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KNOWLEDGE AND SELF REPORTED PRACTICE ON INFECTION CONTROL MEASURES DURING COVID -19 AMONG AMBULANCE DRIVERS

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ABSTRACT

The present study was designed to assess the level of knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers in Kerala. The main aim of the study were to estimate the level of knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers and to detect the association between the knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers and selected socio-demographic data. Quantitative, descriptive design was adopted for this study. The sample size was 59 ambulance drivers which was selected by convenience sampling technique. The tools used were structured questionnaire to collect sociodemographic data structured knowledge questionnaire to assess the level of knowledge and rating scale to assess the self-reported practice. The findings revealed that 7 % of ambulance drivers had poor knowledge, 57 % of the ambulance drivers had average knowledge ,22 % of them had good knowledge and 14 % of the ambulance drivers had excellent knowledge. Assessment of self-reported practice revealed that majority 90 % of the ambulance drivers had good practice and 10 % of them had average practice regarding infection control measures during COVID-19 among ambulance drivers. Although ambulance drivers had basic knowledge and self-reported practice regarding infection control measures during COVID-19, there is a need for training programmes to develop a sense of responsibility to control the spread of COVID -19.

***KEYWORDS*:** Knowledge, Self-reported practice, Infection control measures, COVID -19 Ambulance drivers.

INTRODUCTION

Ambulance vehicles are an essential part of emergency medical services. The COVID -19 crisis has enforced an positive effect on the global ambulance services, is mainly due to increasing demand for ambulance services for offering emergency transport services for COVID -19 patients. Thus the ambulances can become a potential source of different pathogenic microbes by virtue of their role in transporting patients from a scene to a hospital, or during an inter-facility transfer. Ambulance drivers are foremost responders who are having close contact with affected persons. So It is very important for the ambulance drivers to have adequate knowledge and good practice about the infection control measures during this COVID-19 pandemic, as they need to respond speedily and closely to COVID-19 patients within the ambulance. The aim of the study were to assess the level of knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers. Its aim is to develop a sense of responsibility to reduce the spread of COVID -19 thereby preventing the morbidity and mortality due to COVID -19 for themselves as individuals, as members of heath team and as communities.

Vatan (2020) conducted a study to assess the knowledge and attitude regarding COVID-19 among emergency medical service workers, Turkey. A total of 400 Emergency service workers (emergency medical technicians, paramedics, doctors nurses and ambulance drivers) were included. The data collected by using online questionnaire. The results shows that 96 % percentage of the them had adequate knowledge about the transmission routes of COVID 19, 36 % of them

were unaware of the proper hand washing or scrubbing techinques, 78% of the participants had poor knowledge about floor and surface disinfection.[1]

Shaban conducted a study to assess the knowledge of infection control principles and standards in an Australian emergency medical system among paramedics. A confidential and anonymous mail survey was distributed to all working in a State-wide Australian ambulance service (n=2274). The results shows that only 46.2% of them identified correct points of chain of infection'.27.9 % of the participants identified definition of nosocomial infection.17.2% of participants identified standards and additional precautions as the current system of infection control.41.6% of the sample identified hand washing as the primary infection control measure to prevent cross infection.[2]

Statement of the Problem

Study to assess the knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers in Kerala.

Objectives of the Study

Primary Objectives were to

1. Assess the knowledge on infection control measures during COVID -19 among ambulance drivers.
2. Assess the self-reported practice on infection control measures during COVID -19 among ambulance drivers.

Secondary objectives were to

1. Find the association between the knowledge on infection control measures during COVID -19 among ambulance drivers and selected socio-demographic data.
2. Find the association between self-reported practice on infection control measures during COVID -19 among ambulance drivers and selected socio-demographic data.

Sample selection criteria

Inclusion criteria

- Ambulance drivers who working under selected ambulance service agencies in Kerala.
- Age group of 20-60 years old.

Exclusion criteria

Ambulance Drivers who working both in any hospital as well as private agencies.

Definition of Terms

Knowledge: Knowledge refers to the factual information regarding the importance of understanding infection control measures during COVID -19among ambulance drivers which is measured by structured knowledge questionnaire.

Self-reported practice: Self-reported practice refers to the measures adopted and reported by ambulance drivers regarding infection control measures during COVID -19 which is assessed by rating scale.

Infection control measures: Infection control measures refers to policies and procedures followed by the Ambulance drivers during COVID -19which is used to minimize the risk of spreading infections which is used to minimize the risk, spreading infections which is used to minimize the risk before, during or after carrying people who are ill or injured.

COVID -19: COVID -19 (corona virus disease 2019) refers to highly contagious pathogenic viral infection which is caused by SARS coronavirus 2, first identified in December (2019) and has declared a pandemic on march 2020[3].

Ambulance drivers: In this study, Ambulance drivers refers to male or female persons with in the age limit of 20 -60 years, who providing ambulance service operated by private agencies that carry sick people and accident victims during COVID -19 pandemic.

MATERIAL AND METHODS

Research approach and Design: Quantitative approach, Descriptive Research Design

Setting: Ambulance drivers from, Santhwanam Ambulance Service Ernakulam, KGM Ambulance Services, Pathanamthitta, Ashraya Ambulance Service, Eranakulam.

Population

Target population: Ambulance drivers in Kerala

Accessible population: 59 Ambulance drivers who working under selected ambulance service agencies in Kerala.

Sample and sample size

59 ambulance drivers with age group of 20- 60 years old.

Sampling technique: convenience sampling technique

Sample selection criteria

Inclusion criteria

- Ambulance drivers who working under selected ambulance service agencies in Kerala.
- Age group of 20-60 years old.

Exclusion criteria

Ambulance Drivers who working both in any hospital as well as private agencies

Instruments

Online Structured Questionnaire consisted of 3 sections which consists of

1: Sociodemographic data

Sociodemographic data consists of Age, Gender, year of experience, educational qualification, type of service, type of duty, any training programs regarding infection control measures during COVID-19.

2: Structured knowledge questionnaire
Structured knowledge questionnaire to assess the knowledge regarding infection control measures during COVID-19 among ambulance drivers. It consist of 30 multiple choice questions with 4 options for each question and samples are expected to choose one correct option for each. Each question carries1 mark. The maximum tool score of the questionnaire is 30 and score graded as 30-23 -excellent,22-16-good,15-8-Average,7-0-Poor.

3: Rating Scale
Rating Scale to assess self-reported practice regarding infection control measures during COVID-19 among ambulance drivers. It consist of 10 statements regarding infection control measures during COVID-19 and 5 responses such as – extremely important, very important, somewhat important, not very important, not at all important. Negative statements are scored in reverse order. The maximum score is 50.

Method of Data Collection

- Obtained permission from Principal Amrita College of Nursing, ethical committee and selected Private ambulance agencies.
- Identified sample who fulfilling the sample selection criteria by Convenience sampling technique.
- An online informed consent form filled first before collecting data.
- The online questionnaire consist of socio demographic data, structured knowledge questionnaire, rating scale were distributed through google forms
- Duration of data collection was for 2 weeks.
- Participants who were reluctant to finish the questionnaire due to personal reasons were free to withdraw from the study.

Statistical Analysis
Statistical Package for the Social Sciences statistical software (SPSS -21) were used to analysis the data. Chi-square test was used to find the association between socio demographic data.

RESULTS

The present study intended to assess the level of knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers in Kerala. This section deals with the analysis and interpretation of data collected from 59 ambulance drivers.

Socio Demographic Characteristics
The distribution of sociodemographic characteristics of are presented in Table 01

Table 01

Sociodemographic Variables	Parameters	No of cases	Percentage
Age in years	20-40 years	47	80%
	40-60 years	12	20%
Gender	Male	59	100%
	Female	0	0 %
Educational qualification	Primary education	39	34 %
	Higher education	20	66 %
Year of experience	<5 years	31	52.5%
	5-10 years	14	23.7%
	<10 years	14	23.7%
Type of duty	COVID duty	32	54.%
	Other duty	27	46%
History of COVID-19 infection	Yes	7	88 %
	No	52	12 %
History of training programs and guidelines regarding infection control measures during COVID-19?	Yes	45	76.3 %
	No	14	23.7%

(n=59)

The Table 1 reveals that majority of the sample belongs to age group of 20-40 years and only 20 % of them belongs to 40-60 years. All of the ambulance drivers belongs to male category. In case of Educational qualification, Majority of the participants had Higher education (66 %) and 34 % of them had primary education. Out of total 59 participants, majority of them (52.5 %) had less than 5 years' experience, 23.7 % of them had 5-10 years of experience and 23.7 had greater than 10 years of experience. In case of type of duty, majority of ambulance drivers (54 %) were only doing COVID duty and 46 % of them doing other medical services. Most of the ambulance drivers (88 %) had no history of COVID-19 infection Majority of the ambulance drivers (76.3%) got training programs and guidelines regarding infection control measures during COVID-19 but 23.7 % not attended any training programmes nor received any training programme regarding infection control measures during COVID-19

Assessment of level of knowledge on infection control measures during COVID -19 among ambulance drivers
Figure 1

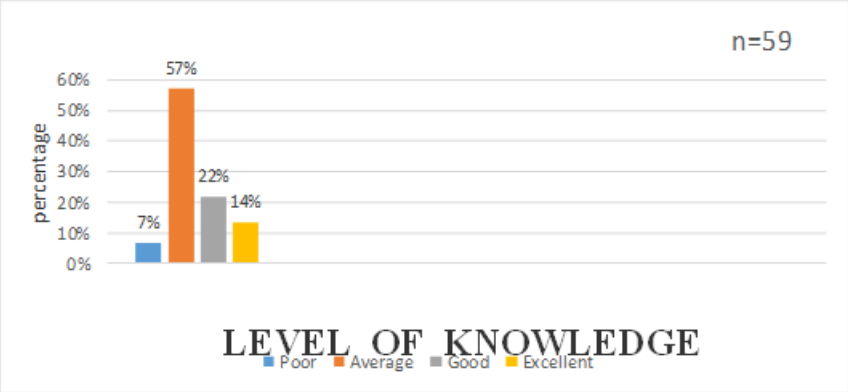

Figure 1: Distribution of level of knowledge on infection control measures during COVID -19 among ambulance drivers.

Figure 1 shows that, 7 % of ambulance drivers had poor knowledge, 57 % of the ambulance drivers had average knowledge 22 % of them had good knowledge and 14 % of the ambulance drivers had excellent knowledge regarding infection control measures during COVID -19.

Table 2: Assessment of self-reported practice on infection control measures during COVID -19 among ambulance drivers.

Self-Reported Practice	Frequency	Percentage
Poor	0	0 %
Average	6	10 %
Good	53	90 %
Total	59	100 %

(n=59)

Table 2 depicts self-reported practice on infection control measures during COVID -19 among ambulance drivers.

Table 2 reveals that 90 % of the ambulance drivers had good practice and 10 % of them had average practice regarding infection control measures during COVID-19 among ambulance drivers. None of them belongs to poor category

Table 3: Association between knowledge and Self-reported practice on infection control measures during COVID-19 and selected sociodemographic variables among ambulance drivers.

Sociodemographic Variables	Association between Knowledge and selected sociodemographic variables		Association between self-reported practice and selected sociodemographic variables	
	Chi-square value(χ^2)	p-value	Chi-square value (χ^2)	p-value
Age	6.92	0.074^{ns}	0.05	0.814^{ns}
Educational Qualification	1.77	0.620^{ns}	0.01	0.975^{ns}
Year of Experience	0.421	0.648^{ns}	3.83	0.147^{ns}
Type of duty	2.84	0.416^{ns}	1.17	0.278^{ns}
History of COVID-19 infection	1.02	0.796^{ns}	0.88	0.343^{ns}
History of Training programmes.	6.10	0.106^{ns}	0.34	0.560^{ns}

(n=59)

NS –Not significant

Table 3 depicts the association of knowledge and self reported practice on infection control measures during COVID-19 and selected sociodemographic variables

Association between level of knowledge on infection control measures during COVID-19 and selected sociodemographic variables among ambulance drivers

The major findings indicated that computed chi-square value between level of knowledge score with sociodemographic data such as age (χ^2-6.92,p-0.074), Educational qualification (χ^2-1.77,p-0.620),Year of experience(χ^2-0.421,p-0.648),Type of duty (χ^2-2.84,p-0.416), History of COVID 19 infection (χ^2-1.02,p-0.796) and history of training programs or guidelines regarding infection control measures during COVID-19 (χ^2-6.10 ,p-0.106) were not significant at 0.05 level. So we can conclude that there were no association between the level of knowledge and selected sociodemographic data among ambulance drivers.

Association between Self-reported practice on infection control measures during COVID-19 and selected sociodemographic variables among ambulance drivers

Association between self-reported practice on infection control measures during COVID-19 and selected sociodemographic variables reveals that the chi-square value between self-reported practice with sociodemographic data such as age (χ^2-056.,p- 0.814), Educational qualification (χ^2-0.001,p-0.975),Year of experience(χ^2-3.83,p-0.147),Type of duty (χ^2-1.17,p-0.278), History of COVID 19 infection (χ^2-0.88,p-0.343) and history of training programs regarding infection control measures during COVID-19 (χ^2-0.34 ,p-0.560) were not significant at 0.05 level. So we can conclude that there were no association between the self-reported practice and selected sociodemographic variables among ambulance drivers.

DISCUSSION

C0VID-19 is a life threatening virus that mainly affecting our respiratory system which transmits easily from one person to another.[4] Aerosols are infectious viral particles that can float in the air for up to three hours. People can breathe in these aerosols and become infected with the coronavirus. The rapid geographic spread of SARS CoV-2 denotes the containment of this virus will be particularly challenging.[5] Without modern medical management, infection control measures and vaccines, the severity of COVID-19 pandemic might approach the magnitude of plague(12 million deaths) and Influenza (50 million deaths) pandemics.[6]

The high risk of contracting the infection are to the health care workers who are at the frontline of COVID-19 outbreak fight .Information from National Health Commission showed that more than 3300 healthcare workers have been infected as of early March (2021).[7] Ambulance drivers are at the frontline of medical care and have a high risk of exposure to infected patient during transportation and ambulances may represent a primary source of infection to patients, patients 'relatives, and healthcare workers. Robinson (2019) conducted a study to assess the Emergency Medical Vehicle's contamination and risk of Infection to patients and Paramedic First Responders and by determining the recommendations and risks from Ambulance Case Studies. By evaluating the risks, it is necessary to implement the best practices to improve infection control of routine outbreaks and during a emergency such as a bioterrorism or disease pandemic.[8] We live in a global pandemic where severe social distancing measures are necessary.[9] Its high time to follow Infection control measures which helps to protect the patients and health workers from being harmed by an infection. Lack of clinical experience and insufficient attention to personal safety put the health care workers at risk for occupational exposure.[10] Compliance with foremost practices for cleaning and disinfecting ambulances is an important factor in controlling and preventing the spread of infection.

The present research study was intended to assess the knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers in Kerala. The study reveals that majority of the ambulance drivers (57 %) had average knowledge regarding infection control measures during COVID -19. This is in contrast with study by Vatan (2020) to assess the knowledge and attitude towards COVID-19 among emergency medical service workers, Turkey which shows that majority (78%) of the participants had poor knowledge about infection control measures mainly the floor and surface disinfection during COVID-19.[1]

In this study, Assessment of self-reported practice on infection control measures during COVID-19 among ambulance drivers revealed that majority 90 % of the ambulance drivers had good practice .In contrast to the present study, another cross section survey was conducted by Yoon Choi (2021) to assess the prevention of infection and infection control practices of workers of healthcare by an infection control surveillance group and an infection control team coordinators during the COVID-19 pandemic. The results showed that in the first phase, of the 127 violations observed, 32.3% corresponded to hand and respiratory hygiene. In the second phase, the highest proportion of violation (37.8%) per category was observed in the medical waste management. The study concluded that proper hand and respiratory hygiene was inadequate at the early stage of the COVID-19 pandemic.[11] Even though present study result revealed average knowledge and good practice on infection control measures during COVID 19 among majority of the ambulance drivers, The frontline health care workers especially ambulance drivers must update the recent emerging infection control measures during COVID-19.

Limitations of the study

- Researchers planned to conduct a comparative study to evaluate the knowledge and self-reported practice among ambulance drivers of hospital as well as private agencies. Difficulty in getting permission from hospital settings made the researchers to conduct the study only among private ambulance agencies.

- As the study was conducted through online, Some of the ambulance drivers showed unwillingness to participate in the study due to lack of proper internet connections.

Recommendations

- The study can be conducted with wide sample size to generalize the findings
- The similar studies can be conducted like,
- An experimental study to evaluate the impact of educational programme on knowledge and practice regarding infection control measures during COVID 19 among ambulance drivers
- A comparative study to assess the knowledge regarding infection control measures during COVID 19 hospital and private among ambulance drivers.

Compliance with ethical standard

The present study was started after obtaining sanction from Ethics Committee. This study does not contain any studies with animals performed by author.

CONCLUSION

The present study assessed the knowledge and self-reported practice on infection control measures during COVID -19 among ambulance drivers in Kerala. From the result findings the following conclusion were drawn that majority of the ambulance drivers had average knowledge and good self-reported practice on infection control measures during COVID -19. Although ambulance drivers have basic knowledge and self-reported practice regarding infection control measures during COVID-19, there is a need for periodic training programmes on infection control measures and other recent knowledge and practice on COVID-19 to develop a sense of responsibility to prevent and control the spread of COVID -19.

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