is similar to what was obtained by Al-Sulayyim et al and Nepal et al, where most of the medical HCW were nurses closely followed by doctors.<sup>26,27</sup> However, this result is different from what was obtained by Saqlain et al, where the highest number of workers were pharmacist, followed by doctors then nurses.<sup>25</sup> The reason for the different results could be attributed to the fact that the author is a pharmacist and the questionnaires were distributed to his colleagues than other HCW, the sampling technique could be biased or the nature of the set-up at the hospital which exposes the pharmacists more, to direct contact compared with doctors and nurses.

In this study, the knowledge of the medical HCW was good because almost all the questions on knowledge were answered correctly. A plausible reason for this could be because they are all medical HCW, the least level of education for all the medical HCW was diploma, closely followed by BN.Sc and MBBS, there was nobody whose highest level of education is primary school certificate, only one person had Senior School Certificate as its highest education. The result in this study was a little lower (80% vs 93%) than what was obtained by Saqlain et al where the knowledge of the HCW was very good, this could be because of the difference in the instrument used and our study included Nurse aids/Pharmacist technologist apart from Doctors, Nurses and Pharmacist, while Saqlain et al only included Doctors, Pharmacist and Nurses.<sup>25</sup>

The attitude of the medical HCW was fair in this study. About two-third of the questions on attitude were answered correctly. Some of the attitude questions had average scores with only half of them gotten correctly. In the same vein, their practice was also fair with about one-third of the questions answered correctly. However, one of the practice questions was poor with less than half of the workers getting the answer correctly. The result obtained in this study is unlike what was obtained by Saqlain et al, where the attitude and the practice was good, a plausible explanation could be because a different instrument was used and differences in the Job cadre of the HCW recruited for the study.<sup>25</sup>

The result obtained in this study, showed no significant association between the practice and the educational level of the medical workers of PSSH. However, there was significant association between the

attitude and the Job cadre the HCW. This could be explained by the fact that the Job cadre is dependent on their level of education and those with high education tend to have a good knowledge of the disease which would go further to influence their attitude. This is similar to what was obtained by Sulayyim et al, Saqlain et al and Nepal et al.<sup>25,27</sup>

There were gaps observed in the attitude and practice of the medical HCW in PSSH, this could be because as at the time of the study, no training has been carried out in the hospital for the medical workers on the prevention and practice of COVID-19. Their knowledge was good because they had various sources of information: from television to google and other social media platforms to obtain information about the virus, but this cannot be compared to organized symposiums and practical training on how to practice prevention control.

#### **Strengths and limitation.**

The strength of the study is that the questionnaire was distributed manually despite the pandemic and there were limited open ended questions. Ethical clearance was obtained for the study.

The limitation of the study was that the questionnaire was distributed during the lock down period in the state. The honesty and the ability of the participants to recall answers could not be ascertained.

#### **Conclusion**

There was a significant gap in the attitude and practice of the medical HCW in PSSH. There is an urgent need for further educational training on the prevention and control of COVID-19 among the HCW.

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