

GENDER DIFFERENCES IN AWARENESS AND USE OF TELEMEDICINE AMONGST ALLOPATHIC MEDICOS

Physiology

Ayesha Javed Hasan	Medical Student, Rajiv Gandhi Medical College, Kalwa, Thane-400 605, Maharashtra, India.
Srabani Bhattacharya*	Professor and Head, Physiology Department, Rajiv Gandhi Medical College, Kalwa, Thane-400 605, Maharashtra, India.*Corresponding Author
Sundaram Kartikeyan	Professor and Head, Community Medicine Department, Rajiv Gandhi Medical College, Kalwa, Thane-400 605, Maharashtra, India.

ABSTRACT

This cross-sectional descriptive study was conducted among 126 allopathic medicos (49 females: 38.88% and 77 males: 61.12%) in a metropolitan city to determine the gender differences in awareness and use of Telemedicine by using a pre-tested and pre-validated questionnaire, which was administered online. The mean age of females was 28.53 $\pm$ 4.00 years, while that for their male counterparts was 30.21 $\pm$ 7.32 years. The gender difference in mean age was not statistically significant ($Z=1.661$; $p=0.096$). Significantly higher percentage ($Z=2.300$; $p=0.021$) of post-graduate doctors were males. A significantly higher percentage ($Z=3.718$; $p=0.0002$) of female respondents felt that telemedicine was useful during Covid lockdown. Awareness of results of telemedicine was significantly higher ($Z=2.599$; $p=0.009$) among male respondents. Though awareness of telemedicine was more amongst male medicos, female medicos outnumbered their male counterparts in actual use of telemedicine.

KEYWORDS

Awareness, Gender, Medical Personnel, Metropolitan city, Telemedicine

INTRODUCTION

Telemedicine is defined as the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities. [1]

Telemedicine can be categorized as follows – (i) Real-time or synchronous telemedicine, wherein both the sender and receiver are online at the same point of time and 'live' transfer of information occurs. History taking, physical examination, psychiatric evaluations and ophthalmology assessments can be conducted and this method is less expensive as compared to the traditional in-person clinical visit. (ii) Store-and-forward or asynchronous telemedicine, wherein the sender stores the information databases (medical images, bio-signals, records) and transmits this data to the specialist for offline assessment according to his/her convenience. The simultaneous presence of both parties is not required and clinician relies on reports and audio/video information instead of a physical examination. Dermatology, radiology, and pathology are highly attuned to this type of telemedicine. (iii) Remote Monitoring type of telemedicine uses a range of technological devices for 24/7 remote monitoring of clinical signs of a patient by medical professionals. This method is primarily used for managing chronic diseases or specific conditions, such as heart disease, diabetes mellitus, or asthma. This type of service can provide greater satisfaction to patients and may be cost-effective. (iv) Health professional to health professional: enables easier access to referral and consultation services. (v) Health professional to patient: enables direct access of people living in inaccessible areas to a medical professional. [1, 2]

Hospitals in rural and remote regions can be enabled to provide emergency and intensive care services with technological assistance from specialized urban-based professionals. The immediate transmission of vital parameters of the patient to the physician lowers complications and reduces mortality rates. Home-monitoring eliminates the need to travel long distances for medical consultations and hospital stays and obviates the need for evacuations and unscheduled diversions during a medical emergency. [3]

In situations where there is shortage of health personnel in rural areas, telemedicine facilitates access to health care. Telemedicine increases patient satisfaction, reduces workload of the specialist health centres

and reduces inconvenience to patients and their family members. Telemedicine facilitates 24/7 remote monitoring of patients by collecting and sending medical data through electronic means for immediate interpretation. Telemedicine provides higher likelihood of maintenance of records and documentation, hence, minimizes the likelihood of missing out advice from the doctor and other health care staff. The doctor has an exact document of the advice provided via teleconsultation. Written documentation increases the legal protection of both the parties. It provides patient's safety, as well as health workers' safety especially in situations where there is a risk of contagious infections. It was reported in 2004 that the state Government of Uttar Pradesh makes use of telemedicine during *Maha Kumbhamelas* to cater to large human congregations. [4] The Union Ministry of Health and Family Welfare with NITI Aayog released the official guidelines for registered medical practitioners to facilitate the provision of remote consultation. Ministry of Health and Family Welfare, Government of India has established the National Telemedicine Portal: <http://nmcn.in/>. The National Medical College Network (NMCN) interlinks the Medical Colleges across India for e-Education and National Rural Telemedicine Network for e-Healthcare delivery. Like any other technology, telemedicine services have some shortcomings, which can be diminished through appropriate training, enforcement of standards, protocols and guidelines. It is believed that despite its slow growth in India, telemedicine departments are likely to be established in a majority of the Indian hospitals before eventually merging with respective medical specialties. [5]

The present study was conducted in a metropolitan city to determine the gender differences in awareness and use of Telemedicine.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in April-July 2020 during the lockdown due to the corona virus epidemic. A pre-tested and pre-validated questionnaire was administered, using the chain sampling technique, via Google forms to allopathic medicos of either gender, who were based in a metropolitan city in Western India. Informed consent was taken on the Google forms. The data were adapted to Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). For discrete data, the percentage of responses and the standard error of difference between two sample proportions were calculated. For continuous data, the standard error of difference between two means was calculated. 95% Confidence interval (CI) was stated as: [Mean-(1.96)*Standard Error] - [Mean+(1.96)* Standard Error]. The

statistical significance was determined at $p < 0.05$.

RESULTS AND DISCUSSION

In all, there were 126 respondents (49 females: 38.88% and 77 males: 61.12%).

The mean age of females was 28.53 $\pm$ 4.00 years (95% CI: 27.41 – 29.65 years), while that for their male counterparts was 30.21 $\pm$ 7.32 years (95% CI: 28.57 – 31.84 years). The gender difference in mean age was not statistically significant ($Z=1.661$; $p=0.096$). The minimum, first quartile and median of the age distribution was identical for respondents of both sexes, while the third quartile and maximum of the age distribution was higher for male respondents (Fig-1).

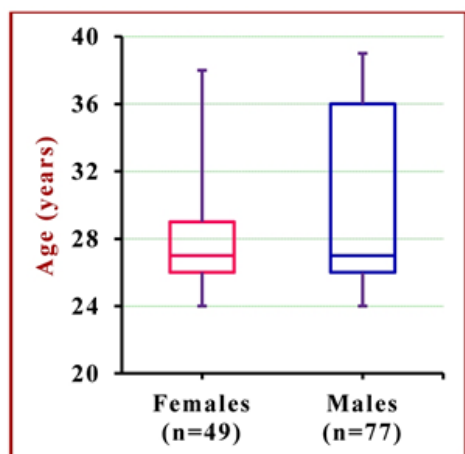


Fig-1: Box plot depicting gender differences in age distribution

Among the respondents in this study, significantly higher percentage ($Z=2.300$; $p=0.021$) of post-graduate doctors were males. Significantly higher percentage ($Z=3.718$; $p=0.0002$) of female respondents felt that telemedicine was useful during Covid lockdown. Awareness of results of telemedicine was significantly higher ($Z=2.599$; $p=0.009$) among male respondents (Table-1).

In the present study, two-thirds of females and 77.92% of males were aware of telemedicine and two-thirds of females and more than one-half of the males had used telemedicine previously. In contrast, previous studies in India, [6, 7] Scotland [8] and Italy [9] have reported inadequate awareness, knowledge, attitude and skills with regard to telemedicine among the health professionals. Statistically significant differences have been reported in attitude towards telemedicine, self-assessed knowledge and beliefs about telemedicine between the specialists who are users and non-users of telemedicine. [10] As per previous studies, [5-7] the impediments to growth of Telemedicine in India include inadequate awareness of telemedicine among health care personnel, shortage of computer savvy health care personnel, inadequacy of health infrastructure and inadequacy of communication services to facilitate telemedicine.

Table-1: Gender differences in responses

Parameter	Females (n=49)	Males (n=77)	Z value	p' value
Post-graduate qualification	09 (18.37%)	29 (37.66%)	2.300	0.021 *
Aware of telemedicine	33 (67.35%)	60 (77.92%)	1.316	0.186
Used telemedicine previously	33 (67.35%)	41 (53.52%)	1.567	0.116
Aware of Govt of India-Niti Aayog Telemedicine guidelines	11 (22.45%)	26 (33.77%)	1.359	0.173
Useful during Covid lockdown	46 (93.88%)	50 (64.94%)	3.718	0.0002 *
Both urban & rural patients benefit	33 (67.35%)	58 (75.32%)	0.974	0.332
Awareness of results of telemedicine	17 (34.69%)	45 (58.44%)	2.599	0.009 *
Useful in record maintenance	26 (53.06%)	48 (62.34%)	1.031	0.303

Suitability for Indian conditions	41 (83.67%)	65 (84.42%)	0.111	0.912
Willing for routine use	37 (75.51%)	67 (87.01%)	1.658	0.096
Helps international consultation	45 (91.84%)	72 (93.51%)	0.354	0.726
Helps taking 2nd/3rd opinions	47 (95.92%)	72 (93.51%)	0.576	0.561

Z value = Standard error of difference between two proportions; * Significant

CONCLUSION

Though awareness of telemedicine was more amongst male medicos, female medicos outnumbered their male counterparts in actual use of telemedicine.

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