# Reaching the Unreachable: A Mixed-method Evaluation of a Multidimensional Healthcare Model in Hard-to-Reach Northern Riverine Bangladesh

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## INTRODUCTION

The remote and hard-to-reach riverine communities of northern Bangladesh face distinct challenges in accessing healthcare services, largely due to geographic isolation and limited infrastructure. Friendship, an international social purpose organization, has implemented a 3-tier healthcare model addressing these unique challenges over the past 20 years. This study evaluates Friendship's 3-tier healthcare model, focusing on general healthcare service-seeking practices, beneficiary and stakeholder perspectives, and cost benefits.

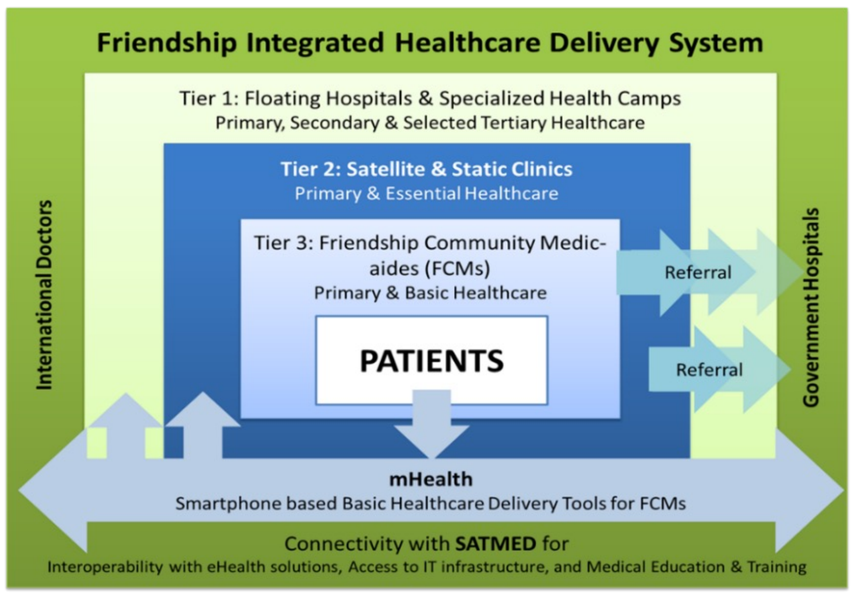


*Figure 1: 3-tier multidimensional health care model*

## METHODS

- **Convergent mixed-method design**, integrating desk reviews, a cross-sectional quantitative survey, and qualitative interviews with service recipients, community representatives, healthcare providers, and managers.
- Data were collected from five hard-to-reach riverine sub-districts in **Kurigram, Gaibandha, Bogura, Sirajganj, and Jamalpur, Bangladesh,** between **April 2022 and July 2023**.
- The quantitative survey included **760 beneficiaries**, examining sociodemographic characteristics, economic impact, and cost-benefit analysis.
- The qualitative component involved **56 interviews**—FGDs, IDIs, and KIIs—along with facility assessments and case stories to capture stakeholder perspectives and service experiences.
- Data were analyzed within **key thematic domains**, triangulating quantitative and qualitative findings to validate results and provide a nuanced interpretation of the healthcare model's outcomes.
- **Stakeholder validation workshops** further refined the findings, providing actionable recommendations to enhance healthcare delivery in resource-constrained settings.

## FINDINGS

The integration of quantitative findings and qualitative narratives underscore the success of Friendship's 3-tier model in delivering accessible, cost-effective, and culturally sensitive Healthcare services to underserved populations. However, Systemic improvements in provider capacity and referral Mechanisms are necessary for sustained impact.

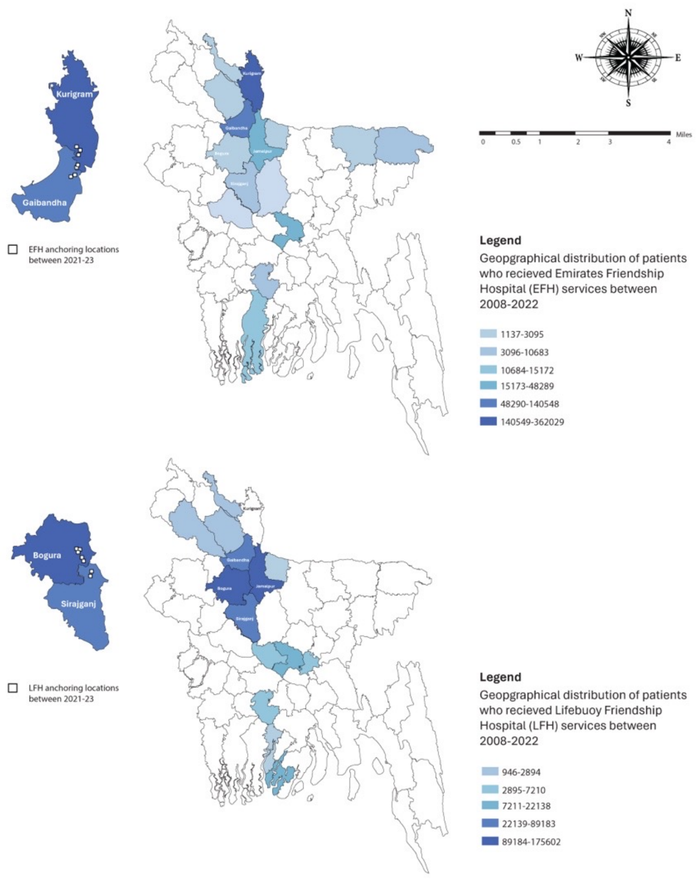


*Figure 2: Geographical distribution of patients who received LFH and EFH services (2008-2022)*

| Theme | Quantitative Findings | Qualitative Insights | Integration |
|---|---|---|---|
| **Scope of Service** | Friendship's model delivered essential healthcare services to 551,289 individuals via LFH and 647,090 via EFH from 2008-2022. Services included ANC, PNC, surgeries, and health education. | "We can access the FCM at any time. Even complex issues like surgeries are addressed on hospital ships," – IDI, 36y, male | Quantitative data highlights broad service reach, while qualitative data underscores the accessibility and impact on community health outcomes. |
| **Health-seeking Practices** | 90.8% used FCMs and satellite clinics; 12.8% accessed hospital ships for specialized care. 27.2% still relied on informal providers like quacks. | "We get medicines at affordable rates from FCMs, and they work better than local shops," – IDI, 43y, female | While quantitative data shows reliance on Friendship's services, qualitative data reveals trust and perceived efficacy of the model's offerings. |
| **Cost Benefits** | Satellite clinic fees ranged from 0.05 to 0.09 USD, compared to 2.79 USD at private clinics. Transport costs to urban facilities were prohibitive (13.98–18.63 USD). | "We can save time and money with doorstep services—Friendship's services cost much less than government or private clinics,"- IDI, 27y, male | Cost analysis validates Friendship's affordability, while qualitative accounts emphasize the importance of saving time and transport expenses. |
| **Service Satisfaction** | 83% of respondents were satisfied with the services; 82.4% appreciated the service environment at satellite clinics. | "We arrange and clean our courtyards for clinics. It feels like a community event," – FGD, 24y, female | Quantitative satisfaction levels are complemented by qualitative descriptions of community involvement and pride in the healthcare process. |
| **Health Education** | Monthly nutrition sessions educated communities on local food utilization and health practices. | "We learned to make nutritious khichuri with local ingredients. It's healthy and delicious," – FGD, 35y, female | Quantitative coverage data is enriched by qualitative reflections on behavior change and the value of localized nutritional education. |
| **Challenges** | Absence of formal tracking systems for referred patients to govt. facilities or hospital ships | "Referral patients often lack follow-ups and tracking their outcomes is challenging" – IDI, 35y, FCM | Both data streams underscore the need for a structured referral system to enhance continuity of care. |

## CONCLUSIONS

The 3-tier healthcare model had generalized acceptance among the target communities, making primary healthcare accessible and affordable. Upon implementing a robust referral mechanism and continuing collaboration with the government, this model can be effective in similar settings in Bangladesh and other developing countries, as well as during emergency responses.