

Research Article

Gradual improvement of knowledge among in-service nursing professionals related to COVID-19 pandemic post lockdown

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Background: Due to novel nature of the SARS-CoV-2, even the medical fraternity was struggling with the inaccurate and contradictory indications in initial weeks. With time, more information about the virus was known. At present, it is unclear whether emergence of new information about the virus resulted in change in knowledge, attitude and practice related to COVID-19 or not. Thus, this study aims to assess the change in knowledge, attitude and practice of healthcare workers towards COVID-19 over a period of time.

Methodology: A cross-sectional study was undertaken among the in-service nursing professionals from April 15, 2020 to November 30, 2020. A pre-tested questionnaire was circulated among participants consisted 37 knowledge, attitude and practice related questions focusing on all aspects of prevention and management related to COVID-19. The data was extracted in excel sheet from Survey Monkey and analyses were performed using IBM SPSS-Version 22.

Results: A total 1,989 responses were included. Mean age of the participants was 30.33 ± 6.78 years with 74.16% were female participants. Mean knowledge score of the participants in during lockdown group was found to be 16.17 ± 3.09 out of 27 whereas in post lockdown group was found to be 16.66 ± 3.02 ; the difference between the two groups was found to be significantly different (<0.001). However, no significant difference was observed in attitude and practice of healthcare workers across these two groups.

Conclusion: Increase in knowledge related to COVID-19 was observed in healthcare workers post lockdown. However, there is a need for a specialized program for addressing the myths and misconceptions related to the novel virus.

Key words: Respiratory, coronavirus disease, nursing, healthcare

INTRODUCTION

Coronavirus disease 2019 (COVID-19), an illness caused by a novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) resulted in pandemic across the globe in few months of its existence. The multiplication of COVID-19 cases resulted in imposing of stringent measures to curb the spread of

the virus such as enforcing of nation-wide lockdowns, shutting down of educational institutes, closure of public places and other necessary activities that require restriction of human movement (Alrazeeni, 2021).

The SARS-CoV-2 is a novel virus identified in early January 2020 and hence inadequate information was available about it. During initial weeks of its identification, the medical fraternity

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itself was struggling with the inaccurate and contradictory indications on novel coronavirus. Limited information about the origins, mechanisms behind the outbreak, prevention, treatment, and other management strategies related to COVID-19 was available (Bailey et al., 2020). This situation eventually generated confusion among the healthcare workers and has also resulted in formulation of their own interpretation about the novel virus (Ahwal et al., 2020). The inaccurate and incomplete information resulted in poor knowledge of healthcare workers and also affected their attitudes and clinical practices (Breslow, 2020, Datta et al., 2020, De' R et al., 2020).

However, the novel virus was under the lens of the microscope since its inception and new researches were being published overtime. Several information related to prevention and management were identified during few months of its origin. Parallely, healthcare workers were battling against COVID-19 with extended duty hours and limited time to update their knowledge (Health care professional's battle misinformation 'infodemic' on internet, social media, 2020, Keshan et al., 2020). At present, it is unclear whether emergence of new information about the virus resulted in increase in knowledge and change in attitude and practice related to COVID-19 or not. Thus, this study aims at assessing the change in knowledge, attitude and practice of healthcare workers towards COVID-19 over a period of time.

METHODOLOGY

A cross-sectional study was undertaken among the in-service nursing professionals previously associated with Project ILBS-ECHO from April 15, 2020 to November 30, 2020. ECHO is a capacity building initiative of Institute of Liver and Biliary Sciences funded by Gilead Inc for training HCWs on liver diseases and its complications (World Health Organisation, India. Novel Coronavirus Disease (COVID-19) Situation Update Report – 9, 2020).

A pre-tested questionnaire was circulated through online link on registered mobile number/email addresses. The questionnaire consisted of demographic-related questions and 37 knowledge, attitude and practice (KAP) related questions focusing on all aspects of prevention and management related to COVID-19.

Demographic section collected information on age, gender, sector of healthcare facility, educational qualification. The questionnaire had 26 questions related to knowledge which comprised 10-true and false questions and 16-multiple choice questions. Knowledge section was further divided into five major domains:

- i) General information regarding coronavirus
- ii) Symptoms and transmission
- iii) Infection prevention and control practices
- iv) Sample collection and bio-medical waste management and

v) Management of COVID-19 positive patients

Each question was allotted one mark for correct response except question K25, which was of two marks, making the total score of the Knowledge section to be 27. A total of six questions were used to assess the attitude of the healthcare workers with a scoring of yes, no and may be. Response of 'No' was coded as 0, 'May be' as 1 and 'Yes' as 2. The score of the attitude section ranged from 0 – 12. In addition, the questionnaire included five questions related to practice with 5-point Likert scale. The score ranged from 0 – 4 (Never- 0, rarely -1, often -2, sometimes -3 and always -4). The score of the practice section ranged from 0 - 20. The first page of the online questionnaire, consisted of digital consent form which clearly stated about the objectives of the study.

The data was extracted in excel sheet from Survey Monkey and unique identity number was allotted to each entry. Continuous data such as knowledge, attitudes and practice scores were presented as mean and standard deviation (SD). Experience was categorized into two categories – (i) less than five years and (ii) five years and above (Rastogi et al., 2021). Mean knowledge, attitudes and practice scores of two groups of healthcare workers i.e., i) During lockdown (April, May and June 2020) and ii) Post lockdown (July to Nov 2020) was compared using independent t-test. The statistical significance level was fixed to conventional value of $p < 0.05$. All analyses were performed using Statistical Package for the Social Sciences (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22 Armonk, Chicago, Illinois: IBM Corp).

RESULTS

A total 2348 responses were received, of which 1989 responses were included in the final analysis. The mean age of the participants was 30.33 ± 6.78 years with 74.16% were female participants. Approximately, 50.78% of the total participants were working in the government sector whereas the remaining 49.22% belonged to private sectors. Among the total participants, more than half (50.98%) were graduates, 22.22% participants were post-graduates and above whereas remaining 26.80% had a diploma degree (Table 1).

The mean knowledge score of the participants during lockdown group was found to be 16.17 ± 3.09 (range 9 - 26) out of total score of 27 whereas the mean knowledge of the participants post lockdown group was found to be 16.66 ± 3.02 (6-26). The difference between the two groups was found to be significantly different (< 0.001). The domain wise knowledge in two groups have been described in (Table 2). The overall mean score of the attitude during lockdown group was found to be 9.51 ± 1.44 (range 3–11) out of total score of 12 whereas mean attitude in post lockdown group was 9.53 ± 1.42 (range 2-11). Similarly, no difference was observed in the mean practice score of the groups ($p < 0.879$).

Table 1. Demographic characteristics of the participants (N=1989)

Demographic characteristics	Overall n (%)
Mean age ± SD	30.33 ± 6.78
Gender	
Male	514 (25.84)
Female	1475 (74.16)
Years of experience (n=1420)	
<5 years	761 (53.59)
≥5 years	659 (46.41)
Education qualification	
Diploma	533 (26.80)
BSc Nursing	1014 (50.98)
MSc Nursing	442 (22.22)
Type of facility	
Government	1010 (50.78)
Private	979 (49.22)
Time period	
During Lockdown	796 (40.02)
Post Lockdown	1,193 (59.98)

Table 2. Overall and domain wise knowledge, attitude and practice in pre and post assessment (N=1989)

Knowledge assessment	Mean knowledge of group 1 ± SD (796)	Mean knowledge of group 2 ± SD (1193)	P value
General Information regarding coronavirus (K6, K11, K12, and K14)	2.31 ± 0.70	2.28 ± 0.71	0.289
Symptoms and transmission (K2, K3, K4, and K8)	3.37 ± 0.67	3.42 ± 0.68	0.105
Infection, prevention, and control practices (K1, K5, K7, K17, K18, and K22)	4.00 ± 1.21	4.12 ± 1.16	0.029
Sample collection and bio-Medical waste management (K9, K10, K15, and K16)	2.98 ± 0.78	3.18 ± 0.73	<0.001
Management of COVID-19-positive patients (K13, K19, K20, K21, K23, K24, K25, and K26)	3.44 ± 1.82	3.64 ± 1.87	0.023
Overall Knowledge assessment	16.17 ± 3.09	16.66 ± 3.02	<0.001
Attitude assessment	9.51 ± 1.44	9.53 ± 1.42	0.847
Practice assessment	18.90 ± 1.74	18.88 ± 1.98	0.879

DISCUSSION

The present study assessed the knowledge, attitude and practice related to prevention and management of COVID-19 among 1989 HCWs across India from April 15, 2020 to November 30, 2020. The study highlighted there was increase in COVID-19 related knowledge of healthcare workers in post lockdown as compared to during lockdown group. The similar findings were observed in a study undertaken in high-risk adults of United States. The study also emphasized increase in knowledge in the group which was assessed afterwards (Rastogi et al., 2021). These changes were particularly notable among sub-domains such as infection, prevention, and control practices, sample collection and bio-medical waste management and management of COVID-19-positive patients. This can be explained as healthcare workers became familiar with the practical knowledge involved in prevention and management of COVID-19.

Despite increase in knowledge overtime, no change was observed in attitude and practice in the two groups. The results of the study had contradictory results to US-based study (Rastogi et al., 2021). This could be attributable to the fact there were several misconception and fear associated with the prevention and management of COVID-19, which require specialized attention such as a focused training program (Saúde, 2020, Syed et al., 2021). Another reason which can explain this is the exceptionally high attitude and practice score when compared to knowledge score. The possible explanation for higher attitude and practice scores could be attributable to tendency to provide socially desirable responses.

Similar to other online surveys, the present study too has the inherent drawbacks of self-reported surveys. The inherent design of the study like sampling technique could have resulted in selection bias as the study is only restricted to people with internet access and understanding of English language. An additional limitation of the study is that the study didn't assess

if participants had previous exposure to any training program as it could have resulted in better knowledge, attitude and practice.

Despite these limitations, the present study was one of the pioneer studies to hypothesize change in knowledge, attitude and practice with respect to COVID-19 over a period of time. The present study also emphasizes the need for a specialized program for healthcare workers to address the myths and misconceptions related to the novel virus in order to stay protected and keep themselves safe and motivated while managing COVID-19 patients.

CONCLUSION

An increase in knowledge related to prevention and management of COVID-19 was observed in healthcare workers post lockdown as compared to healthcare workers during Lockdown. However, no such change is observed with respect to attitude and practice related to prevention and management of COVID-19 across two time periods. There is a need for a specialized program for healthcare workers to address the myths and misconceptions related to the novel virus.

CONFLICT OF INTEREST

None declared

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