

CASE STUDY ON COMPLIANCE AND IMPROVEMENT IN INFECTION PREVENTION PRACTICES AND ASSOCIATED FACTORS AMONG HEALTH WORKERS AT A TERTIARY CARE TEACHING INSTITUTE IN NORTH INDIA. (isqua2023.046007f)

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INTRODUCTION

Since the emergence of COVID-19 pandemic, many healthcare workers have been infected and died of COVID-19 that may contributed to various factors in the working environment. Therefore, understanding healthcare workers’ prevention practices towards COVID-19 pandemic as well as possible risk factors are critical issues that helps to predict the outcomes of the planned response and to combat the pandemic. Thus, this study aimed to determine health care workers’ compliance with COVID-19 preventive measures and associated factors.

METHODS

- A. Study site:** The study was conducted at a 2500 bedded tertiary care teaching healthcare Institute in North India.
- B. Study design:** An institutional-based cross-sectional study
- C. Study Duration:** Baseline data was collected from 1st March, 2021 to 31st May, 2021. Pursuant to baseline data collection, the team implemented two change ideas from 1st June, 2021 to 31st July, 2021
- D. Study Population:** The Source population were the Healthcare workers deployed to work in designated COVID-19 care areas at the Teaching Institute.
- E. Sample size determination:** The sample size was calculated by using the single population proportion formula ($n = Z\alpha/2)^2p(1-p)/d^2$), where n is the minimum sample size required, p is the estimated proportion of compliance, and Z/2 is the value of the standard score at a 95% confidence level (1.96), with the assumptions of a confidence level of 95% = 1.96, a margin of error (d) = 0.05, and a non-retrieval/ response rate of 10%. For this study, p = 38.7% was used. Then, the final calculated sample size required for this study was 402.
- F. Sampling Technique:** The study participants were selected using systematic random sampling after proportional allocation of HCWs to the professional categories/occupations
- G. Data Collection Methods:** Self-administered structured questionnaires containing 31 questions (12 items to determine compliance, nine for socio-demographic characteristics, and 10 items to determine knowledge) were used to collect all the data required for the study through self-administered questionnaires. The data was collected through face to face interviews by a trained health professional using the pretested questionnaires from participants who consented to be a part of the study.
- H. Data Quality Control:** Before data collection, the questionnaire was pretested on 25 Healthcare workers in the health to check the clarity, sequence, and applicability of the questions and to estimate the time required to collect data from each respondent. All data collectors and supervisors were trained on the principles, ethics, procedures, and questionnaire in detail. The principal investigator was closely monitoring the data collection process. The filled questionnaires were checked by the investigators for consistency and completeness every day.
- I. Data Processing and Analysis:** The data was analysed using SPSS Version 23 software. Descriptive statistical tests were used to provide a clear distribution of data. Numerical values were measured as Mean and Standard Deviation. Categorical variables were expressed as frequency & percentages. A chi-square test was used to find the difference in practice (Good vs Poor) based on socio-demographic characteristics. In addition, Binary and multivariable logistic regression expressed as Odds Ratio were used to find the significant factors. A P-value of 0.05 was considered as the cut-off point for statistical significance.

OPERATIONAL DEFINITION

- A. Healthcare Workers:** All people engaged in activities to improve the quality of health that include nurses/midwives, laboratory experts, medical doctors, anaesthetists, health officers, physicians, and auxiliary staff. Compliance was defined as having adequate practice on COVID-19 prevention .
- B. Practices:** Practice was measured using twelve questions based on the mean value of the score. In the current study, those scored higher or equal to the mean (10.829) score was considered as having good compliance while those scores less than the mean were considered as poor compliance toward COVID-19 prevention practices.
- C. Knowledge:** Knowledge was measured using eight questions based on the mean value of the score. In the current study, those who scored higher or equal to the mean value (7.863) were considered as having good knowledge, while those scores less than the mean were considered as poor COVID-19 prevention practice implementation

RESULTS

- A. Socio Demographic Characteristics:** Of the 402 healthcare workers who gave a response, 55.5% were males. The mean age of the respondents was 28.88 +/- 6.504 years and ranged from 20 to 50 years, with a median age of 27. Based on the occupation, the study participants ranged from 9 (2.2%) among anesthetists to 158 (39.3%) among nurses. 96.3% of Healthcare workers had training on infection prevention particularly related to COVID-19.
- B. COVID-19 Preventive Practices:** The average practice score of the participants was 10.829 + 1.78 and ranged from four to ten. Among the 402 participants given the complete response, 308 (76.6%) had good preventive practices, whereas 94 (23.4%) had low preventive practices (SD: 0.40). Avoiding touching eyes with unwashed hands was reported by 399 (99.3%) participants. Three hundred eighteen (79.1%) reported that they were washing their hands after giving services
- C. Knowledge of Health Workers:** The average knowledge score for the participants was 7.863+ 0.45 and ranged from 4 to 8 scores. 360 (89.6%) had good knowledge, while 42 (10.4%) had poor knowledge. Among the questions used to determine the knowledge of HCWs, all participants believed that the COVID-19 virus spreads via respiratory droplets of infected individuals. Furthermore, 392 (97.5%) believed that the elderly, those who have chronic illnesses, and obese people are more likely to be susceptible.
- D. Factors associated with COVID-19 Preventive practices:** The service year, occupation, and knowledge of the respondents were significantly associated with COVID-19 preventive practices. For example, auxiliary staff were about 3.186 times more likely to implement COVID-19 preventive practices than medical doctors [95% CI: 1.08,10.17]. Health workers who had one to three and six to nine years of work experience were about 0.25 and 0.16 times less likely to implement COVID-19 preventive practices, respectively. Participants who had poor knowledge were about 3.02 times more likely to implement COVID-19 preventive practices than those who had good knowledge .

Two change ideas were implemented during the course of the study to enable increased compliance. One was ensure provision of hand sanitisation stations and dustbins on every bed. Second change idea that was implemented were training programs focussed on Infection control practices. It was found that compliance improved to 85.5% from 76.6%.

Table No.1: KNOWLEDGE OF HEALTH CARE WORKERS (N=402)			
Parameters (n=402)	Options	Frequency	Percentage
Currently, there is no effective cure for COVID-19	Yes	394	98.0
	No	08	2.0
Those who are elderly, have chronic illnesses and are obese are more likely to be severe cases	Yes	392	97.5
	No	10	2.5
Persons with COVID-19 cannot transmit the virus when afebrile	Yes	384	95.5
	No	18	4.5
COVID-19 virus spreads via respiratory droplets of infected individuals	Yes	402	100
Donning of masks prevent CVID-19	Yes	399	99.0
	No	04	1.0
It is not necessary for children and Young Adults to take preventive measures for COVID-19	Yes	399	99.3
	No	3	0.7
Isolation of COVID-19 positive individuals is an effective way to prevent spread of the virus	Yes	398	99.0
	No	04	1.0
People who have come in contact with a COVID-19 positive individual should be immediately put in Isolation	Yes	397	98.8
	No	05	1.2

Table No. 2 : COVID-19 PREVENTIVE PRACTICES AMONG HEALTH CARE WORKERS (N=402)			
Parameters (n=402)	Options	Frequency	Percentage
Wearing face mask during provision of care	Yes	365	90.80
	No	37	9.2
Washing hands after conducting any procedure for atleast 20 seconds	Yes	318	79.1
	No	84	20.9
Covering mouth & nose while coughing and sneezing	Yes	355	88.30
	No	47	11.70
Avoiding touching mouth with unwashed hands	Yes	395	98.3
	No	07	1.7
Avoiding touching nose with unwashed hands	Yes	398	99.0
	No	04	1.0
Avoiding touching eyes with unwashed hands	Yes	399	99.3
	No	3	0.7
Using disinfectants to clean hands when water & soap are not available	Yes	363	90.30
	No	39	9.7
Maintaining Physical distancing	Yes	341	84.8
	No	61	15.2
Disinfecting surfaces	Yes	354	88.1
	No	48	11.9
Staying home when unwell	Yes	365	90.8
	No	37	9.2

CONCLUSION

Even though the majority of the study participants have good practices, the study found a reduction in the implementation of COVID-19 preventive practices. Preventive practice is a crucial step in managing pandemics, including the COVID-19 pandemic.

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