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Time to include Telemedicine in National Level Public Health Surveys – A Perspective

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Abstract

Telemedicine stands as a revolutionary solution in the realm of digital health. Its impact is deeply felt in domains of availability, accessibility, affordability and acceptability, all of which are integral to our comprehension of health-seeking behaviour. Existing research on telemedicine from different sample studies reveals variations based on socioeconomic factors, yet comprehensive national-level insights remain limited due to the non-availability of data. As telemedicine continues to expand, the gap in our understanding is also widening. So, it is time to integrate telemedicine-related questions and options into national-level public health surveys to generate valuable information about the contribution of telemedicine in impacting health-seeking behaviour, social disparities and health outcomes. Such data would not only strengthen the academic discourse but also be instrumental in guiding the strategic planning of telemedicine services at local, regional and national levels, ensuring their alignment with the actual needs and preferences of the people they aim to serve.

Key words: Telemedicine data, digital health, public health, health survey, data gap.

Background

Challenges often catalyze us to go for a change as they inspire us to seek solutions. However, for any change to be deemed 'true development' it must be widely acceptable and prove its value by addressing the societal needs of a significant part of the population. Digital technology is one such notable development whose convergence with different sectors has become possible because it has provided remarkable solutions, beyond imagination for many challenges. The introduction of digital technology is now viewed with great potential to achieve sustainable development goals, which also encompass some public health goals (Mondejar et al., 2021). Digital health is "the field of knowledge and practice associated with the development and use of digital technologies to improve health" (World Health Organization [WHO], 2021). Digital technology has provided opportunities to develop new digital healthcare delivery models outside traditional clinical settings (Iyamu et al., 2021) and telemedicine is one such breakthrough that has brought revolutionary changes in accessing healthcare.

The sample survey studies conducted in limited settings in the context of telemedicine utilization in different parts of the world have provided useful insights into the utilization of telemedicine services. A survey conducted among adults in the US shows an increase in telemedicine usage with age and education, and varies with gender and income level of the family (Lucas & Villarroel, 2022). However, in a study in Bangladesh, the use of telemedicine varies with the type of disease, and the people aged

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35–54 years, and a higher level of education were less willing to receive telemedicine services while those in urban areas and belonging to lower-income groups were found more interested (Haque et al., 2022). In a study in Iran, the education level, specific health conditions and prior experience with telemedicine were the key factors (Moulaei et al., 2023). In contrast, in a study in Poland, trust in known physicians was the motivational factor in using telemedicine (Pogorzelska et al., 2023a). A systematic review study has found significant improvement in health outcomes, access, and satisfaction level of patients suffering from chronic diseases like diabetes care (Ezeamii et al., 2024). Telemedicine may reduce social disparities in healthcare by providing greater accessibility for older groups (found in a study in the US) (Roghani & Panahi, 2021) and can impact healthcare costs by reducing referrals (found in a study in Nepal) (Gupta et al., 2021). Telemedicine is also found a useful tool for decreasing hospital stress, patient suffering, ambulance needs and hospital anxiety while improving the standard of care (Shibabaw et al., 2024).

Telemedicine is not a substitute for physical consultation rather it has enabled patient and doctor consultations regardless of all odds regarding geography, distances, transport and physical inability of patients to reach doctors, along with benefits like time savior, reduction of treatment cost and allowing home care. However, studies have also found the disadvantages of telemedicine utilization. The disadvantages of telemedicine comprise diagnoses by medical professionals without conducting a thorough physical examination and, in certain cases, without even seeing the patient (Haimi, 2023), lack of understanding of challenges due to the inability to see patients, the patient's inability to express in a telephonic call and the loss of non-verbal communication (Pogorzelska et al., 2023b).

Teleconsultations even after being cost-effective, there are studies where patients preferred receiving in-person treatment in primary care clinics (Moulaei et al., 2023). A scoping review of 543 articles in a study showed the wide use of telemedicine in high-income countries (Silva et al., 2021). However, any development has some positive as well as negative aspects but the final opinion can be made only based on data. But, the repository of public health data lacks national-level estimates of the experiences and perceptions of people who have used telemedicine services.

One effective method of answering all such questions is incorporating telemedicine-related questions in national-level public health surveys, which are more credible due to their scientific robustness and quality of data. National surveys are designed using robust sampling methods to obtain a representative sample of the whole society and can reveal socio-economic inequities and other barriers affecting health-seeking behavior.

India has the opportunity to include telemedicine questions in the national family health survey, which is the largest health survey in India. Currently, telemedicine utilization in India is soaring to an impressive 307.6 million (Ministry of Health & Family Welfare, 2024). The widespread utilization of telemedicine is creating a class of telemedicine users and non-users, thus indicating a need to understand how telemedicine is shaping health-seeking behaviour and impacts health indicators. Studies on telemedicine in India have found improvements in patient health, reduced healthcare costs, easy access, safety, enhanced patient satisfaction, convenience with communication and seeking services with a decrease in geographic barriers and frequency of healthcare utilization (Vudathaneni et al., 2024; Garg et al., 2024). Incorporating telemedicine into national health surveys can generate enormous data that can be used to differentiate such variables in the context to 'virtual' and 'physical' consultations.

The surveys like National Family Health Survey (NFHS) and Longitudinal Ageing Study in India (LASI) provide this opportunity where telemedicine option can be added to know the awareness, preferred mode of treatment, access to telemedicine services, health seeking behaviour and infrastructure availability. An indicative list of questions in Table-1 shows how telemedicine can be integrated in the large scale surveys.

Table-1: Indicative list of questions on telemedicine

Issue	Question	Option (for example)
Awareness	Are you aware of government-supported telemedicine platforms like eSanjeevani?	Yes/ No
Health seeking behaviour	For which type of illness was telemedicine used?	Minor/ Chronic/ Maternal/ Mental health
Access to infrastructure	What device was used to connect with telemedicine services?	Mobile/ Computer/ Kiosk
Support in telemedicine	Who usually helps you connect for telemedicine?	Self, ASHA, family member
Preference	When you or your family members fall sick, what is your first preference for seeking treatment?	Government hospital/health centre/ private hospital/ clinic/ pharmacy/chemist/ traditional healer/ telemedicine / online consultation/ others (specify)
	If telemedicine services are available in your area, would you prefer using them compared to visiting a health facility?	Yes, always/ yes, but only for minor/common illnesses/ no, I prefer in-person consultation/ don't know / can't say
Barriers	What barriers did you face?	Internet/ cost/ trust/ privacy
Utilization	Have you ever used telemedicine for family planning counseling?	Yes/ no
	Did you receive any ANC/PNC advice through telemedicine?	Yes/ no
	Last time when did you use telemedicine services?	Used in last one month/ used in last 2-3 months/ used in last 4-6 months/ used six months ago
Insurance	Does your health insurance plan cover telemedicine consultations	Yes/ no
Satisfaction level	How was your experience in using telemedicine services?	Very good/ good/ average/ poor/ very poor

The relevance of such data through national health surveys can also bring academic value while studying various models of healthcare services. The Health Belief Model (HBM), for example, is often used to predict preventive service uptake and can help explain how individuals' perceptions of illness severity, benefits, and barriers influence their decision to use teleconsultations (Rosenstock, 1974; Glanz et al., 2015). Andersen's Behavioural Model of Health Services Use, including its adaptations for marginalized populations, highlights how predisposing factors (e.g., age, education, digital literacy), enabling factors (e.g., internet access, smartphone ownership, availability of digital platforms) and need factors (e.g., perceived severity of illness, chronic disease burden) shape telemedicine utilization (Andersen, 1995; Gelberg et al., 2000). Similarly, Donabedian's Model of Quality of Care underscores that digital health outcomes depend on the quality of structures, processes and outcomes (Donabedian, 1988).

The available health surveys data can be enriched by adding a few questions and options on telemedicine and enable us to know the variations in telemedicine usage in context to socioeconomic characteristics such as gender, age, location, religion, occupation, education, wealth status and type of disease. There may also be reasons related to the digital divide between male and female in using telemedicine. A comparison of the 'waiting time of the patient in an online queue' with the 'time spent physically in a facility' will enable estimating the saving of productive hours of a patient who is working

in the informal sector and the resulting impact on economic status. The choice of health practitioner between integrative and allopathic medicine depends on several factors (Astin, 1998); but how these factors behave in a virtual healthcare environment has not been explored yet. Digital health in the form of telemedicine has created a scope to restudy how this therapeutic relationship is going to transform due to the virtual nature of interaction (Toh et al., 2016). India is culturally, socially, economically, geographically and now digitally as well full of diversities. The findings from these surveys can be useful to substantiate the data needs for economic evaluation (Silva et al., 2021; Tiwari et al., 2023).

While, the national health policy (2017) has mentioned about telemedicine only in the context of forging partnerships to address gaps in public services, the Telemedicine Practice Guidelines (2020) has provided a framework for telemedicine services in India to establish norms and process to conduct consultations and to maintain data privacy etc., including core elements for consultation, patient evaluation, management, consent and technology selection (MoHFW, 2020). The IPHS guidelines too have emphasized providing teleconsultations in health and wellness Centres. Therefore, generating data based on experiences of telemedicine users can further help to strengthen those guidelines.

By capturing the experiences and perceptions of telemedicine users, we can gain valuable insights into health-seeking behaviour, identify socioeconomic disparities and assess the impact of telemedicine on patient outcomes at local, regional and national levels. Evidence from existing studies shows that respondents are indeed in a position to share their experiences regarding telemedicine which indicates the need to mainstream telemedicine related questions and options in large-scale national health surveys. How will a telemedicine user respond to a survey if it does not include questions or options on telemedicine services? The standalone small studies may not help to provide the real contribution of telemedicine in improving 6As - awareness, adequacy, accessibility, availability, affordability and acceptability in healthcare, but large national-level public health surveys, such as India's Family Health Survey, can do.

Conclusion

Data is one of the most valuable assets of our time and its importance is being recognized now more than ever. Just counting the users of telemedicine services without examining critical aspects such as repeat visits and patient experiences, represents a missed opportunity for evidence-based planning, policies and programmes. Incorporating telemedicine related questions in national health surveys is not merely an enhancement of data collection but rather creating more opportunities for more comprehensive analysis. As innovation is driving progress across the sectors, health research too can evolve by leveraging data of telemedicine services from both public and private telemedicine platforms. High-quality data can fuel innovation, strengthen academic and economic discourse and guide digital health strategies more effectively. Whether it is national health policy, Indian Public Health Standard (IPHS) guidelines or telemedicine guidelines, data is always instrumental to update them in line with changing time and evolving human behaviour. Data has the power to stimulate critical thinking and more robust datasets can further empower our ideas. A small effort can pave the way for future research that explores the evolving dynamics of patient-provider interactions in virtual settings and evaluates the long-term effects of telemedicine on healthcare systems.

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