Assessment of Awareness among Medical Students about Hand Hygiene Practices Amidst the Covid 19 Pandemic

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Abstract

Background: Hand hygiene is considered one of the important elements in preventing the nosocomial infections. As covid 19 pandemic has overshadowed the whole world, compliance with hand hygiene practices has become more important than ever before. Despite it being a simple procedure, many studies have shown that compliance is low among medical undergraduates.

Methodology: WHO based questionnaire is a internationally accepted questionnaire for evaluating the compliance of health workers towards hand hygiene and this has been used in this study to assess the awareness in medical students about hand hygiene in the ongoing pandemic times.

Conclusion: There was observed good level of awareness in medical students about hand hygiene practices but the constraint lies in the practical implementation of hand hygiene practices and it requires augmentation of positive behaviour through educational interventions.

Key words: *Hand Hygiene, COVID, awareness, medical undergraduates*

Introduction

As the whole world is facing the disastrous effects of pandemic , so our health care professionals are working day and night to reduce the morbidity and mortality caused due to the deleterious effects of this deadly virus. So, adoption of hand hygiene practices by our health care professionals is also very important so as to ensure their safety . Hand hygiene is one of the important health care issues globally and is a cost effective and practical measure to reduce the incidence of health care associated infection and the spread of antimicrobial resistance across all settings[1,2] Hand hygiene is considered an important measure to prevent the transmission of pathogens in health care facilities, and it is proven that improving hand hygiene compliance significantly reduces health care-acquired infections. Accordingly, hand hygiene has been recommended as an important strategy to help prevent the spread of COVID-19 in hospitals. Many studies have been conducted over this topic across India but no study so far has been conducted in medical students in Jammu and Kashmir.

So, this study was planned to obtain data so that can be used to provide students with feedback to identify the significance of hand hygiene compliance and to evaluate the impact of targeted interventions in enhancing the awareness among them regarding the

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hand hygiene practices.

Methodology

Study Design, Setting, and Duration: This is a prospective observational study and was conducted at the Department of Physiology at Government Medical College and Hospital , Kathua in Jammu and Kashmir, India, between August 2021-September 2021.

Study tools

Pilot study was done on 5 faculty members and 10 medical and paramedical students to validate the questionnaire.

After the pilot study, modifications required were done to validate the questionnaire. All participants had to complete a 20-item self-administered WHO hand hygiene questionnaire for health-care workers. The questionnaire was filled by the respondents in either print or electronic format. Consent was obtained from all participants and participation was voluntary. Convenient sampling method was used for data collection and medical undergraduates were included in the study . Data was analyzed using percentages. Level of 50% of the total no. of students was taken as the cut off to assess whether a good proportion of students knew the particular domain of hand hygiene practices protocol.

Results

Demographic Characteristic:

The respondents who participated in this survey represented many provinces of Jammu and Kashmir and mostly originated from provinces with mid- level category of COVID-19 cases.

ANY FORMAL TRAINING IN HAND HYGIENE IN LAST 3 YEARS

YES	20.3%
NO	64.9%
NOT SURE	15.4%

20.3% of the students showed the positive response that they have got formal training in hand hygiene in last 3 years, 64.9% of the students showed the negative response and 15.4% were not sure if they have got any formal training in hand hygiene in last 3 years.

MAIN ROUTE OF CROSS-TRANSMISSION OF POTENTIALLY HARMFUL GERMS BETWEEN PATIENTS IN HEALTH CARE FACILITY

61.5% showed that main route of cross-transmission is when health care workers hands are not clean, 11% showed that air circulating in the hospital is main route of cross-transmission, 18.3% of students showed that cross-transmission occurs mainly because of patients exposure to colonised surfaces, 9.2% showed that sharing non-invasive objects is the main route of cross-transmission

HAND HYGIENE ACTIONS PREVENTING TRANSMISSION OF GERMS TO THE PATIENT-1.BEFORE TOUCHING THE PATIENT

69.2% showed the response that they follow the

protocol of hand hygiene actions before touching the patient, 7.7% showed the response that they don't follow the protocol of hand hygiene actions and 23.1% of the students were not sure of whether they should follow the protocol of hand hygiene actions.

2. IMMEDIATELY AFTER A RISK OF BODY FLUID EXPOSURE

68.5% showed the response that they follow the protocol of hand hygiene actions immediately after a risk of fluid exposure, 13.9% showed the response that they do not follow the protocol of hand hygiene actions, 16.7% were not sure of what to do immediately after a risk of body fluid exposure

3. **AFTER EXPOSURE TO THE IMMEDIATE SURROUNDINGS OF A PATIENT**

70.4% were of the opinion that hand hygiene routine precautions should be followed after immediate exposure to the immediate surroundings of a patient, 13.9% showed the negative response that hand hygiene practices should not be followed after exposure to the immediate surroundings of a patient

4.**IMMEDIATELY BEFORE A CLEAN/ ASEPTIC PROCEDURE**

66.7% showed the response that hand hygiene practices should be followed immediately before a clean/ aseptic procedure. 13.9% showed the negative response that hand hygiene practices should not be followed immediately before a clean/aseptic procedure where as 19.4% were not sure of whether they should follow the hand hygiene practices immediately before a clean/aseptic procedure

5.**AFTER TOUCHING A PATIENT**

68.8% showed the response that if hand hygiene actions are followed after touching a patient, it helps in preventing the transmission of germs , 25% were not sure of it

HANDWASHING IS MORE RAPID FOR HAND CLEANSING THAN HANDWASHING

50% were of the opinion that hand washing is more rapid for hand cleansing than hand washing, 22.5% were not in favour that handwashing is more rapid for hand cleansing than hand washing where as 27.5% were not sure of whether handwashing is more rapid for hand cleansing than hand washing

HANDRUBBING CAUSES SKIN DRYNESS MORE THAN HAND WASHING

61.7% were in the favour that hand rubbing causes skin dryness more than hand washing,20.6% showed the negative response that hand rubbing causes skin dryness more than hand washing where as 17.7% were not sure of it

HANDRUBBING IS MORE EFFECTIVE AGAINST GERMS THAN HAND WASHING

YES	29.4%
NO	52.3%
NOT SURE	18.3%

29.4% showed the positive response that hand rubbing is more effective against germs than hand washing, 52.3% were not in favour of the opinion that hand rubbing is more effective against germs than hand washing where as 18.3% were not sure about the above cited statement.

HANDWASHING AND HANDRUBBING ARE RECOMMENDED TO BE PERFORMED IN SEQUENCE

62.4% were in favour that hand washing and hand rubbing are recommended to be performed in sequence, 18.3% were not in favour that hand washing and hand rubbing are recommended to be performed in sequence, 19.3% were not sure whether hand washing and hand rubbing are recommended to be performed in sequence

MINIMAL TIME NEEDEED FOR HAND WASHING TO KILL CORONA VIRUS

35.8% were of the opinion that minimal time needed for hand washing to kill corona virus is 20 seconds, 35.9% showed the response that minimal time needed for hand washing to kill corona virus is 30 seconds, 28.3% were in favour that minimal time needed for hand washing to kill corona virus is 40 seconds

KNOWLEDGE ABOUT THE STEPS OF HAND WASHING

2.8% showed the positive response that they are aware about the steps of hand washing, 13.9% showed the negative response that they are not aware about the steps of hand washing where as 83.3% were not sure about the steps of hand washing

KNOWLEDGE ABOUT THE STEPS OF HAND RUB

74.3% students have knowledge about the steps of hand rub, 8.3% of the students were not aware about the steps of hand rub where as 17.4% were not sure about the steps of hand rub.

CAN GLOVE BE USED AS AN ALTERNATIVE FOR HAND CLEANING

30.6% students were of the opinion that glove can be used as an alternative for hand cleaning, 44.4% students were in favour that glove cannot be used as an alternative for hand cleaning where as 25% were not sure about the statement that can glove be used as an alternative for hand cleaning

ARE ALCOHOL BASED SANITISERS MORE EFFECTIVE THAN HAND WASHING

YES	32.7%
NO	43.9%
NOT SURE	23.4%

32.7% were of the opinion that alcohol based sanitisers are more effective than hand washing, 43.9% were not in the favour that alcohol based sanitisers are more effective than hand washing where as 23.4% were not sure about it.

DO YOU MISS CERTAIN AREAS WHEN YOU CLEAN YOUR HANDS

38.5% students were of the opinion that they miss certain areas when they clean their hands, 44% students stated that they don't miss certain areas when they clean their hands, 17.5% were could not ascertain whether they miss certain areas when they clean their

hands

DO HANDRUB SANITISERS CAUSE ANTIBIOTIC RESISTANCE

34.3% students opined that handrub sanitisers cause antibiotic resistance, 28.7% were in favour of the opinion that handrub sanitisers do not cause antibiotic resistance whereas 37% were not sure whether handrub sanitisers cause antibiotic resistance

WHICH OF THE FOLLOWING SHOULD BE AVOIDED AS ASSOCIATED WITH INCREASED LIKELIHOOD OF COLONISATION OF HANDS WITH HARMFUL GERMS----------1.WEARING JEWELLERY

57.7% students were in favour that wearing jewellery should be avoided as it is associated with increases likelihood of colonisation of hands with harmful germs

2**. DAMAGED SKIN**

67.3% students were of the opinion that damaged skin is associated with increased likelihood of colonisation of hands with harmful germs, 18.7% were not favour of the above cited statement where as 14% were not sure about it

3. **ARTIFICIAL FINGERNAILS**

55.6% were in the favour that artificial fingernails are associated with increased likelihood of colonisation of hands with harmful germs, 25.9% opined that artificial fingernails are not associated with increased likelihood of colonisation of hands with harmful germs where as 18.5% were not sure about the above cited statement

4. REGULAR USE OF HAND CREAM

YES	36.1%
NO	35.2%
NOT SURE	28.7%

36.1% were of the opinion that regular use of hand cream is associated with increased likelihood of colonisation of hands with harmful germs, 35.2% were not in favour that regular use of hand cream is associated with increased likelihood of colonisation of hands with harmful germs where as 28.7% were not sure of it

DOES THE AMOUNT OF DISINFECTANT WE USE MATTER IN HAND CLEANSING

YES	74.1%
NO	10.2%
NOT SURE	15.7%

74.1% were in favour that amount of disinfectant we use matter in hand cleansing, 10.2 % were not in favour that amount of disinfectant we use matter in hand cleansing where as 15.7% were not sure about it.

Discussion

Monitoring hand hygiene compliance is considered a critical aspect of an effective hand hygiene program. In spite of being a very simple action, compliance with hand hygiene among health care providers is as low as less than 40% [3-5]. It has been reported that burden due to the nosocomial infections is much more in underdeveloped nations as compared to the developed nations of the world. So, continuous efforts are being made to identify effective and sustainable strategies. . One of such efforts is the introduction of an evidence-based concept of "My five moments for hand hygiene" by World Health Organization. These five moments that call for the use of hand hygiene include the moment before touching a patient, before performing aseptic and clean procedures, after being at risk of exposure to body fluids, after touching a patient, and after touching patient surroundings. This concept has been aptly used to improve understanding, training, monitoring, and reporting hand hygiene among healthcare workers[6]. Recent studies have found low awareness regarding hand hygiene among medical students and health care providers[7-11] . A study done in a rural Indian hospital showed that the proportion of healthcare workers that reported to 'always' practicing hand hygiene in the selected situations varied from 40–96%[12] . Snow et al. [13] found the medical students to have a low overall rate of hand hygiene. Van De Mortel et al.[14] found the nursing students' hand hygiene knowledge and self-reported practices to be significantly better than that of medical students.

In the present scenario of the ongoing pandemic, it has become evident that following hand hygiene practices is one of the most important steps in combating the spread of the covid-19 infection. The present study has focussed on various domains related with the hand hygiene practices and the compliance of the medical students in adopting those practices so that they can evolve as better health care professionals in the near future. A self-administered validated questionnaire based feedback was taken from the students based on "5 MOMENTS OF HAND HYGIENE" devised by the WORLD HEALTH ORGANISATION[15]. A good level of awareness was observed in the students regarding the various domains of hands hygiene practices like that they should sanitise their hands before and after touching the patient. Majority of the students reported that main route of cross-transmission of potentially harmful germs is when health workers hands are not clean. Many also reported that increased use of jewellery, areas of damaged skin, artificial finger nails are associated with increased likelihood of spread of infection. The main constraint that was found during the study in the implementation of these practices is that many of have not received any formal training in hand hygiene in the last 3 years and so, they are not aware how to implement hand hygiene practices . This gap between knowledge and habitual behaviour needs to get bridged. Thus, its necessary to enhance positive behavior through educational interventions that would lead to habitual engagement in hand hygiene, which is likely to persist even in the post-pandemic period.

Conclusions

Most of the students have been shown to have the adequate level of knowledge but they lag in skillful practical implementation of various domains of hand hygiene protocol.

So, in the light of above, it is the need of the hour to organise coupling educational programs that use cognitive and behavioral methods, including role modeling, supervision, and frequent reminder so that they get use to the implementation of these hand hygiene practices when they start working as full fledged health care professionals in the clinical set ups.

Ethical Clearance: The study documents were reviewed and approved by the Institutional Ethics Committee (IEC) of Government Medical College and Hospital, Kathua, Jammu and Kashmir,

Conflict of Interest: None

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References

1. P. Mathur, "Hand Hygiene: back to the basics of Infection control, Indian J Med Res ,2011,vol.134,(11), pp.611-620, .
2. S.Kelcikova, Z. Skodova and S.Straka, " Effectiveness of hand hygiene education in a basic nursing school curricula, Public Health Nursing, 2017, vol, 29, (2), pp. 152-159.
3. Y.Longtin, H.Sax, B. Allegranzi, F.Schneider and D. Pillet,"Videos in Clinical medicine; Hand Hygiene, N Engl J Med ,2011, vol. 364, (13), p.24.
4. J. Tibballs, "Teaching hospital staff to hand wash," Med J Aus, 1996 ,vol.164,pp 495-498, .
5. D. Pittet, S. Hugonmet, S. Harbarth ; "Effectiveness of hospital wide programme to improve compliance with hand hygiene", The Lancet, 2000, vol.356, (9238), pp 1307-1312.
6. H.Sax, B.Allegranzi, ,I. Uckay, E. Larson, I. Boyce and D.Pittet, " My five moments for hand hygiene", J Hosp Infect ,2007, vol.67, (1), pp.9-21,
7. Diwan V, Gustafsson C, Rosales Klintz S : Understanding healthcare workers self-reported practices, knowledge and attitude about hand hygiene in a medical setting in rural India, PLOS ONE, 2016.
8. I.A. Qushmaq, D. Heels-Ansdell, D.J. Cook, M.B. Loeb and M.O. Meade, "Hand Hygiene in the intensive care unit: prospective observations of clinical practice," 2008, vol.118.(.10),pp.543-547, .
9. S.Z.Bukhari, W.M. Hussain, A. Banjar, W.H. Almaimani, T.M. Karima and M. I. Fatani, "Hand Hygiene compliance rate among health care professionals, Saudi Med J , 2011, vol.32 ,pp.515-519.
10. M. Barurrah and T. Madani, "Handwashing and gloving practice among health care workers in medical and surgical wards in a tertiary care centre in Riyadh, Saudi arabia," Scand J Infect Dis , 2006, vol.38, (8), pp.620-624.
11. E. Duroy and X. Le Coutour, "Hospital hygiene and medical students," Medecine et Maladies Infectieuses, 2010, vol.40, (9),pp.530-536.
12. A. Feather , S.P. Stone, A. Wessier, K.A. Boursicot and C. Pratt, "Now please wash your hands": the handwashing behaviour of final MBBS candidates, ", J Hosp Infect ,2000, vol.45, (1), pp. 62-64. ",
13. M.Snow, G.L. White, S.C. Alder and J.B. Stanford, "Mentor's hand hygiene practices influence student's hand hygiene rates" Am J Infect Control , 2006, vol.34, (1), pp.18-24.
14. T.F. Van De Mortel, S. Kermode, T. Progano and J. Sansoni, "A comparison of the hand hygiene knowledge, beliefs and practices of Italian nursing and medical students," J Adv Nurs , 2012,vol.68,(.3), pp.569-579.
15. World Health Organisation. SAVE LIVES Clean Your Hands:WHO'S global annual compaign.2009.