Original Article

Knowledge, Attitude and Practice among Health Care Professionals in a Tertiary Hospital Regarding Handling COVID 19 Deceased Bodies: A Questionnaire Based Study

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Abstract

Objective: To assess the knowledge, attitude and practice in handling Covid 19 deceased bodies among health care professionals.

Methodology: A pre validated questionnaire consisting of questions to assess the knowledge, attitude and practice towards dead body care handling and disposal of Covid 19 bodies was given in using google forms to the study participant which included the healthcare professionals working at present in a tertiary care hospital. The responses were categorized into two professional categories: nursing staff and medical doctors. The average positive responses for knowledge, attitude, and practice questions were calculated for each category.

Results: The study was conducted among 140 participants (61 nurses and 79 doctors). It was found that on comparing their knowledge of handling COVID-19 deceased individuals, 73.31% of nursing staff and only 67.88% of medical doctors had accurate knowledge on the subject. When it comes to the attitude while handling COVID-19 deceased individuals, 45.07% of nursing staff and 44.3% of medical doctors exhibited a positive attitude. When it comes to practice of handling COVID-19 deceased individuals, 40.97% of nursing staff and only 34.17% of medical doctors exhibited proper practice.

Conclusion: The findings reveal that nursing staff possess higher levels of accurate knowledge and a positive attitude, though the difference is not statistically significant. However, both groups demonstrate gaps in proper practices concerning the handling of COVID-19 deceased bodies. This study highlights the importance of ongoing training and awareness to improve safe handling procedures, thereby reducing the risk of infection transmission to healthcare professionals.

Keywords: COVID-19 infection, Deceased, Knowledge, Attitude, Practice, Healthcare Professionals.

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Introduction

The Coronavirus Disease-2019(COVID-19) caused by the novel coronavirus SARS CoV-2 were first reported in the month of December 2019 at Wuhan city, China. On 30th January 2020 the World Health Organization had declared it as a Public health emergency of International concern[1]. The mortality rate of COVID 19 infection had drastically increased from a few hundred in the year 2019 to millions in the year 2022. The transmission of virus can occur either directly via secretions from the infected person or indirectly while coming in contact through fomites. Aerosol generating procedures hold the maximum risk of transmitting the infections among health care professionals[2].

The risk of transmission of infection from dead bodies of the patient who died of COVID 19 to the people who are handling it, remains a major concern. Health care professionals are the majority who are under highest risk of acquiring infection as they are in the maximum contact with covid infected patients under many circumstances. Among those, procedures like death care and handling of dead bodies infected with COVID 19 pose a significant role in the risk of transmission[3].

Following death due to COVID 19 infection, the procedure involved in handling, packing, intimation to the authorities, and handing over the body requires adequate knowledge and practice[4,5]. Disinfection of the body and the surrounding surface plays an important role in prevention of disease transmission. Though various studies have been conducted worldwide to assess the knowledge about covid 19 among healthcare providers, very few studies are conducted in India[8,21]. This explorative questionnaire based study aims to assess the knowledge, attitude and practice towards handling of COVID 19 infected dead bodies among health professionals working in a tertiary care hospital in south India.

Objectives

Primary objective:

To assess the knowledge, attitude and practice in handling Covid 19 deceased bodies among health care professionals.

Secondary objective:

To assess the level of association between the profession and the knowledge, attitude and practice in handling Covid 19 deceased bodies.

Methodology

This study is a questionnaire-based study conducted in a tertiary care hospital in South India. The study participants included all the healthcare professionals working at present in a tertiary care hospital in Puducherry. In the study convenient sampling technique is followed. From Previous similar study conducted among staff nurses, prevalence of good knowledge, positive attitude and good practise were 70%, 33% and 91%. Taking the prevalence of 91%, absolute precision of 5 % and 95 % confidence interval the rational sample size is 126 and with 10 % additional participants the sample size is calculated as 140. Based on the existing standard guidelines on Covid body handling, a set of 19 questions was prepared. The questionnaire consisted of all three domains which included knowledge, attitude, and practice related to handling of COVID-19 dead bodies and it was given to a group of experts from the medical fraternity for validation. This validated and pretested questionnaire was prepared using Google Forms and was sent to the participants after obtaining their informed consent. The responses for each question were tabulated in Microsoft Excel (MS office 365 version). The responses were categorized into two professional categories: nursing staff and medical doctors. The frequency and percentage were used to measure knowledge, attitude and practice among each professional category. (Table 1,2 & 3). The chi square test was used to assess the association. P value less than 0.05 is considered as statistical significant.

Table 1: Association between knowledge regarding COVID19 infection and health care professionals

Knowledge questions	Doctors	Nurses	P value
Legal requirement of MLC registration in cases of death due to COVID 19.	87.34%	91.8%	0.248
Legal requirement of post mortem examination in cases of death due to COVID 19.	55.69%	65.57%	1.471
Dead body wrapping in cases of death due to COVID 19.	98.73%	93.44%	0.030
Disinfection of intervention site on dead body wrapping in cases of death due to COVID 19.	84.81%	90.16%	0.285
Dead body wrapping in cases of death due to *SUSPECTED* COVID19.	83.54%	67.21%	0.005
Embalming of a patient who has died due toCOVID19.	43.03%	62.29%	0.007
Transmission of infection from COVID 19infected dead bodies.	16.45%	13.11%	0.546
Disinfection of dead body in cases of death due to COVID 19.	68.35%	91.8%	0.0002
Disinfectants ideally used to disinfect the dead body and the surfaces in cases of death due to COVID 19.	94.93%	98.36%	0.248
Handing over the dead body in cases of death due to COVID 19 to relatives.	22.78%	37.7%	0.013
Government protocols to be followed while handing over the dead body in cases of death due to COVID 19 to relatives.	91.13%	95%	0.267
Total	67.88%	73.31%	0.438

Table 2: Association between attitude and health care professionals towards COVID19 infected dead bodies

Attitude questions	Doctors	Nurses	P value
Giving instructions to the relatives about appropriate behavior while handling the COVID19 infected body at the cremation site	69.62%	88.52%	0.0008
Giving instructions to the relatives that they can collect the ashes (remains of dead bodies after cremation) ofCOVID19 infected dead bodies.	18.98%	1.63%	0.0008
Total	44.3%	45.07%	0.886

Table 3: Association between practice and healthcare Professionals towards handling COVID 19 dead bodies

Practice questions	Doctors	Nurses	P value
Body donation in cases of death due to COVID 19 infection.	74.68%	85.24%	0.077
Appropriate bodypacking for a COVID19 dead body.	29.11%	39.34%	0.135
Bio-safety level (BSL) precaution practiced during COVID 19 pandemic?	34.17%	31.14%	0.650
Decontamination of vehicle used for transportation of COVID 19 dead body to the cremation site.	16.45%	8.19%	0.081
Total	38.60%	40.97%	0.772

* There was no statistical significance between professional categories and knowledge, attitude and practice regarding handling Covid 19 deaths except for questions on knowledge on dead body wrapping in cases of death due to COVID 19, suspected COVID 19 cases, about embalming of a patient who has died due to COVID 19, on disinfection of dead body in cases of death due to COVID 19 and on attitude questions at 5% level of significance.

Results

The study was conducted among 140 participants (61 nurses and 79 doctors) in a tertiary care hospital in South India. The clinical speciality of participants of this study and designations are shown in Figure 1 & 2. The average positive responses for each question and for each parameter like knowledge, attitude and practice were tabulated for each professional category. (Table 1, 2 & 3). The participant's working experience in wards catering health care needs to COVID-19 infected individuals and handling deceased bodies were tabulated in Table 4.

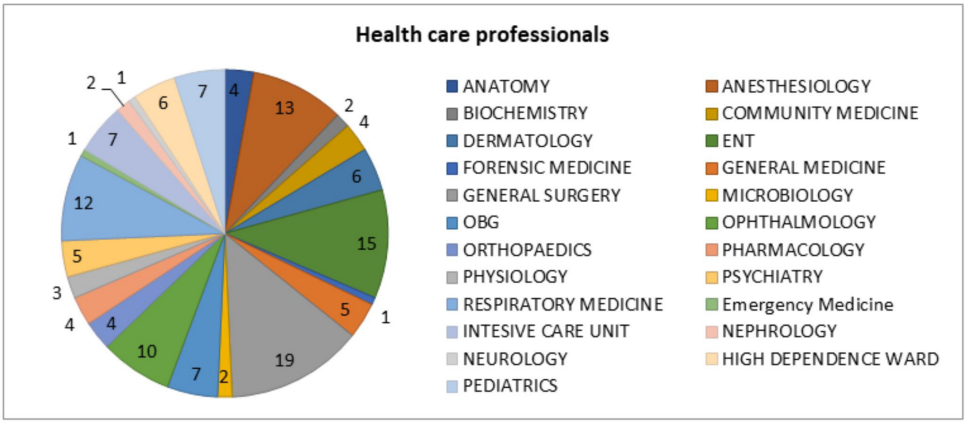

Figure 1: Speciality representation of participants

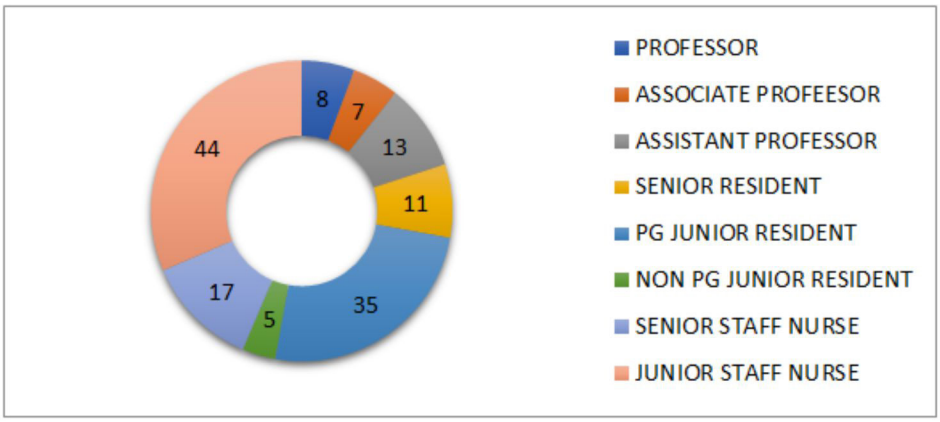

Figure 2: Designation of participants

Table 4: COVID 19 - working experience of healthcare professionals

S.No	Working experience	Doctors (%)	Nurses (%)	Total (%)
1	Working in COVID – 19 ward	54 (68.35%)	50 (81.96%)	104 (74.3%)
2	Providing death care to COVID – 19 deceased individuals	19 (24.05%)	22 (36.06%)	41 (29.28%)
3	Handing over of dead bodies of individual died due to COVID 19 infection to relatives or government authorities	24 (30.37%)	18 (29.5%)	42 (30%)

The knowledge, attitude and Practice of health care professional categories of various other studies were compared in Table 5, 6 & 7. Though in this study the nursing staff exhibited higher levels of correct knowledge, positive attitude and demonstrated proper practice than medical doctors the difference showed by them is not statistically significant except for few questions (P value more than 0.05).

Discussion

Knowledge regarding handling covid-19 infected individuals and dead bodies:

Worldwide, most studies conducted have shown that nurses possess adequate knowledge about COVID-19[6-20], and very few studies show that they have moderate knowledge[21-23](Table 5). In our study, 73.31% of nursing staff possessed accurate knowledge, while only 67.88% of medical doctors had correct knowledge on the subject.

The disparity in knowledge levels between nursing staff and medical doctors on the subject of COVID-19 can be attributed to several factors. First, nurses often have more direct and frequent patient interactions, which could necessitate a more immediate and practical understanding of COVID-19 protocols and safety measures. They may also participate in ongoing in-service training and professional development programs to stay updated on emerging information about COVID-19 focused to ensure the safety of themselves and their patients. On the other hand, while medical doctors may have a strong foundation in general medical knowledge, their focus may be more specialized, depending on their area of practice. They may rely on their nursing staff to implement and carry out day-to-day infection control measures, potentially leading to less emphasis on acquiring detailed knowledge about COVID-19 procedures and protocols.

Table 5: Comparison of knowledge level among healthcare providers in various studies about Covid 19 infection.

Country	Study population	Knowledge level
Saudi Arabia	527 nurses	89–90% had good knowledge [6]
Saudi Arabia	Nurses	96.85% had very good knowledge [7]
India	380 nurses	Sufficient awareness[8]
Northern Ethiopia	415 nurses	74% had good knowledge[9]
Pakistan	78 nurses	Good knowledge[10]
Iran	85 nurses	56.5% had good knowledge [11]
Lebanon	311 nurses	Majority had sufficient knowledge [12]
Ghana	196 nurses	Adequate knowledge [13]
Indonesia	368 nurses	77.4% had good knowledge [14]
Indonesia	305 nurses	99.7% had good knowledge[15]
Bangladesh	380 nurses	73.42% had good knowledge[16]
Turkey	102 nurses and 149 doctors	Nurses mean score 90.26; doctors mean score 92.78 [17]
Turkey	123 nurses	89.43% had extensive knowledge[18]
Egypt	183 nurses	Satisfactory knowledge [19]
Nepal	750 nurses	44.8% had moderate knowledge[20]
India	315 nurses	Clinical features knowledge satisfactory; diagnosis, treatment, and vaccine knowledge 56.2%[21]
China	237 interns	Good knowledge about origin and prevention; insufficient knowledge about treatment and incubation[22]
Bangladesh	384 nurses	Moderate knowledge (mean score 34.20) [23]

Attitude regarding handling covid-19 infected individuals and dead bodies:

Regarding the attitude of the participants, it was observed that though in most of the studies the health care professionals exhibited a positive attitude (Table 6), but in our study, 45.07% of nursing staff only exhibited a positive attitude, whereas only 44.3% of medical doctors displayed a positive attitude.

The variations in positive attitudes towards COVID-19 among nursing staff and medical doctors across different studies and regions can be attributed to several factors. Access to high-quality training and education, along with institutional support and resources, may foster a more proactive attitude. Conversely, high workload and stress levels can contribute to negative attitudes due to burnout. Additionally, public perception and media coverage of COVID-19 may influence healthcare workers' attitudes, as well as their personal assessments of safety and risk. Together, these factors explain the observed differences in the positive attitudes of healthcare professionals towards COVID-19.

Table 6: Comparison of Attitude among healthcare providers in various studies towards Covid 19 infected Individuals

Country	Study population	Positive attitude percentage/score
Saudi Arabia	527 nurses	87% well adapted to open learning attitude[6]
Saudi Arabia	Nurses	60.4% high positive attitude[7]
Northern Ethiopia	415 nurses	72% had a good attitude[9]
Indonesia	Majority of nurses	Average score of 33.0[14]
Indonesia	305 nurses	99.3% positive attitude[15]
India	315 nurses	73.3% had good attitude scores[21]
Egypt	183 nurses	98% positive attitude[19]
Pakistan	78 nurses	Positive attitude towards COVID-19[10]
Ghana	196 nurses	Good attitude towards COVID-19[13]
Bangladesh	384 nurses	Moderate mean score of 27.60[23]

Practice regarding handling covid-19 infected individuals and dead bodies:

Regarding the proper practice of the participants, though it was observed in the following studies that they exhibited proper practice towards Covid 19 infected patients (Table 7), in our study, only 40.97% of nursing staff demonstrated proper practice, while only 34.17% of medical doctors exhibited proper practice. The variations in proper practice observed among nursing staff and medical doctors across different studies and regions can be attributed to several factors: Differences in access to resources, training, workload, institutional support, risk perception, and cultural factors influence how healthcare professionals adhere to COVID-19 protocols. Limited access to PPE, training, and support, combined with high workloads and varying perceptions of risk, leads to inconsistent practices across regions and studies.

Table 7: Comparison of proper practiceamong healthcare providers in various studies towards handling Covid 19 infected Individuals

Country	Study population	Proper practice percentage/score
Northern Ethiopia	415 nurses	67% had good prevention practices[9]
Pakistan	78 nurses	Followed correct protocols to prevent infection[10]
Lebanon	311 nurses	84.6% followed infection prevention and control measures[12]
Bangladesh	380 nurses	73.42% had good practice[16]
Indonesia	368 nurses	Good practice[14]
Indonesia	305 nurses	88.2% had good practice[15]
Egypt	183 nurses	Satisfactory practice[19]
Ghana	196 nurses	Good practices towards COVID-19[13]
Bangladesh	384 nurses	Moderate mean score of practice (13.10)[23]

Conclusion

This study explores the knowledge, attitude, and practice among healthcare professionals in a tertiary hospital located in south India regarding the handling of deceased bodies of individuals who died from COVID-19. This research underscores the necessity of strengthening educational initiatives and adherence to standard guidelines for the safe and respectful handling of deceased bodies in the context of the pandemic. To better handle future epidemics like COVID-19, several proactive initiatives can be implemented. Firstly, ongoing education and training programs for healthcare professionals on infectious disease management and proper handling of deceased bodies should be established. These programs would include up-to-date information on protocols and safety measures. Secondly, healthcare institutions should invest in robust infection control measures, including the use of advanced personal protective equipment (PPE) and sanitation technologies. Thirdly, protocols for efficient communication and coordination between different healthcare departments and public health authorities are essential to ensure timely responses to emerging health crises. Lastly, fostering public awareness and education campaigns on preventive measures and the importance of early detection and treatment can contribute significantly to controlling the spread of infections. By adopting these initiatives, healthcare systems can enhance their preparedness and resilience against future epidemics.

Ethical Clearance: This study was conducted after the approval of Institutional Ethics Committee clearance of with reference number **RC/2022/165 dated 03.10.2023.**

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Conflict of Interest: Nil

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