"A Study to identify the Challenges regarding utilization of TeCHO Plus among Health Workers from selected Primary Health Centers of Pune District"

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ABSTRACT

Introduction: TeCHO+ has resulted in significant DALY averted through early identification of high-risk cases both among pregnant women and children. Prasanna Kumar et al., 2025 conducted a study titled "A Study to Assess the Knowledge Regarding Technology Enabling Community Health Operations Plus Among ASHA Workers Working in Selected Primary Health Care Center, Chittoor." The study found that most ASHA workers had moderate knowledge regarding TECHO Plus. The study concluded that training programs are needed to improve their knowledge and utilization of TECHO Plus.

Aims of the Study: to identify the Challenges regarding utilization of TeCHO Plus among Health Workers from selected Primary Health Centers of Pune District.

Methodology: A quantitative descriptive study was conducted to assess the utilization of TeCHO Plus among health workers in selected Primary Health Centres of Pune District. The study included 200 health workers selected through non-probability purposive sampling. Participants with at least one year of experience and willingness to participate were included, while those not using TeCHO Plus were excluded. Data were collected using a structured questionnaire consisting of demographic details and utilization-related items after obtaining formal permission and informed consent. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used for analysis, while the Chi-square test was applied to determine the association between demographic variables and utilization.

Results: The study included 200 health workers, with the majority (33.5%) aged 41–50 years and 34% having more than 8 years of experience. Most participants were ANM qualified (57%). Regarding utilization of TeCHO+, 64% of health workers showed average utilization, 23.5% poor utilization, and 12.5% good utilization, with a mean score of 6.13 ± 2.14. No significant association was found between utilization of TeCHO+ and selected demographic variables such as age ($p = 0.279$), educational qualification ($p = 0.302$), and years of experience ($p = 0.745$).

Conclusion: The study concludes that TeCHO+ utilization among health workers is moderate, with most showing average usage. Age, educational qualification, and years of experience showed no significant association with utilization. Challenges like limited technical skills, connectivity issues, lack of manpower, and poor infrastructure hinder effective use. Strengthening technical support, improving connectivity, and infrastructure is essential for improvement.

Keywords: Identify, Challenges, utilization, TeCHO Plus, Health Workers, Primary Health Centers, Pune District.

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INTRODUCTION

The Gujarati government's Health and Family Welfare Department is addressing the state's top health concerns through a program called Technology for Community Health Operation, or TeCHO+. The goal of this effort is to replace the state's current mother and child tracking system, also known as the e-Mamta application. ImTeCHO, or Innovative Mobile Technology for Community Health Operations, is the foundation of this initiative. It was tested in Jhagadia, Gujarat's Bharuch district, in 2013. The initiative was cost-effective and shown improvements in the coverage of maternal and newborn care packages that prevented malnutrition.[1]

A multi-tiered administrative structure is used to handle Techo Plus. The task force in charge of strategic planning at the state level is chaired by the Health Commissioner. District coordinators provide technical assistance, and a nodal officer oversees implementation. Supervision is provided by Taluka Health Officers and district-level officials such Chief District Health Officers (CDHOs) and Reproductive and Child Health Officers (RCHOs). Particularly after territory coordinators were phased out in April 2020, PHC-MOs use a web-based interface to validate family details and carry out field monitoring.[2]

Health workers play a crucial role in implementing digital health interventions at the grassroots level. However, the effective utilization of TeCHO+ depends on several factors such as digital literacy, training, workload, internet connectivity, technical support, and user-friendliness of the application. Studies have indicated that despite the potential benefits of digital health platforms, frontline workers often face multiple challenges including lack of technical skills, inadequate infrastructure, and resistance to technology adoption.[3]

In Maharashtra, particularly in Pune District, PHCs cater to a large population and play a significant role in delivering community-based healthcare services. The successful implementation of TeCHO+ in such settings is crucial for improving maternal and child health indicators and strengthening the overall health system. However, there is limited evidence regarding the practical challenges faced by health workers in utilizing TeCHO+ at the ground level in this region.[4]

Need of the study:

At the global level, digital health technologies are widely adopted to strengthen healthcare systems, with over 120 countries implementing at least one mHealth initiative and 58% using mobile devices for health services and data collection (WHO, 2019). These interventions have improved maternal and child health service coverage by 10–30% in low- and middle-income countries.[5]

At the national level in India, digital health has been promoted under NDHM and NHM, with over 1 million ASHAs and health workers using digital or semi-digital reporting systems. Platforms like RCH and TeCHO+ have improved data reporting timeliness by up to 80% and strengthened beneficiary tracking in maternal and child health programs.[6]

At the state level in Maharashtra, digital health initiatives are expanding across districts, including Pune, with over 70% of PHCs using digital platforms for reporting and monitoring. However, challenges such as inadequate infrastructure, limited training, internet connectivity issues, and increased workload continue to affect effective utilization at the grassroots level.[7]

A study by Gondi and Itti assessed the knowledge and attitude regarding TECHO Plus among 60 ASHA workers using a cross-sectional design. The findings showed a moderate level of knowledge (mean percentage 52.52%) with significant associations with age ($p = 0.04$) and marital status ($p = 0.01$). The study emphasized the need for regular training to improve ASHA workers' knowledge and effective use of TECHO Plus.[8]

The increasing use of TeCHO Plus in primary healthcare has enhanced digital reporting and service delivery, but its effective utilization depends on health workers' skills and resources. Many face challenges like inadequate training, poor internet connectivity, and increased workload. As a researcher, identifying these challenges among PHC health workers in Pune District is essential to improve implementation, provide targeted support, and ensure better utilization of TeCHO Plus for improved healthcare outcomes.

MATERIALS AND METHODS

The present study will adopt a quantitative research approach with a descriptive design to assess the utilization of TeCHO Plus among health workers. The study will be conducted in selected Primary Health Centres of Pune District. The target and accessible population will include health workers working in these PHCs, and a sample of 200 participants will be selected using a non-probability purposive sampling technique. Health workers with at least one year of experience will be included in the study, while those who are not willing to participate or not using TeCHO Plus will be excluded.

The research tool will consist of two sections: Section I will include demographic variables, and Section II will comprise a structured questionnaire to assess the utilization of TeCHO Plus. Prior to data collection, formal permission will be obtained from the concerned authorities, and informed consent will be taken from participants after explaining the purpose of the study and ensuring confidentiality. Data will be collected through the administration of the tool.

The collected data will be analysed using both descriptive and inferential statistics. Descriptive statistics such as frequency, percentage, mean, and standard deviation will be used to describe demographic variables and utilization levels. Inferential statistics, specifically the chi-square test, will be applied to determine the association between utilization and selected demographic variables.

RESULTS

SECTION-I Demographic data of the sample.

Table No.2 Demographic Variables N=200

Demographic Variables	F	%
1. Age		
a. 21-30 Years	38	19.00
b. 31-40 years	45	22.50
c. 41-50 years	67	33.50
d. 50 years and above	50	25.00
2. Educational Qualification		
a. ANM	114	57.00
b. GNM	49	24.50
c. ASHA Worker	37	18.50
3. Years of experience as a Health worker		
a. 1-3 years	45	22.50
b. 4-6 years	49	24.50
c. 6-8 years	38	19.00
d. >8 years	68	34.00

The data reveals that the majority of health workers (33.5%) belong to the age group of 41–50 years, followed by 25% who are 50 years and above, indicating that most participants are middle-aged and experienced. Regarding educational qualification, the highest proportion (57%) are ANM qualified, followed by GNM (24.5%) and ASHA workers (18.5%), suggesting that ANMs constitute the major group of respondents. In terms of work experience, 34% of health workers have more than 8 years of experience, while 24.5% have 4–6 years of experience, indicating that a significant proportion of participants are highly experienced in their field.

SECTION II

This section deals with analysis utilization of Techo plus.

N= 200

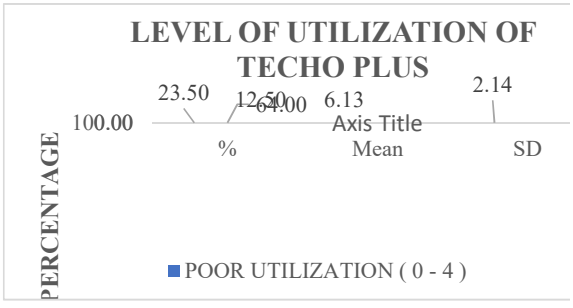

Fig No. 1 - level of utilization of Techo plus.

Fig No.1 depict findings indicate that the majority of health workers (64%) have an average level of utilization of TeCHO Plus, while 23.5% exhibit poor utilization and only 12.5% demonstrate good utilization. The overall mean utilization score is 6.13 with a standard deviation of 2.14, suggesting moderate usage with some variation among participants. This implies that although most health workers are using TeCHO Plus to some extent, there is still a need to improve their level of utilization.

SECTION III

This section deals with Analysis and interpretation of data in order to find out association with selected demographic variables.

Table No.2 Association with selected demographic variables N=200

Demographic Variables	Average Utilization	Good Utilization	Poor Utilization	DF	CHi Table value	Chi calculated value	P value	Remark
1. Age								
a. 21-30 Years	25	6	7	6	12.592	7.479	0.279	Not Significant
b. 31-40 years	22	8	15					
c. 41-50 years	48	5	14					
d. 50 years and above	33	6	11					
2. Educational Qualification								
a. ANM	73	15	26	4	9.488	4.861	0.302	Not Significant
b. GNM	27	6	16					
c. ASHA Worker	28	4	5					
3. Years of experi								

ence as a Health worker								
a. 1-3 years	28	5	12	6	12.592	3.489	0.745	Not Significant
b. 4-6 years	29	9	11					
c. 6-8 years	23	5	10					
d. >8 years	48	6	14					

The association between utilization of TeCHO+ and selected demographic variables shows that age has no statistically significant association with utilization ($\chi^2 = 7.479$, $p = 0.279$), indicating that age does not influence the utilization of TeCHO+ among health workers. Similarly, educational qualification is not significantly associated with utilization ($\chi^2 = 4.861$, $p = 0.302$), suggesting that the level of education does not have a major impact on the use of TeCHO+. Furthermore, years of experience also shows no statistically significant association with utilization ($\chi^2 = 3.489$, $p = 0.745$), indicating that work experience does not significantly affect the utilization of TeCHO+ among health workers.

DISCUSSION

The present study revealed that the majority of health workers (64%) had an average level of utilization of TeCHO Plus, indicating that the application is being used but not to its full potential. These findings are in line with the study conducted by Saha et al. (2018) in Gujarat, which reported that although health workers were willing and motivated to use TeCHO+, they initially faced difficulties in operating the application due to limited technological literacy and lack of prior smartphone experience.

In the Gujarat study, it was also observed that older health workers experienced more challenges in adapting to digital platforms. Similarly, in the present study, a large proportion of participants belonged to the age group of 41 years and above, which may have contributed to the moderate level of utilization, even though no significant association was found statistically. Additionally, Saha et al. highlighted challenges such as increased workload and multiple program responsibilities, which can hinder effective use of the application.[9]

The present study identified that the majority of health workers (64%) had an average level of utilization of TeCHO Plus, indicating moderate use with scope for improvement. These findings can be compared with the study conducted by Jeilani and Hussein (2024), which examined the impact of digital health technology (DHT) adoption on healthcare workers' performance and workload. The study reported that digital health technologies significantly improved healthcare workers' performance and also helped in managing workload effectively.

While the Jeilani et al. study highlights the positive impact of digital health technologies, the present study shows that optimal utilization is still not achieved at the grassroots level. This difference may be due to variations in factors such as training, infrastructure, and organizational support. Similarly, in the present study, challenges like limited technical skills, workload, and possible infrastructural issues may influence utilization levels.[10]

CONCLUSION:

The present study concludes that the utilization of TeCHO Plus among health workers in selected Primary Health Centers of Pune District is predominantly at an average level, indicating moderate use of the application. While a majority of participants are using TeCHO Plus, only a small proportion demonstrated good utilization, suggesting that the full potential of the application has not yet been achieved. The study also revealed that educational qualification has a statistically significant association with utilization, implying that higher education levels may contribute to better use of digital health technologies. However, age and years of experience were not significantly associated with utilization.

The findings further indicate that several challenges may influence the effective use of TeCHO Plus, including limited technical knowledge, inadequate training, poor internet connectivity, and increased workload among health workers. These barriers can affect the consistency and efficiency of digital health service delivery at the grassroots level.

Therefore, it is essential to strengthen capacity-building initiatives through regular training programs, provide continuous technical support, and improve infrastructure facilities. Addressing these challenges will enhance the utilization of TeCHO Plus, leading to improved performance of health workers and better healthcare outcomes in the community.

DECLARATION BY AUTHORS:

Ethical Approval: The study was approved by the institutional ethics committee of Bharati Vidyapeeth College of Nursing, Pune. The study participants were briefed about the purpose and nature of the study and written informed consent was obtained before data collection.

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Conflict of Interest: The authors declare no conflict of interest.

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