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Research Article

A CROSS-SECTIONAL STUDY ON IMPLEMENTATION OF E-SANJEEVANI SERVICES IN RURAL AREAS OF KALABURAGI DISTRICT

TANIYA JACOB[1], PRASHANT KUMAR[2], MOHAMMAD WASEEM FARAZ ANSARI[3], POONAM P SHINGADE[2]*, I AMRUTA SWATI[2]

[1]Department of , ESIC Medical College, Kalaburagi, Karnataka, India. [2]Department of Community Medicine, ESIC Medical College, Kalaburagi, Karnataka, India. [3]Department of Community Medicine, ESIC Medical College, KK Nagar, Chennai, Tamil Nadu, India
***Corresponding author: Poonam P Shingade; Email: dr.poonam.ps@gmail.com**

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ABSTRACT

Objectives: India adopted national telemedicine service – "e-Sanjeevani" on November 2019, based on "Hub and Spoke Model" where Health and Wellness Centers under Ayushman Bharat (AB-HWCs) will be the spokes and MBBS/specialty doctors will be the hub. It aims to overcome the shortage of doctors/specialists at the ground level, reduce the burden at higher centers, and inculcate expert medical advice seeking behavior among rural people.

The objectives of the study are to assess the implementation of e-Sanjeevani services in rural Kalaburagi and to identify the challenges faced by the service providers of e-Sanjeevani in rural Kalaburagi.

Methods: A cross-sectional study was conducted across the AB-HWCs in the rural areas of Kalaburagi district over a period of 3 months. Multistage sampling was done, maintaining a constant of 50%. The total sample size was 75 HWCs. The implementation of e-Sanjeevani was assessed using a pre-designed, pre-tested, and semi-structured questionnaire. The data collected were entered into MS Excel and frequency, percentage, t-test, and Chi-square test were employed for analysis.

Results: e-Sanjeevani is implemented in all the selected subcenters (100%) whereas it was implemented only in 14 (58.35%) of the selected PHCs in Kalaburagi district. The service providers face multiple challenges such as unavailability of specialists online (52.3%), long waiting time (43.1%), network issues (41.5%), and unavailability of investigations/drugs prescribed by specialists (40%). Mean grading of e-Sanjeevani on a scale of 1-10 by service providers in subcenters (7.25±1.76) was also statistically significant than in PHCs (6.07±1.82).

Conclusion: Although e-Sanjeevani is implemented in all subcenters in Kalaburagi district, its smooth functioning is hampered by various factors which call for strengthening of specialist availability and other facilities.

Keywords: AB-HWCs, e-Sanjeevani, Telemedicine.

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INTRODUCTION

Telemedicine is the delivery of health-care services over distance using information technology through telecommunication [1,2]. The biggest challenge in health-care services in rural areas of India is the lack of doctors/specialists, inadequate capacities and the problem of prescription, and dispensing of drugs in rural areas [3].

As a cornerstone of Ayushman Bharat Scheme, e-Sanjeevani – the National Telemedicine Service of India was launched in November 2019. The word "Sanjeevani" inspired from the medicinal plant Sanjeevani that is mentioned in the Ramayana epic and is an appropriate metaphor to describe the delivery of health care at the place of need [2]. e-Sanjeevani has digitally brought health services to the masses in rural areas and remote communities in India. It has evolved into the world's largest documented telemedicine implementation in the primary health-care serving over 241,304,053 patients at over 122,699 Health and Wellness Centers (renamed as Ayushman Arogya Mandirs in 2023) through over 15,460 higher centers serviced by more than 212,290 doctors, medical specialists, super-specialists, and health workers as telemedicine practitioners.

It is based on "Hub and Spoke Model" where HWCs/AAMs will be the spokes and doctors (MBBS/Specialty/Super-Specialty doctors) will be the hub. It is a cloud-based platform, implemented in two modes:

a. e-Sanjeevani AB-HWC provides teleconsultations for patients who walk into HWCs/AAMs, assisted by community health officers (CHOs). Doctor–doctor consultation is also possible where doctors in primary health centers and rural hospitals can access specialized opinion from medical colleges and tertiary care hospitals, to deal with complicated cases in remote areas.
b. e-Sanjeevani OPD empowers citizens to access teleconsultataion from their homes through smartphones or laptops, etc. [4].

Within months of its launch, e-Sanjeevani faced an unprecedented challenge with the onset of COVID-19 pandemic. However, it swiftly evolved into a vital tool amidst the crisis, showcasing its immense potential in addressing health-care needs. As the pandemic unfolded, e-Sanjeevani emerged as a beacon of hope, providing essential medical consultations and support to individuals across the nation, thereby demonstrating its adaptability and significance during times of crisis.

e-Sanjeevani can play a great role in overcoming the shortage of doctors and specialists at the ground level, reducing the burden of secondary and tertiary level hospitals, and encouraging rural people to seek medical advice, reduced exposure to contagious patients and reduced incidence of hospital acquired infections, enhanced privacy, easier patient follow-up, flexible working hours, reduce the time and costs of patient transportation. It can contribute to medical education, clinical research, public awareness, disaster management, tele-mentored

procedures, disease surveillance, standardization, and equity in health care [5].

Since it is in the early stage of implementation, this study is an effort to assess the implementation and identify the challenges faced by the service providers.

Objectives

1. To assess the implementation of e-Sanjeevani services in rural areas of Kalaburagi district.
2. To identify the challenges faced by the service providers of e-Sanjeevani in rural areas of Kalaburagi district.
3. To make recommendations based on study findings.

METHODS

A cross-sectional study was conducted among the HWCs in Kalaburagi district using multistage sampling maintaining a constant of 50%.

Kalaburagi district = 7 taluks

(Kalaburagi, Afzalpur, Jewargi, Aland, Chincholi, Chittapur, and Sedam)

↓

50%= 4 taluks were randomly selected

(Kalaburagi, Jewargi, Chittapur, and Sedam)

↓

50% PHCs under each taluk were randomly selected = Total 24 PHCs

↓

50% subcenters under each PHC were randomly selected = Total 51 subcenters

↓

Total sample size = 24PHCs +51 SCs = 75 HWCs

Data were collected over a period of 6 months. To assess the implementation of e-Sanjeevani, the information required was collected using a pre-designed, pre-tested, semi-structured questionnaire.

Table 1: Implementation of e-Sanjeevani, Training of manpower, and Availability of equipments

e-Sanjeevani	PHC 24 (100%)	SC 51 (100%)	p-value
Implementation			
Yes	14 (58.35%)	51 (100%)	<0.001
No	10 (41.7%)	0 (0%)	
Training received			
Yes	7 (29.2%)	40 (78.4%)	0.001
No	17 (70.8%)	11 (21.6%)	
Availability of equipments			
Tablet/Desktop	10 (71.4%)	29 (56.9%)	p>0.05
SIM card/Internet	8 (57.1%)	26 (51%)	
Headphone	5 (35.7%)	26 (51%)	
Printer	11 (78.6%)	30 (58.8%)	

The assessment of the services was done in terms of program coverage, manpower, infrastructure/available facilities (tele-medicine diagnostic kit, internet connectivity/SIM card, desktop with headphone, microphone, HD web camera, and printer), practical/technical issues faced by service providers (during patient registration, consultation, and prescription), perception of service providers regarding e-Sanjeevani (program interface, connectivity with doctors, satisfaction with the audio and video quality, recommendation to other service providers, recommendation to patients, and grading of e-Sanjeevani on a grade of 10), any other problems faced by service providers.

RESULTS AND DISCUSSION

In the present study, we found that e-Sanjeevani was implemented in all the selected subcenters (100%) whereas it was implemented only in 14 (58.35%) of the PHCs.

Table 1 shows implementation of e-Sanjeevani, training of manpower, and availability of equipments. e-Sanjeevani was implemented in all the subcenters while only 58.35% of primary health centers (PHCs) had implemented it. This difference of implementation at subcenter and PHC level was found to be statistically significant. Most of the manpower at subcenter (78.4%) was trained in e-Sanjeevani whereas only 29.2% were trained at PHC level. This was also found to be statistically significant. Implementation of e-Sanjeevani and training of manpower were better at the subcenter level compared to the PHC level. It was found that availability of equipments was better at the PHC than subcenter except for the headphones.

Table 2 shows challenges faced by service providers of e-Sanjeevani. The service providers face multiple challenges such as unavailability of specialists online (52.3%), long waiting time (43.1%), network issues (44.6%), and unavailability of investigations/drugs prescribed by specialists (40%).

Table 3 shows grading of e-Sanjeevani by the service providers, for patient care, on a scale of 1–10. Majority of the service providers, i.e., 78.6% in PHCs and 82.4% in SCs graded 5 or more for e-Sanjeevani.

Table 4 shows that mean grading of e-Sanjeevani on a scale of 1–10 by service providers in subcenters (7.2±1.76) and in PHCs (6.07±1.82) was found to be statistically significant.

e-Sanjeevani was implemented in all the sub-centers and 58.35% of PHCs in our study area and majority of its manpower were trained, comparable to 60.4% implementation found in a study conducted by Panda *et al.* in Odhisha [6].

Implementation as well as training was lagging at PHCs in our study. It could be due to the preference of offline referral by medical officers and teleconsultation with a doctor is more essential at the subcenter level whereas a doctor (medical officer) is almost always available at the PHC. A study by Kanwar et al. [7] in rural areas of Himachal Pradesh implicated that lack of awareness and reluctance by the staff as the major hindrances to telemedicine.

Table 2: Challenges faced by service providers of e-Sanjeevani

Challenges	PHC (N=14)	SC (N=51)	Total (N=65)
Equipment related	6 (42.9%)	34 (66.7%)	40 (61.5%)
Program interface related	7 (50%)	29 (56.9%)	36 (55.4%)
Unavailability of specialists	8 (57.1%)	26 (51%)	34 (52.3%)
Network related	5 (35.7%)	24 (47.1%)	29 (44.6%)
Long waiting time	7 (50%)	21 (41.2%)	28 (43.1%)
Unavailability of prescribed drugs/Ix	7 (50%)	19 (37.3%)	26 (40%)

Table 3: Grading of e-Sanjeevani by the service providers, for patient care, on a scale of 1–10

Grade	PHC (N=14) N (%)	SC (N=51) N (%)
<5	3 (27.3%)	9 (17.6%)
>5	11 (78.6%)	42 (82.4%)

Table 4. Comparison of mean grading of e-Sanjeevani by the service providers in PHCs and SCs

	Grading (mean±SD)	p-value
PHC (N=14)	6.0±1.82	0.05
SC (N=51)	7.2±1.76	

In spite of implementation of e-Sanjeevani, only around 50% subcenters were equipped with the facilities that are essential for its smooth functioning whereas better availability of facilities was found in the study conducted by Panda *et al.* in Odhisha [6].

The PHCs in our study area had better availability of equipments than subcenters probably due to better overall infrastructure and facilities at a PHC, compared to a subcenter.

The service providers face multiple challenges such as unavailability of specialists, network issue, and long waiting time. These findings are comparable to the study done by Bajpai and Wadhwa [8] whereas Kanwar *et al.* [7] reported inadequate training, resistance to change, negative attitude toward telemedicine and high workload, digital illiteracy among population, and poor network as the challenges faced by service providers in Himachal Pradesh. Kapoor reported lack of bandwidth (network issues), lack of infrastructure, and unavailability of timely information (unavailability of specialists/long waiting time) as challenges in digital health in India [9].

The mean grading of e-Sanjeevani by service providers was higher in SCs than in the PHCs, probably due to higher dependence of subcenter on e-Sanjeevani for patient care due to the absence of doctor at subcenter level.

CONCLUSION AND RECOMMENDATIONS

- Digital gap in telemedicine in rural areas is bridged by e-Sanjeevani being fully implemented at the subcenters.
- Challenges faced by HWCs can be well taken care by increasing specialist doctors, fixing the timings for specialists, addressing network issues and availability of higher drugs at HWCs.
- If done successfully, people in the remote areas will get access to health consultations thereby saving their time and money.

CONFLICT OF INTEREST

All authors declare that they do not have any conflicts of interest.

ETHICAL APPROVAL

Approved.

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Nil

AUTHORS CONTRIBUTION

Dr Taniya, Dr. Prashant Kumar, Dr. I. Amruta Swati, and Dr. Poonam P Shingade designed, extracted, analyzed, and interpreted the data. Dr Taniya conceived the study; Dr Prashant Kumar, Dr. Poonam P Shingade, Dr. I. Amruta Swati guided the design and supervised the whole research. Dr Taniya, Dr Prashant Kumar, Dr. Poonam P Shingade, Dr. I. Amruta Swati prepared the manuscript. All the authors read and approved the final manuscript.

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