

A Study to Assess the Effectiveness of a Telemedicine Awareness Program Among the Rural Elderly Population at Selected Regions of Bangalore

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Abstract—Telemedicine has emerged as an innovative healthcare strategy to improve access to health services, especially among rural and underserved populations. The elderly population in rural areas often faces challenges such as limited mobility, transportation barriers, financial constraints, and shortage of healthcare professionals. Despite the availability of telemedicine services, lack of awareness and inadequate digital literacy limit its utilization among rural elderly individuals. The present study aimed to assess the effectiveness of a telemedicine awareness program among the rural elderly population in selected regions of Bangalore. A quantitative pre-experimental one-group pre-test and post-test design was adopted. A total of 80 elderly individuals aged 60 years and above were selected using purposive sampling technique. Data were collected using a structured knowledge questionnaire before and after the implementation of a structured telemedicine awareness program. The pre-test findings revealed that 65% of participants had inadequate knowledge and 30% had moderate knowledge regarding telemedicine services. Following the awareness program, 72% of participants demonstrated adequate knowledge, indicating a significant improvement in post-test scores. The mean knowledge score increased from 8.4 ± 3.2 in the pre-test to 16.7 ± 2.8 in the post-test, and the calculated paired 't' value showed statistical significance at $p < 0.05$. The study concludes that the telemedicine awareness program was effective in improving knowledge among rural elderly individuals and highlights the importance of integrating digital health education into community health nursing practice to enhance healthcare accessibility.

Index Terms—Telemedicine, Awareness Program, Rural Elderly, Digital Health, Community Health Nursing, Health Education.

I. INTRODUCTION

The rapid advancement of digital health technologies has transformed the delivery of healthcare services worldwide. Telemedicine, defined as the use of telecommunications technology to provide healthcare services remotely, has emerged as a significant strategy to bridge the gap between healthcare providers and patients, particularly in rural and underserved regions. It facilitates remote consultation, diagnosis, monitoring, and follow-up care, thereby reducing geographical and transportation barriers. In countries like India, where rural populations often face limited access to specialized healthcare services, telemedicine offers a cost-effective and efficient solution to improve healthcare accessibility. The elderly population constitutes a vulnerable group with increased healthcare needs due to chronic illnesses, reduced mobility, and age-related physiological changes. Rural elderly individuals often encounter additional challenges such as poor transportation facilities, financial limitations, and scarcity of healthcare professionals. These barriers frequently result in delayed diagnosis, irregular follow-up, and poor disease management. Telemedicine has the potential to address these issues by enabling remote consultations and continuous monitoring without requiring frequent hospital visits. Despite the

availability of telemedicine services and government initiatives promoting digital health, awareness and utilization remain limited among the rural elderly population. Factors such as low digital literacy, lack of knowledge about telemedicine services, fear of technology, and inadequate exposure to digital platforms contribute to underutilization. Enhancing awareness and knowledge regarding telemedicine is essential to empower elderly individuals to access healthcare services effectively. Community health nurses play a pivotal role in promoting health education, improving digital literacy, and facilitating access to innovative healthcare services. Structured awareness programs can significantly improve knowledge and acceptance of telemedicine among rural elderly individuals. Therefore, assessing the effectiveness of a telemedicine awareness program becomes essential to determine its impact on knowledge improvement and to promote digital health integration in community settings.

II. NEED FOR THE STUDY

The increasing burden of chronic diseases and the growing elderly population have created significant challenges in accessing timely and appropriate healthcare services, particularly in rural areas. In India, a large proportion of the elderly population resides in rural regions where healthcare infrastructure, availability of specialists, and transportation facilities are limited. As a result, elderly individuals often experience delayed medical consultations, poor follow-up care, and inadequate management of chronic conditions such as hypertension, diabetes, and cardiovascular diseases. Telemedicine has emerged as a promising solution to address disparities in healthcare access by enabling remote consultation, diagnosis, monitoring, and follow-up services. The Government of India has introduced various digital health initiatives to promote telehealth services across rural communities. However, despite the availability of such services, utilization remains low among rural elderly individuals due to lack of awareness, limited digital literacy, technological fear, and inadequate exposure to digital healthcare platforms. Studies indicate that knowledge and awareness play a critical role in the acceptance and utilization of telemedicine services. Without proper understanding of telemedicine benefits, procedures, and accessibility,

rural elderly individuals may remain hesitant to adopt digital healthcare solutions. Therefore, structured awareness programs are essential to improve knowledge, build confidence, and encourage utilization of telemedicine services. Community health nurses are strategically positioned to promote digital health education at the grassroots level. By implementing telemedicine awareness programs, nurses can empower elderly individuals to access healthcare services more effectively, reduce unnecessary travel, and enhance continuity of care. Assessing the effectiveness of such awareness programs is crucial to determine their impact and to develop sustainable strategies for integrating telemedicine into community health nursing practice.

III. OBJECTIVES OF THE STUDY

- To assess the effectiveness of a telemedicine awareness program among the rural elderly population in selected regions of Bangalore.
- To assess the pre-test knowledge regarding telemedicine among rural elderly individuals.
- To assess the post-test knowledge after the implementation of the telemedicine awareness program.
- To compare the pre-test and post-test knowledge scores to determine the effectiveness of the awareness program.
- To find out the association between post-test knowledge scores and selected demographic variables such as age, gender, education, income, and digital literacy.

HYPOTHESES

- H1: There will be a significant difference between the pre-test and post-test knowledge scores regarding telemedicine among the rural elderly population following the telemedicine awareness program.
- H2: There will be a significant association between the post-test knowledge scores and selected demographic variables such as age, gender, education, income, and digital literacy among the rural elderly population.

ASSUMPTION

- Rural elderly individuals may have limited knowledge regarding telemedicine services and their benefits.
- Awareness and knowledge influence the acceptance and utilization of telemedicine services among the elderly population.
- A structured telemedicine awareness program will improve knowledge and understanding among rural elderly individuals.
- Participants will provide honest and accurate responses to the structured questionnaire.
- Improvement in knowledge may encourage positive attitudes toward the use of digital health services.

DELIMITATION

- The study was conducted only among elderly individuals aged 60 years and above residing in selected rural regions of Bangalore.
- The sample size was limited to the selected participants available during the period of data collection.
- The study focused only on assessing knowledge regarding telemedicine and did not evaluate actual utilization or long-term behavioral changes.
- The telemedicine awareness program was limited to a structured educational session conducted during the study period.
- The findings of the study may not be generalized to all rural elderly populations outside the selected regions.

IV. ANALYSIS / INTERPRETATION:

This chapter presents the analysis and interpretation of data collected from 80 rural elderly participants to assess the effectiveness of the telemedicine awareness program.

Table 1: Age Distribution of Participants (n=80)

Age Group	Frequency	Percentage
60-65 years	25	31
66-70 years	30	37
71-75 years	15	19
Above 75 years	10	13

Interpretation: Majority (37%) of participants were in the age group of 66–70 years.

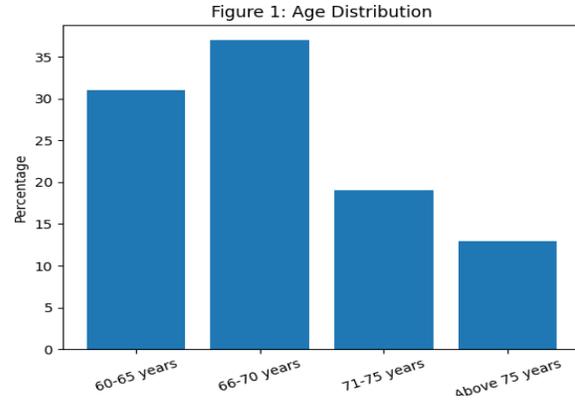


Table 2: Pre-test and Post-test Knowledge Scores

Assessment	Mean Score	Standard Deviation
Pre-test	8.4	±3.2
Post-test	16.7	±2.8

Interpretation: The mean knowledge score increased from 8.4 in the pre-test to 16.7 in the post-test, indicating improvement after the telemedicine awareness program.

Figure 2: Comparison of Pre-test and Post-test Scores

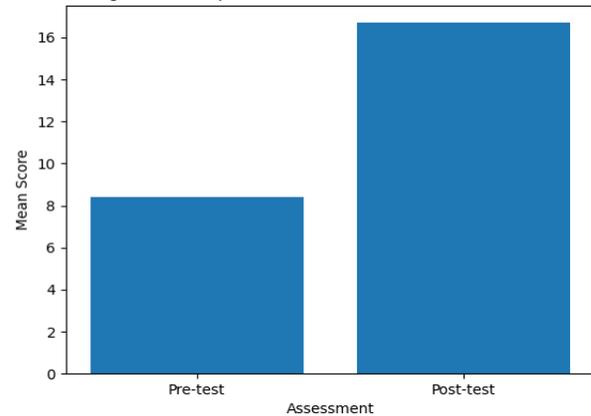
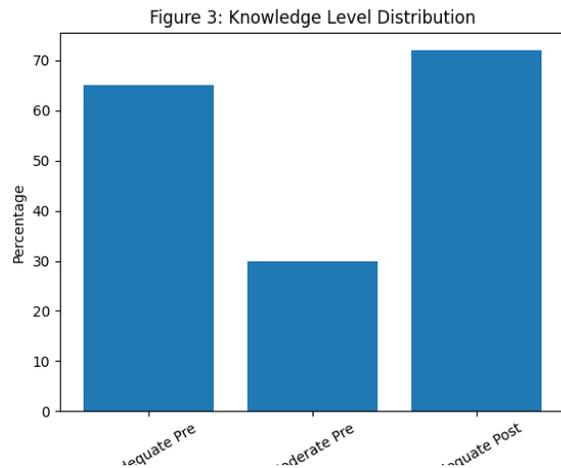


Table 3: Knowledge Level Before and After Intervention

Knowledge Level	Frequency	Percentage
Inadequate (Pre-test)	52	65
Moderate (Pre-test)	24	30
Adequate (Post-test)	58	72

Interpretation: Majority (65%) had inadequate knowledge before intervention, whereas 72% demonstrated adequate knowledge after the awareness program.



V. RESULTS

A total of 80 rural elderly individuals participated in the study to assess the effectiveness of the telemedicine awareness program. The demographic findings showed that the majority (37%) were in the age group of 66–70 years, with a higher proportion of males (55%) compared to females (45%). The pre-test assessment revealed that 65% of participants had inadequate knowledge, 30% had moderate knowledge, and only 5% had adequate knowledge regarding telemedicine services, with a mean score of 8.4 ± 3.2 . Following the implementation of the structured telemedicine awareness program, there was a significant improvement in knowledge levels, as 72% of participants demonstrated adequate knowledge and the mean post-test score increased to 16.7 ± 2.8 . The calculated paired 't' value (14.85) was statistically significant at $p < 0.05$, indicating that the awareness program was effective. A significant association was found between post-test knowledge scores and educational status, while no significant association was observed with age or gender.

VI. CONCLUSION

The present study concludes that the telemedicine awareness program was effective in significantly improving knowledge among the rural elderly population in selected regions of Bangalore. The findings revealed that most participants initially had inadequate awareness regarding telemedicine services; however, post-intervention results demonstrated a marked improvement in knowledge levels, indicating

the positive impact of structured health education. The statistically significant difference between pre-test and post-test scores confirms the effectiveness of the awareness program. The study highlights the importance of integrating telemedicine education into community health nursing practice to enhance digital health literacy, improve healthcare accessibility, and promote utilization of telehealth services among rural elderly individuals.

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