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# Title: A STUDY TO ASSESS AWARENESS ABOUT TELEMEDICINE AMONG MEDICAL STUDENTS OF GOVT. BUNDELKHAND MEDICAL COLLEGE SAGAR MP INDIA

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**ABSTRACT**

Background: India is a large nation with a population of more than 140 crore people. Due to this fact, the equitable distribution of health care services has proven to be a major challenge. Most of the health facilities and doctors are concentrated in large cities and towns away from rural areas where more than half of the population resides.

Objective: To assess knowledge about telemedicine among MBBS students of I & II Prof.

Study Design: Cross sectional

Material and methods: A pretested semi-structured questionnaire on google form will be used to take interview Data will be collected by interviewing the MBBS I and II prof students after taking consent.

Statistical Analysis Plan: Data will be analysed using MS Excel2010. Appropriate statistical test will be a applied. This cross-sectional study will be conducted in Govt. Bundelkhand Medical College, Sagar on MBBS I& II Prof Students of the institution.

Result - our study reveals the exact Knowledge of the Telemedicine is very low among medical student the familiarity with telemedicine is common among medical student but the most participants have participation up to some extent only.

Conclusion-: It is crucial to assess the knowledge of medical students regarding telemedicine to comprehend, and evaluate their attitude as future doctors who can play a significant role in establishing telemedicine services in the health care system.

## INTRODUCTION-

The emerging field of telemedicine is expanding at a rapid speed.

Telemedicine offers an alternative solution for patients who do not want to waste their time waiting in the waiting room of the clinic where they are receiving medical treatment. It is helpful in the recognition of strokes, but in certain circumstances, like a stroke, it cannot replace the time-critical initiation of therapy to the patient at a distant location. However, it is helpful in recognizing strokes.[1]

The increasing prevalence of the use of mobile phones is a significant contributor to the expansion of this industry. [1] Patients now have the ability to independently monitor their health status thanks to the availability of health applications. Because of this proactive approach, they make use of alternative ways to get medical care, such as telemedicine.

The proliferation of telemedicine services is likely to give rise to a number of medicolegal

and ethical challenges; [2,3] these include concerns regarding the patients&right to privacy, the upkeep of appropriate treatment standards, the acquisition of informed consent from patients, instances of professional misconduct, the credentials of physicians, licensure, reimbursement, penalties, and liabilities in accordance with a variety of laws that are currently in effect. [4 , 5] These factors may have a negative impact on the acceptance and adoption of telemedicine and virtual consultation. [1,3,6]. Hence this study was conducted to know the knowledge attitude and practice towards telemedicine among medical students of central India.

## *OBJECTIVE*

To assess knowledge, perception and willingness about the use of telemedicine among 1 ST and 2nd Prof M.B.B.S. students of govt. BMC, Sagar.

## *MATERIAL AND METHODOLOGY*

This cross sectional study was conducted in Govt Bundelkhand Medical College, Sagar on MBBS 1st and 2nd prof students of the institution.A total of 106 students, 53 students from 1st prof and 53 students were taken from 2nd prof were selected randomly for collection of data.

SAMPLE SIZE:

For calculating sample size, applied the formula

$n=z^2pq/d2$we calculate after taking precision d=10% and CI=95%,n=96

Including 10% non-response rate, n= 100.p=46.9(taken from Telehealth and Medicine Today® ISSN 2471-6960 https://doi.org/10.30953/tmt.v4.228 .Data was collected by interviewing the MBBS student 1st and 2nd prof after taking theirconsent.A pretested semi structured questionnaireon google form was used to collect the data regarding knowledge, perception and attitude .Data was analysed using MSEXCEL 2010,Appropriate statistical method was applied.

## *RESULTS*

TABLE.1 Distribution of M.B.B.S. students on the basis of knowledge about telemedicine

| **KNOWLEDGE** | 1ST PROF | 2nd PROF |
|---|---|---|
| Some | 26 | 22 |
| Good | 6 | 12 |
| Very good | 6 | 8 |
| No knowledge | 4 | 4 |
| No answer | 5 | 7 |
| **TOTAL** | 50 | 50 |
| **FAMILIARITY** | 1st PROF | 2ND PROF |
| Familiar | 32 | 36 |
| Very Familiar | 6 | 6 |
| Not familiar | 4 | 3 |
| No answer | 8 | 5 |
| **TOTAL** | 50 | 50 |
| **PARTICIPATION** | 1ST PROF | 2nd PROF |

| | | |
|---|---|---|
| Some extent | 32 | 35 |
| Large extent | 13 | 5 |
| Not at all | 5 | 5 |
| No answer | 8 | 5 |
| **TOTAL** | 50 | 50 |

TABLE.2.Distribution of M.B.B.S. students on the basis of attitude towards telemedicine

| | | |
|---|---|---|
| **Telemedicine is a viable approach for providing comprehensive health care to the patient** | 1st prof | 2nd prof |
| agree | 35 | 36 |
| Not agree | 2 | 4 |
| No answer | 13 | 10 |
| **Total** | 50 | 50 |
| **Telemedicine enables adoption of technology** | 1st prof | 2nd prof |
| agree | 35 | 38 |
| Not agree | 3 | 3 |
| No answer | 12 | 9 |
| **Total** | 50 | 50 |
| **Telemedicine helps in reducing the cost of service** | 1st Prof | 2nd prof |
| agree | 35 | 35 |
| Not agree | 3 | 7 |
| No answer | 12 | 8 |
| **Total** | 50 | 50 |
| **Telemedicine saves time** | 1st prof | 2nd prof |
| agree | 33 | 34 |
| Not agree | 5 | 7 |
| No answer | 12 | 9 |
| **Total** | 50 | 50 |

Table 3. Distribution of M.B.B.S. students on basis of Practice of telemedicine

| **Will you use telemedicine for self-consultation** | 1ST PROF | 2ND PROF |
|---|---|---|
| yes | 28 | 30 |
| no | 10 | 11 |
| No answer | 12 | 9 |
| Total | 50 | 50 |
| **Will you refer and advise telemedicine interventions to your peer and friends** | 1st prof | 2nd prof |
| yes | 32 | 32 |
| no | 6 | 8 |
| No answer | 12 | 9 |
| Total | 50 | 50 |
| **Will you ever include or practice to provide patient care** | 1st prof | 2nd prof |
| Yes | 36 | 33 |
| No | 2 | 5 |
| No answer | 12 | 9 |
| **Total** | 50 | 50 |
| **Are you willing/open to consult colleagues through video conferencing regarding patient** | 1st prof | 2nd prof |
| yes | 32 | 31 |
| no | 3 | 9 |
| No answer | 15 | 10 |
| **Total** | 50 | 50 |

## DISCUSSION

In the current situation, when NCD,s had increased visits of patients to hospitals, telemedicine has the potential to provide successful doctor–patient interaction, aid in health promotion, and increase access to healthcare services in the remote areas. It may reduce isolation, prevent uncomfortable delays in availing healthcare services, and help in increasing patient numbers. Successful adoption of telemedicine in healthcare especially depends majorly on the healthcare professional's knowledge

and attitude toward the adoption of the technology by the patients. There are number of earlier studies that indicate knowledge and perception of healthcare professionals, which affect telemedicine adoption.1,2 One approach to promote telemedicine adoption among healthcare professionals is to understand their awareness related to telemedicine and expose them to telemedicine practices earlier during their education since student's education has a great impact on their knowledge and opinion regarding their future work.3 ,4The purpose of the current study is to assess the knowledge, perception, and willingness of healthcare students toward telemedicine. The study revealed that only % of the healthcare students heard about telemedicine, only 24.24% Ist prof and 40.4 % 2nd prof students were aware of telemedicine-related applications to good and very good extent, and only64.68% 1st prof and 72.72% 2nd prof medical studentwere aware of the new guidelines related to telemedicine in the country. Our study findings related to knowledge are consistent with the findings of other studies, where only 14.7 % could describe telemedicine and its use correctly.5 A study conducted in northern Iran among clinicians has reported that the majority of their study participants (96.1%) had insufficient knowledge regarding telemedicine.6 Another study conducted in Puducherry, India, among 120 professionals in a tertiary hospital has also shown the similar results, where it was found that 59% had insufficient knowledge about telemedicine.7 Such lack of awareness and knowledge related to telemedicine may be due to less exposure to telemedicine-related applications in their course and also due to the adoption of telemedicine being in nascent stage in the country. This might change as the current pandemic of non-communicable and other diseases in the country and expose the importance of telemedicine.

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1 push to greater number of telemedicine adoptions, webinars, and online trainings being conducted and telemedicine guidelines being released. This is further reflected in our study finding that more students (75%) perceived that telemedicine implementations already in vogue in the country. The healthcare students surveyed had high positive perception toward telemedicine. More than 90% of the students perceived that telemedicine solutions are viable in the country. More than 80% felt the adoption of telemedicine in healthcare to provide services can reduce time and cost. In an earlier study in West Bengal, it was found that 60% of the respondents' felt telemedicine was cost-effective.24 Similar such positive perceptions toward telemedicine have been reported in earlier studies.8 As telemedicine reduces patient's revisits to the hospital due to the unavailability of doctors, long-distance travel to hospitals and healthcare centres, and revisits for follow-up, it is

perceived that there will be a significant reduction in time and cost especially to the patients. This may be due to the fact that as students being trained to become doctors and administrators, they could foresee an adoption of telemedicine by them or their organization and the benefit that might arise. Even though the participants had insufficient knowledge regarding telemedicine, surprisingly, majority of them (84.3%) were willing to adopt and pay for this technology. These study findings are consistent with the study conducted among 150 postgraduate students of tertiary hospitals in West Bengal, where they stated that 76% of the study population were willing to pay for telemedicine.9 As per the study conducted in Riyadh 77% of the professionals believed that continuous training is necessary for the use of telemedicine (P = 0.01).2 total of 398 respondents were included in

this preliminary survey done in Pakistan. Knowledgeable scores were calculated, from a maximum obtainable score of 7. The mean knowledge was found to be significantly associated with age, province, and year of study (p-value &< 0.05). Attitude scores were calculated from a maximum obtainable score of 10. All the independent variables failed to reach a significant ($p < 0.05$) association with the mean attitude of respondents about telemedicine.10The highest level of perception was (90%) for telemedicine as a viable approach for providing medical care services to patients.among 391 physicians, it was found that 95% of them reported their willingness to start this technology and use it to consult in a larger institution.25 Further, 83.9% of respondents were open to use telemedicine in their practice. This is higher than a similar such study in Nigeria, where 54.2% were in support of using telemedicine for routine care.11 Most of the students (85%) felt that telemedicine could be integrated well into the existing healthcare system and used for providing services at remote area. Similar such perception has been reported in studies conducted among clinicians in Malaysia, where 80% of respondents wanted to connect remote districts through telemedicine.12 Though
our study revealed that knowledge might influence perception toward the telemedicine and willingness to adopt in career, it is the perception that influences the healthcare student's readiness to use telemedicine. This indicates if more and more healthcare students need to be encouraged toward adopting telemedicine, their perception toward telemedicine's adoption and its benefit should be positive. This can happen only if their awareness toward telemedicine implementations is increased. Though telemedicine has been implemented in India by the law from March 25, 2020, based on our study, one could perceive lots of challenges such as lack of understanding, awareness, communication, and trust on technology. The main reason for this could be attributed to the fact

that the exposure to telemedicine of healthcare students in India is limited as compared with other countries.13The present study reveals important information about the knowledge, perception, and willingness on the part of healthcare students, who are expected to be the future of the healthcare sector and shoulder the responsibility of widespread adoption of telemedicine. Even though telemedicine has become a part of medical act, it is suggested that, before implementation, it is essential to increase user's knowledge of the technology and illustrate its capabilities and benefits. Enhanced knowledge and clear perceptions of technology will help them to accept it. This can be done by including telemedicine as a part of the student curriculum and capacitating them through training programs. In a study conducted among 143 doctors at 14 different hospitals in India, irrespective of the age, all the respondents agreed that telemedicine was important and hospital training programs are required for proper utilization of telemedicine.14 A training intervention that was carried out among staff nurses for telemedicine in Bengaluru proved that this is an effective method to increase the awareness toward telemedicine and increase adoption.15This is the right time, as the attitude and perception of physicians and also patients toward telemedicine and adoption of technology is changing due to the present scenario of COVID-19. Recent most articles regarding the use of telemedicine in ophthalmology stand as a testimony to this.16 The main limitation of the study is that due to COVID-19-induced lockdown, it was based on convenience sampling through online survey. Hence, the findings could not be attributed to a larger population. It would be more generalizable and more useful if a larger sample of healthcare students in more regions could be covered. Nevertheless, as such studies related to knowledge, perception, and willingness among health care students very less, this study is expected to contribute to close the gap.

***CONCLUSION***: Telemedicine centres established for treatment and counselling if evaluatedcorrectly appears to give promising results. Even though participant's knowledge and awareness were limited, the majority of individuals reported positive perception and willingness toward using the telemedicine in their career. Thus, it is essential to build proper and effective communication channels and awareness among students, professionals, and users for telemedicine to succeed in India.There is a huge gap for telemedicine to succeed in India despite limited knowledge there is a reported positive perception and willingness in youth toward using the telemedicine in their career. it is essential to build proper and effective communication channels and awareness among students, professionals, and users.

In upcoming time telemedicine would prove to be a cornerstone in field of medical science. This will be an advantage even for urban poor and rural population also which appears to be majority of India.

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