(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume3, Issue 6, Page No: 741-751
November-December 2020

Awareness, Hygiene Practices and Myths regarding COVID-19 among Health Care Staff of a Tertiary Health Care Facility of Northern India

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Type of Publication: Original Research Paper
Conflicts of Interest: Nil

ABSTRACT

Context:
Ward boys, housekeeping and security staff are unsung heroes and are at a high risk of acquiring infection in this pandemic.

Aims:
To determine the level of awareness, hygiene practices and the myths prevalent among ward boys, housekeeping staff and security staff regarding the pandemic COVID-19.

Settings and Design:
Hospital based cross-sectional study of three months duration at a tertiary care hospital.

Methods and Material:
Data was collected from all the ward boys, housekeeping staff and security staff using a predesigned, pretested, and structured questionnaire.

Statistical analysis used:
Collected data was coded in Excel and was analysed by using SPSS 24.0 IBM Chicago for the results.

Results: The difference in the mean ± SD score for correct responses on awareness, hygiene practices and myths section among the three study groups was statistically significant ($p = 0.011$, $p < 0.001$ and $p = 0.007$ respectively)**.** The overall percentage correct response was 70.0% (IQR=26.75, Range= 7-96) for ward boys, 57.85% (IQR=24.45, Range=4-85) for housekeeping staff, 63.60% (IQR=36.52), Range=15-93) for security staff.

Conclusions:
Ward boys and housekeeping staff have comparatively lesser awareness than security staff about COVID-19. This can be attributed to their lower educational status.

Keywords: COVID-19 Awareness, Health Care Staff Hygiene Practices, Myths

INTRODUCTION

Coronavirus disease (COVID-19) is an infectious disease reported in China during December 2019 and is currently declared as a pandemic across the world. At present, there is no full-proof treatment strategy available for the treatment or prevention of COVID-19 hence keeping in mind the golden rule 'prevention is better than cure', everyone should follow the important preventive measures like using masks, maintaining social distancing, and practicing good hand hygiene. [1,2]

Ward boys, housekeeping staff, and security staff are integral and important part of any hospital. The role

of ward boys is to assist the nursing staff, take care of patients, transport the patients, etc, thus, they remain in contact with the patients for a longer duration. The role of housekeeping staff is to responsibly dispose-off biomedical waste and sanitize the hospital area. The role of the Security staff is to help the hospital deal with the patients as well as attendants at the initial stage and maintain the security of the hospital.

As the percentage of more and more Health Care Worker (HCWs) acquiring infection has been reported to increase, there is a need for sustained reductions in hospital-acquired infections. [3] Good environmental hygiene is essential for quality care, yet those tasked with the role of ensuring a safe and clean environment often go unrecognized as members of the healthcare workforce. [4] The struggle to protect these low-wage cleaners represents a broader problem because the virus has disproportionately been reported to struck minority communities. [5] Moreover, most housekeeping staff and ward boys belong to low socioeconomic status and have low literacy levels and hold several myths according to their culture. [6] In this pandemic, the security guards are acting as invisible health promoters, or behaviour change communicators, by actively promoting the important infection preventive and control (IPC) measures for controlling COVID-19. [7] Through discipline enforcement and practice, security guards are promoting and ensuring the preventive measures as physical distancing, use of masks, the prohibition of people from spiting, reduction and restriction of movement in the hospitals, thermal screening etc. [8] Thus, because of the work profile of these segments of the health team they are prone for acquiring the infection.

The present study seeks to determine awareness, hygiene practices, and myths of ward boys, housekeeping staff, and security staff regarding the pandemic COVID-19. This study with its objectives will be the first study in our hospital setup and will give a broad conclusion about their stand, myths they hold, and what they need to know in this pandemic.

SUBJECTS AND METHODS:

This cross-sectional study was conducted at a tertiary care hospital in three months duration. The study participants comprised three groups mainly the ward boys, housekeeping staff, and security staff. The ethical clearance was obtained from the Institutional Ethics Committee (IEC) before the commencement of the study. Pretested, predesigned, and structured questionnaire was used as a tool to collect the information and consisted of four parts with 42 questions in total. The first part assessed general information and demographic variables including gender, job category (ward boy, housekeeping, and security staff), educational attainment, and COVID-19 training status.

The second part was the awareness section comprising of fourteen questions related to the causative agent, the main mode of transmission, the body system affected, high-risk group population, the mortality of the disease, and preventive measures of COVID-19. The third section of hygiene practices consisted of fourteen questions focusing on how and when to hand wash and its technique, use and disposal of the mask and their food consumption practices while wearing the mask. The fourth section was meticulously made with fourteen sets of questions to find out the myths they believe, for example, the ways to stop the prevention of disease by staying in high temperature or sunlight or clapping or lighting earthen pots and consumption of alcohol or rinsing the nose with warm saline, gargling or consumption of honey, garlic, and hot peppers. To validate the questions under various sections of the working proforma, the opinion of medical experts was taken, and a pilot study was done on twenty persons who were not included in the study.

The list of all the staff deployed in the university as ward boy, housekeeping staff and the security staff was procured from the administration. In the university 545 persons are employed in all three staff categories, out of which, only 400 persons met our inclusion criteria. Subsequently, all these study participants were invited to a common place in groups of twenty participants at a time. The norms of social distancing and other preventive measures such as use of masks and the sanitizers were strictly followed. Informed consent was taken, and they were personally interviewed as most of them were either illiterate or having non-formal education. All ward boys, housekeeping staff and security staff employed in the university were approached for data collection. Those who were posted in COVID hospitals were approached for collecting information after their quarantine period. Those who could not be contacted on two subsequent occasions were excluded from the

Volume 3, Issue 6; November-December 2020; Page No 741-751

study. Their response was recorded in form of correct or incorrect responses. Collected data were scrutinized, entered in an Excel worksheet and analysed using SPSS software version 24.0 IBM, Chicago, USA for the results. One-way ANOVA test was applied to compare the mean score values among various study groups. Also, post hoc Bonferroni test was used to find the inter-group difference. Chi-square and Fisher's exact were applied to find out the association between education status and study groups' average scores. Box plots were also used for the presentation of the findings of the study. The *P*-value less than 0.05 [Confidence Interval 95%] was taken as statistically significant.

RESULTS:

In the present study, a total of 400 participants were interviewed, out of which 243 (60.8%) were security staff, 102 (25.50%) were housekeeping staff and 55 (13.7%) were ward boys. The gender-wise composition of the study participants was 100 (25%) females and 300 (75%) males. The age of the participants ranged from 18-60 years in which the majority, 246 (61.5%) were in the age group 40-60 years. The majority, 169 (42.3%), of the participants were educated up to 10th class, out of which most, 138 (56.8%) were security staff. It was also found that 36 (9%) were illiterate among all the participants out of which majority, 26 (25.5%) were housekeeping staff. The majority, 347 (86.8%) of participants had attended the COVID-19 training conducted in the university as per government orders and guidelines [Table 1]

Figure 1, depicts the percentage overall correct and incorrect response for the three study groups. [insert Figure 1.] Correct response was 38.5, [70%, IQR= 26.75, Range= 7-96] and incorrect response was 16.5 [30%, IQR= 26.85, Range= 4-93] for ward boys. Correct response was 58.9 [57.8%, IQR= 24.45, Range= 4-85] and incorrect response was 42.9, [42.1%, IQR= 24.45, Range= 15-96] for housekeeping staff. Correct response was 154.5, [63.6%, IQR= 36.52, Range= 15-93] and incorrect response was 88.4 [36.40%, IQR =36.53, Range= 7-85] for security staff. The outliers show that respondents had given incorrect responses when they were inquired about using items like stationery, watches etcetera after wearing personal protective equipment (outlier 7.3), and the fatality of COVID-19 disease (outlier 4.2).

Figure 2, depicts the percentage correct response for the awareness section (second part) of the questionnaire. [insert Figure 2.] It was 33.9 [61.8%, IQR=23.18, Range=35-96] for ward boys, 52.0 [51.0%, IQR=28.87, Range=4-80] for housekeeping staff, 134.0 [55.15%, IQR=29.27, Range=33-93] for security staff. Comparatively better correct responses were given by responders for the main system of the body attacked by coronavirus [324 81%], the causative agent of COVID-19 [288, 72%], the population who are under high-risk fatality of disease [263, 65.8%], than, for the mode of transmission of the virus and [155, 38.8%], whether it is lethal [212 (53%)] and for preventing the spread of disease by sunlight, winter season or snowfall [159 (39.8%)]. Table 2, shows the comparison of mean ± SD of correct response scores about awareness regarding COVID-19 between three study groups and the variance was found to be statistically significant (*P* = 0.011). Bonferroni post-hoc test showed the intergroup difference between ward boy and security staff (*P*=0.010). Also, significant difference was found between ward boy and housekeeping staff (*P*=0.030) whereas housekeeping staff and security staff did not show any statistically significant difference. To find out the association between education level and total scores obtained by respondents for awareness, a 50% score was taken as cut off and then the participants were categorized based on their performance into two groups one with <50% and other with >50% score. Chi-square test was applied and was found to be significant (*P* =0.002) [Table 3].

Figure 3, depicts the percentage of correct response for the hygiene practice. [insert Figure 3.] It was 42.48, [77.25%, IQR=40.03, Range=7-93] for ward boys, 65.48 [64.20%, IQR=33.35, Range=19-85] for housekeeping staff, 198.0 [81.50%, IQR=29.27, Range=23-86] for security staff. Comparatively better correct responses were given by responders for hand hygiene practice before and after coming in contact with patients and using a mask on duty by responders [320 (81%), 323 (80.8%) respectively] than for touching his / her face frequently [169 (42.3%)], for using the same mask for more than one day [172 (43%)] and using hands to cover the mouth while sneezing [151 (37.58%)]. Table 2, shows the

Volume 3, Issue 6; November-December 2020; Page No 741-751

comparison of mean ± SD of correct response scores about hygiene practices regarding COVID-19 between three study groups, and the variance was found to be statistically significant ($P < 0.0005$). Bonferroni post-hoc test showed the intergroup difference between ward boy and housekeeping staff ($P = 0.045$). Also, there was a significant difference between ward boy and security guard ($P < 0.001$). To find the association between education level and total scores obtained for hygiene practices, a 50% score was taken as cut off, and then the participants were categorised based on their performance into two groups one with <50% and other with >50% score. Fisher exact test were applied and found to be significant ($P = 0.001$) [Table 3].

Figure 4, depicts the percentage of correct response for the myths section. [insert Figure 4.] It was 37.51[68.20%, IQR=14.5, Range=16-84] for ward boys, 52.02 [51%, IQR=23, Range=22-78] for housekeeping staff, 144.4, [59.45%, IQR=22.5, Range=15-83] for security staff. The majority of responders believed consuming garlic, honey and spices help in the treatment of COVID-19 [320 (80.2%), outlier 18.7], rinsing the nose and gargling with warm water prevents the infection [330 (82.5%), outlier 16.4 and 14.8] and clapping hands, lighting earthen lamps and drinking alcohol could prevent the spread of disease [158 (40%)]. Table 2, depicts a comparison of mean ± SD of correct scores responses about myths regarding COVID-19 between three study groups and the variance was found to be statistically significant ($P = 0.007$). Bonferroni post hoc test was also performed and found to be statistically significant between ward boys and housekeeping staff ($P = 0.009$).

DISCUSSION:

This study reveals that housekeeping and security staff have lesser awareness about COVID-19 as compared to ward boys. There is no other study with documentation of awareness among these subjects but there is a study by Olum et al, in which results showed a higher level of knowledge among nurses and midwives. [9] However, the hygiene practices were found to be more satisfactory in security staff in comparison to ward boys and housekeeping staff in the present study. This can be attributed to the difference in the educational status; as security staff was more educated [138, (56.8%) educated up to 10th class] in comparison to ward boys and housekeeping staff [number and %]. Also, the association between hygiene practices score was significantly associated with high education level. Most of the participants among ward boys and housekeeping staff were unaware of the most common symptoms suggestive of COVID-19 and the high-risk population (old age, co-morbidity etc.) and considered the disease fatal. The reason for this difference can also be attributed to the educational level and was found to be statistically significant ($P <0.002$). It is important to be aware of common symptoms and risk factors of this disease as the patient can easily and quickly isolate himself thus preventing the spread of the disease. [10]

In preventing the spread of infection, correct hand hygiene practices play a crucial role. The World Health Organisation (WHO) “Five moments of hand hygiene” defines key moments that healthcare providers must carry out. [11] However, the hand hygiene practices were found to be satisfactory only in security staff in this study, which is alarming as they could be an easy source of infections to nursing staff and doctors. Frequently touching the face and using hands to cover the mouth and using single mask for more than one day were the practices which were needed to be addressed. These kind of practices increases the chance of transmission of infection.

In this study, it was a striking finding that housekeeping staff and security staff were holding myths more in comparison to ward boys. They had a belief that lighting earthen lamps, drinking alcohol could prevent the chances of acquiring infection, the person suffering from infection could not recover and anyone having a cough or cold is suffering from COVID-19. Regularly rinsing the nose with saline could relieve the symptoms but there is no evidence that it could protect people from infection with the coronavirus. [12] Also, hot peppers in food, though very tasty, cannot prevent or cure COVID-19. [13] This may be due to not applying the scientific knowledge before accepting any myth. The myths are publicized and accepted very quickly. In addition to this, it can create a social stigma for the disease and will, unfortunately, lead to a social boycott of people who are diseased or have been recovered from a disease which could ultimately push people to depression and other mental illnesses. [14] The average score among ward boys was found

Volume 3, Issue 6; November-December 2020; Page No 741-751

satisfactory, this could be due to their working profile because they assist nursing staff and their myths may have been busted by the scientific knowledge they gain during their work.

CONCLUSION:

This is the first study to the best of our knowledge which evaluates awareness, hygiene practices, and myths among ward boys, housekeeping staff, and security staff. The findings of this study suggest that despite obtaining the COVID-19 Training, awareness and hygiene practices are not up to mark among the health care staff. Along with it, several staff are still holding various myths. Therefore, the study suggests that there is a greater need of time to time sensitization of health care staff by refreshers training sessions, demonstration along with practice sessions regarding COVID-19. Hence, more encouragement and support are needed from the health authorities to arrange such training and to use audio-visual information, education, and counseling materials related to COVID-19 to bust the myths prevalent among them. In India average daily test positivity rate for COVID-19 is 7.7% indicating that the danger of this disease is not yet over. [15]

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Volume 3, Issue 6; November-December 2020; Page No 741-751

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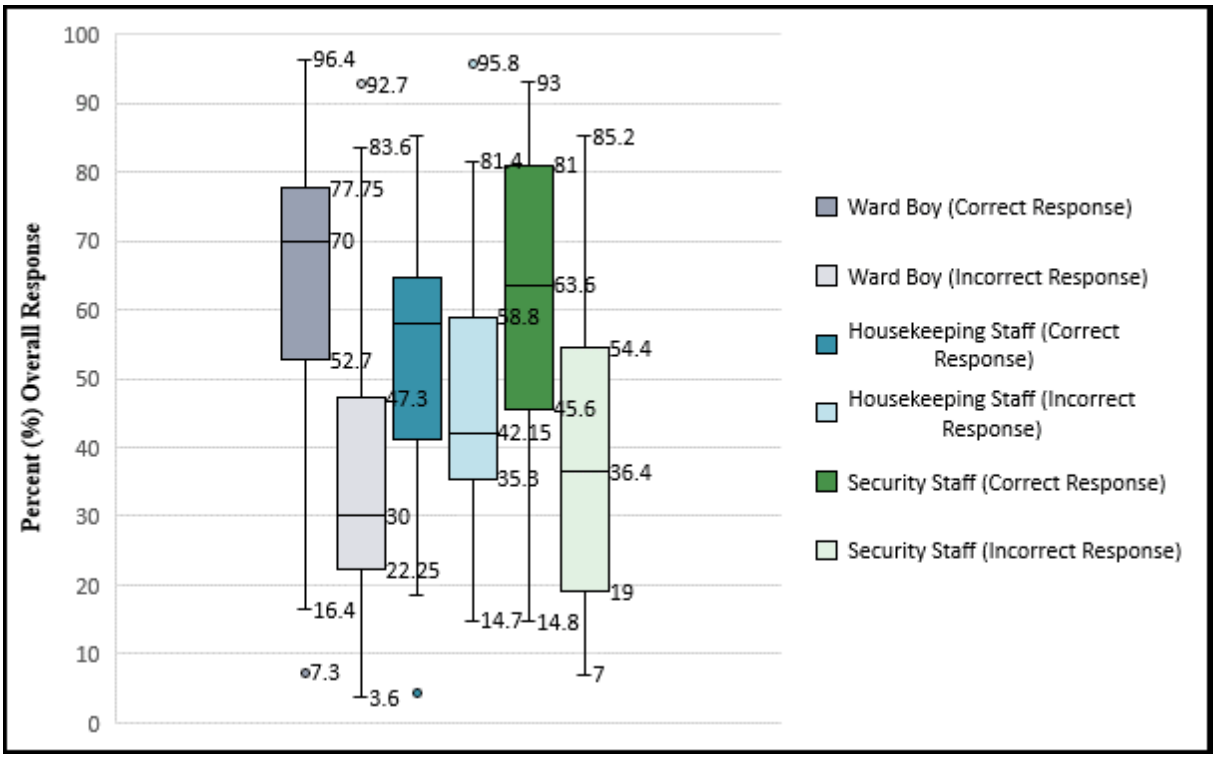
FIGURES AND LEGENDS

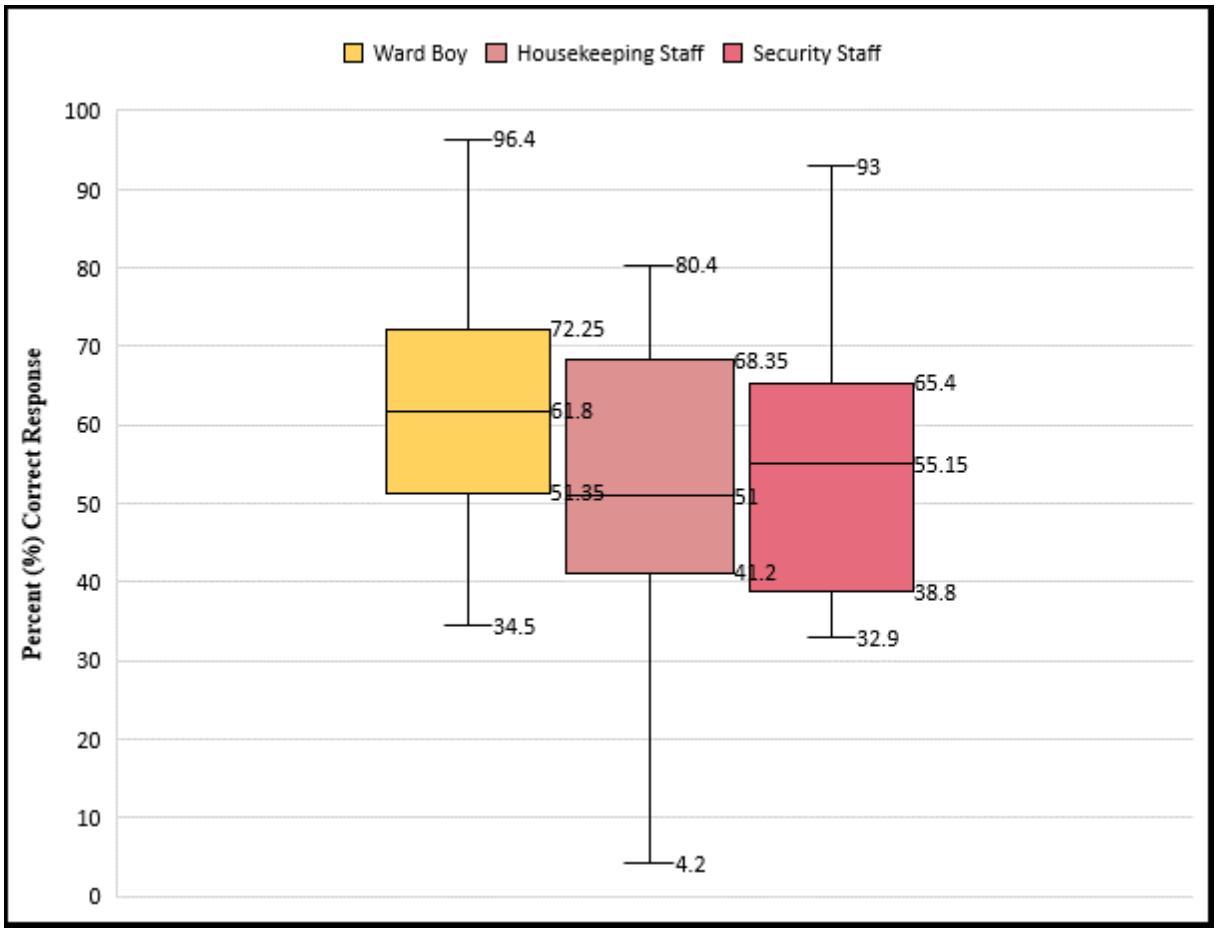
Figure 1: Comparison of percentage correct and incorrect response of all sections (overall) regarding COVID-19 among three study groups.



The figure 1, represents the percentage overall correct and incorrect response for the three study groups. The outliers depict the incorrect responses were for questions regarding use of items like stationery, watches etcetera after wearing personal protective equipment (outlier 7.3), and the fatality of COVID-19 disease (outlier 4.2).

Volume 3, Issue 6; November-December 2020; Page No 741-751

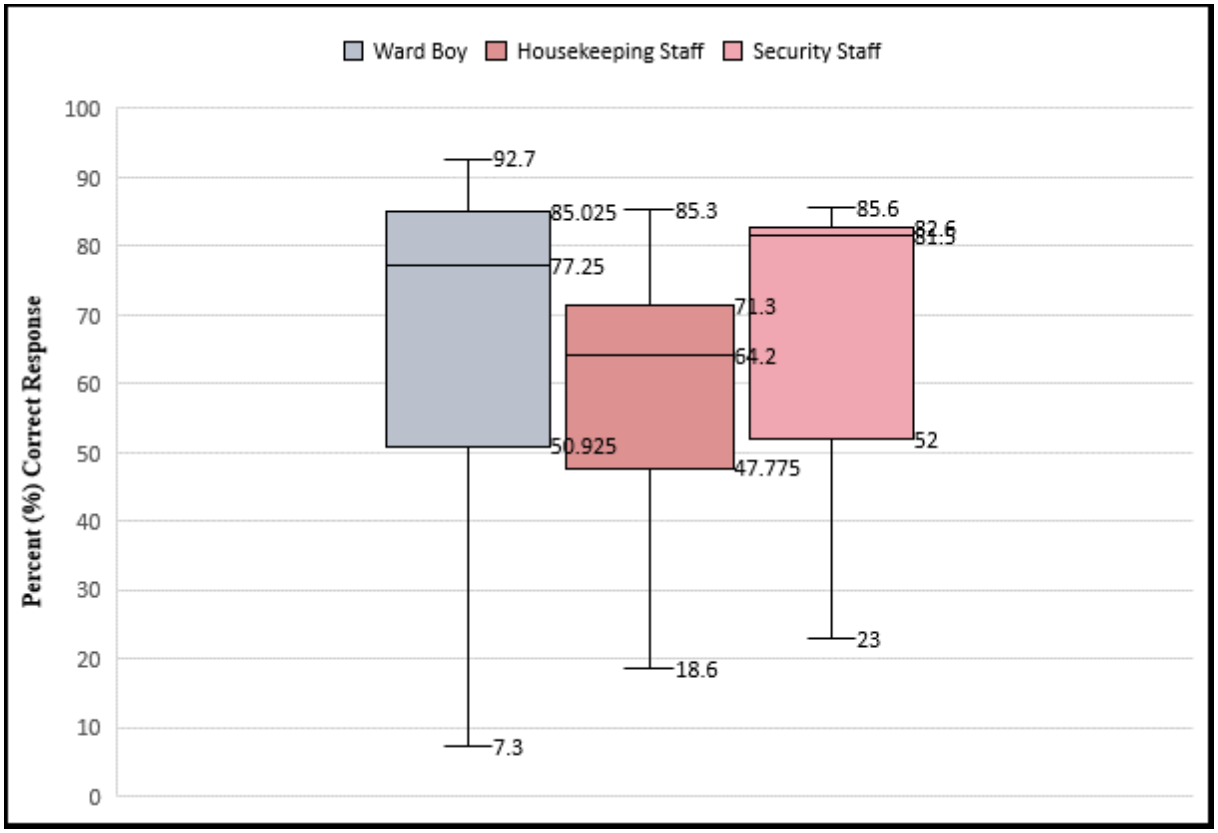
Figure 2: Comparison of percent correct response of awareness regarding COVID-19 among three study groups



The figure 2, depicts the high percentage correct response for the awareness section of the questionnaire and better correct responses were given by ward boys followed by security staff then followed by housekeeping staff. It was 33.9 [61.8%, IQR=23.18, Range=35-96] for ward boys, 52.0 [51.0%, IQR=28.87, Range=4-80] for housekeeping staff, 134.0 [55.15%, IQR=29.27, Range=33-93] for security staff..

Volume 3, Issue 6; November-December 2020; Page No 741-751

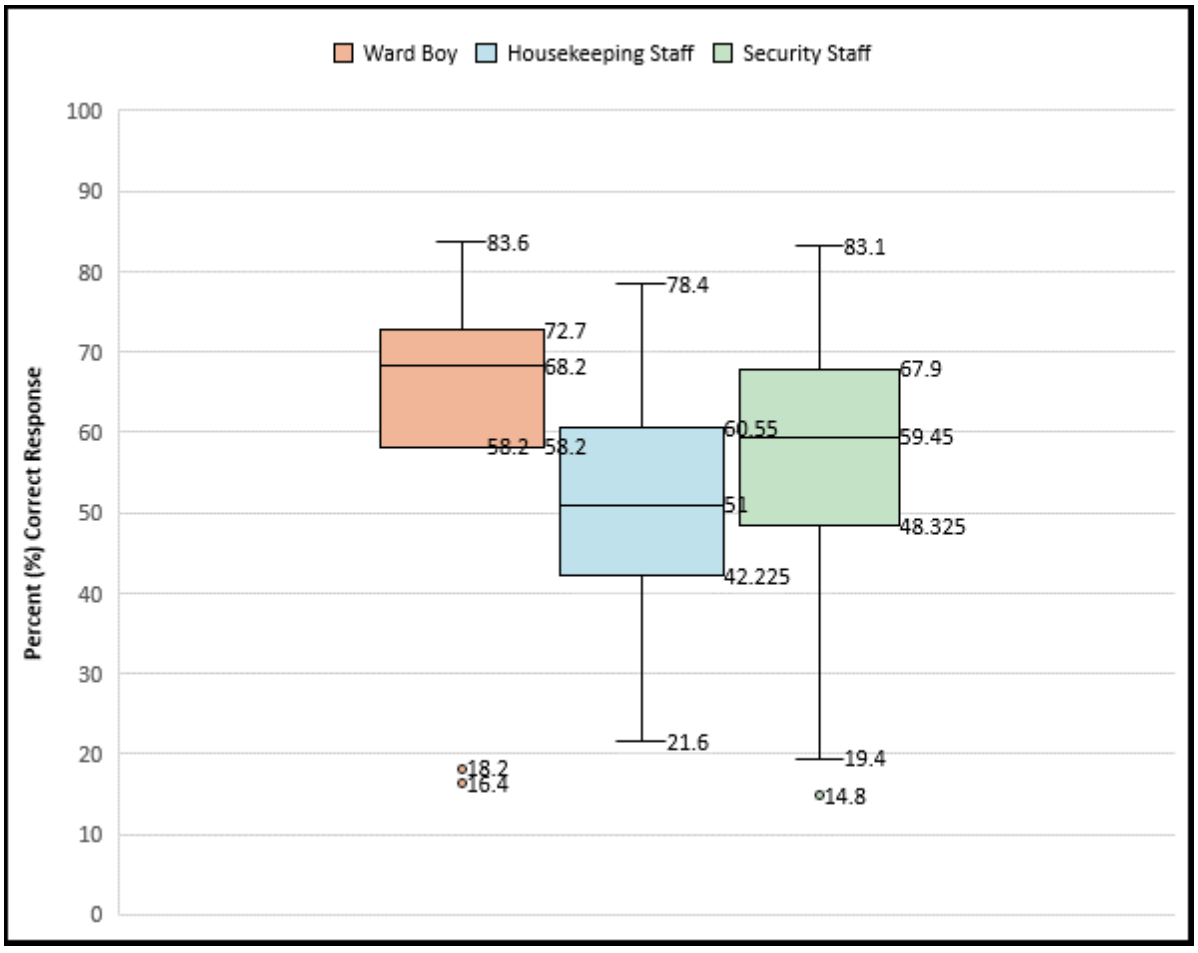
Figure 3: Comparison of percent correct response of hygiene practices regarding COVID-19 among three study groups



The figure 3, depicts the percentage of correct response for the hygiene practice and better correct responses were given by responders for hand hygiene practice before and after coming in contact with patients and using a mask on duty by responders [320 (81%), 323 (80.8%) respectively]

Volume 3, Issue 6; November-December 2020; Page No 741-751

Figure 4: Comparison of Percent correct response of myths regarding COVID-19 among three study groups



The figure 4, shows the majority of responders believed consuming garlic, honey and spices help in the treatment of COVID-19 [320 (80.2%), outlier 18.7], rinsing the nose and gargling with warm water prevents the infection [330 (82.5%), outlier 16.4 and 14.8] and clapping hands, lighting earthen lamps and drinking alcohol could prevent the spread of disease [158 (40%)].

Volume 3, Issue 6; November-December 2020; Page No 741-751

Table 1: Demographic profile of study participants

S.N.	Variable	Subgroups	Numbers (percentages)
1.	**Age groups (Years)**	<20	8 (2.0)
		20-40	146 (36.5)
		40-60	246 (61.5)
2.	**Gender**	Male	300 (75.0)
		Female	100 (25.0)
3.	**Education Level**	Illiterate	36 (9.0)
		Up to Primary Class	34 (8.5)
		Up to Junior High School	127 (31.8)
		Up to High School Class	169 (42.3)
		Intermediate / Graduate	34 (8.5)
4.	**Designation**	Ward Boy	55 (13.7)
		Housekeeping Staff	102 (25.5)
		Security Staff	243 (60.75)

Table 2: Comparison of Mean ± SD of correct responses on awareness, hygiene practices and myths regarding COVID-19 between three study groups

Study Groups					
Variables	**Ward Boy (Mean ± SD)**	**Housekeeping Staff (Mean ± SD)**	**Security Staff (Mean ± SD)**	***P*- value***	**Multiple comparisons†**
Awareness of COVID-19	8.91 ± 2.84	7.51 ± 2.85	7.81 ± 2.81	0.011	A = 0.010 B = 0.030 C = 1.000
Hygiene Practice	9.38 ± 2.35	8.26 ± 2.85	9.68 ± 2.79	<0.001	A = 0.045 B = 1.000

Volume 3, Issue 6; November-December 2020; Page No 741-751

					C <0.0005
Myths	8.62 ± 2.73	6.95 ± 3.66	7.89 ± 3.32	0.007	A = 0.009 B = 0.434 C = 0.053

*One Way ANOVA

†Bonferroni Post-hoc test (Multiple Comparisons)

A = Ward Boys vs Housekeeping Staff, B = Ward Boy vs Security Staff, C = Housekeeping Staff vs Security Staff

Table 3: Association between the eduction level and the scores obtained by study groups in different sections

Scores		**Illiterate n(%)**	**Primary School n(%)**	**Junior High School n(%)**	**High School n(%)**	**Intermediate /Post Graduate n(%)**	***P*-value**
Awareness	**<50%**	17(47.2)	12(35.3)	70(55.5)	71(42)	6(17.6)	0.002*
	>50%	19(52.8)	22(64.7)	57(44.9)	98(58)	28(82.4)	
Hygiene Practices	**<50%**	9(25)	15(44.1)	42(33.1)	31(18.3)	3(8.8)	0.001 †
	>50%	27(75)	19(55.9)	85(66.9)	138(81.7)	31(91.2)	

*Chi square test

†Fisher Exact Test

Volume 3, Issue 6; November-December 2020; Page No 741-751