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Indian Journal of Forensic and Community Medicine

Journal homepage: www.ijfcm.org

Original Research Article

Identifying challenges and solutions: A fishbone analysis of the family adoption program

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Abstract

Background: The National medical commission (NMC) introduced Family adoption program (FAP) under the Competency-based medical education (CBME) curriculum, which is a transformative initiative within the Community Medicine training of undergraduate MBBS students in India. Spanning across 1st to 3rd professional years, FAP enables Indian medical graduates to engage in community-based learning, enhancing their communication skills, empathy, and cultural competence. Despite its promising outcomes, the implementation of FAP across medical colleges has encountered various challenges, influenced by institutional resources, logistical constraints, and community dynamics. Given this context, our objective was to determine the root causes of incomplete data collection and arrive at the solutions and cocreation of fishbone diagram illustrating the causes and solutions for incomplete data collection.

Materials and Methods: 250 students of batch 2022 who have adopted families in Hanchya and Rammanahalli villages of Mysuru district were included. 10 groups were made and root cause for incomplete data collection was collected from students and diagram was constructed on the board.

Results: The problems identified include lack of interest, unresponsiveness, and barriers in trust and communication, resulting in incomplete data collection. Language barriers, lack of counselling skills, locked house, lack of health knowledge and inconvenient timings are some other identified barriers. Training in local language, free health camps help in building the trust among the students.

Conclusion: The Fishbone analysis enabled a comprehensive understanding of the multifactorial causes behind incomplete data collection in the FAP. The core issues were traced to three broad domains i.e., lack of interest, unresponsiveness, and barriers in trust and communication.

Keywords: Community medicine, Competency-based medical education, Family adoption program (FAP), Indian medical graduate, Fish bone analysis.

Received: 10-05-2025; **Accepted:** 04-06-2025; **Available Online**: 26-06-2025

1. Introduction

The concept of allotting families in the adopted villages by first-year medical students were introduced by Mahatma Gandhi Institute of Medical Sciences, Sewagram (MGIMS) and the students were given an opportunity to get acquainted with the community's needs.[1] The National Medical Commission (NMC) came up with similar programme called Family Adoption Programme (FAP) under Competency-Based Medical Education (CBME) curriculum. This programme is for MBBS students to provide hands-on experience in community-based healthcare. This initiative mandates first-year MBBS students to adopt families and follow them up to third-year, primarily from economically weaker sections, fostering a deeper understanding of the social determinants of health and enhancing community engagement. The NMC has emphasized the importance of this program, making it compulsory for medical colleges from the 2021-2022 academic session. The program adopts various educational strategies including field visits, small group discussions, and presentations, aiming to improve skills such as communication, empathy, leadership, and public health understanding. This structure may vary slightly depending on the medical institution.[2] FAP is executed under the department of Community Medicine. Adoption programme should include the villages not covered under Primary Health Cente (PHC) adopted by Medical College but outskirts of cities, bastis, jhuggis, may be adopted if travel time is more than 2 hours.[3] During the programme the students are expected to collect the data of the families which

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https://doi.org/10.18231/j.ijfcm.2025.016

include sociodemographic details, data on overall health, anthropometric measurements, clinical examination, dietary and cultural practices and also take part in annual health camp. This helps in strengthening the relationship between Medical institutions and the community by actively involving families in the educational process, which can lead to improved community health outcomes.

Alongside student will learn about the referral system, by acting as a first point of contact between the adopted families and the health systems. Students will also get first-hand experience of the healthcare delivery in the community set-up and thereby, they learn about the concept of a continuum of care and become a Family Physician in the future.[4]

However, students face several challenges in the field which leads to missing or incomplete data collection. This, in turn, impact the effectiveness of health assessments and interventions. Various factors results in incomplete data collection like, logistical constraints, inadequate student training in data documentation, communication barriers with families, and time limitations during data collection. Identifying the root cause and understanding the contributory factors is essential to ensure the effective delivery of health services at their doorstep. Manu Bajpai et.al, in their review article mentioned that maintaining and implementing the FAP can be resource intensive, requiring significant investment in terms of resources.[5] A study by Ganganahalli et al. also reported that many students struggled with community receptiveness and felt inadequately prepared to establish rapport, especially in rural settings with differing linguistic and cultural contexts.[6] Chepuru et al. examined FAP through the lens of both faculty and students, revealing that insufficient faculty support and poor alignment of visit timings contributed to reduced student motivation and logistical challenges.[7] One of the key challenges in implementing FAP arises from the disparity in healthcare accessibility. Despite two-thirds of India's population residing in rural areas, healthcare facilities are disproportionately distributed, limiting access to essential services. Additionally, a lack of health literacy among rural populations contributes to poor healthcare-seeking behaviour, ultimately leading to adverse health outcomes.[6,8] Additionally, a qualitative exploration by Shree et al. highlighted the importance of community sensitization before initiating FAP activities.[9] Other studies on community-based learning models, also emphasizes the significance of student readiness and active community engagement in determining program outcomes.[10]

For systematically identifying and analysing the root causes of incomplete data collection, the Fishbone Diagram developed by Kaoru Ishikawa also known as the Ishikawa Diagram or Cause-and-Effect Diagram, can be applied. This diagram is used in quality control, healthcare, education, and other fields for structured problem-solving. The diagram resembles the skeleton of a fish, the *head* represents the main problem or effect. The *bones* branching off represent major categories of potential causes. Smaller branches represent sub-causes or contributing factors within each category.[11]

With this background, we attempted to determine the root causes of incomplete data collection & arrive at the solutions and cocreation of fishbone diagram illustrating the causes and solutions for incomplete data collection, for FAP 2022 batch of JSS Medical College, Mysuru.

2. Materials and Methods

This qualitative study was conducted among Phase II students of batch 2022 studying in JSS Medical College, Mysuru. Ten separate groups were made and discussion were conducted during the class to understand the causes for missing or incomplete data collection. Each group consisted of 25 members and moderated by postgraduates. Student should have at least one family adopted either in Hanchya or Rammanahalli village of Mysuru district and had been to village at least for 3 times per academic year for data collection were included. All 250 students had met the inclusion criteria. The study process was explained after obtaining verbal consent. The data collection was concluded from all the group on the data saturation and formation of a complete fishbone diagram on the black board depicting the causes of incomplete data collection. The *head or mouth* of the fish represented the main cause, i.e., incomplete data and possible contributing causes were listed on the smaller *bones* under 3 categories- lack of interest, unresponsiveness, and trust and communication. After various causes were determined by the fishbone diagram, the next step was to understand the relationship between causes. This involved tracing a precursor to a cause back to the root cause. The initial fishbone diagram constructed in the classroom was then expanded to arrive at the solutions with the help of students. The final output of the fishbone diagram was drawn by the researchers which were later verified by selected study participants and coresearchers (data triangulation).

3. Results

Through discussion with students, 3 categories of problems were identified. These includes lack of interest, unresponsiveness, and barriers in trust and communication.

3.1. Problems

3.1.1. Lack of interest

One of the primary challenges encountered during data collection in the FAP was a lack of interest among both students and families. Several factors contributed to this disinterest, including unfavourable weather conditions—such as extreme heat during summer and rainfall during the monsoon, and safety concerns posed by stray dogs in the adopted village. Additionally, low health literacy among families often resulted in reluctance to participate. A shortage

of faculty members to accompany large groups of students, combined with limited visiting hours that made it difficult to address queries adequately, further reduced the effectiveness of data collection. Moreover, most visits were scheduled in the afternoon, a time when families were either resting or unavailable due to work commitments, making it difficult for students to engage with them.

One of the students quoted that "Since we are not doctors, they don't trust us with giving their personal details and the lack of knowledge and awareness regarding the FAP programme adds on to it."

Other student opined that "One of my family, even though all the members were present in the house, after the anthropometric measurements they have asked me to stop and leave and said that was enough for today."

3.1. 2. Unresponsiveness of families

Another notable challenge is the unresponsiveness of families in the adopted communities. Factors such as locked homes during visits, migration for work, and unavailability due to overlapping work hours contributed to this issue. Additionally, some families experience fatigue from repeated interviews or data collection efforts, particularly when they perceive no direct benefit from participating. A lack of prior information about the visits, along with the unavailability of necessary resources such as medical instruments or equipment, also contributes to family disengagement, ultimately resulted in poor data collection.

3.1.3. Trust and communication issues

Trust and effective communication are essential components of any community health program and same holds good in FAP. However, language barriers often prevent clear understanding and meaningful interactions between students and families. In the current study many students reported lack of the necessary communication, counselling skills needed to build rapport and address sensitive topics confidently. Gaps between successive visits disrupted continuity and also weakened the sense of commitment among families. In few cases, families were either unaware of their existing health conditions, provided inaccurate or wrong information due to misunderstanding or mistrust on students. Additionally, a strong belief in traditional or alternative forms of medicine can lead to a lack of trust in students advice and health recommendations.

One student responded as "They don't tell all the problems they are facing medically. Some members of the family don't even take their ailments seriously even after explaining everything".

Response by another student was "family members try to hide or give wrong information to us since we don't speak their language, so going alone and collecting information is difficult most of the time, even sometimes they make fun of us".

3.2. Solutions state by the students

3.2.1. Lack of interest

To address the issue, it is essential to establish a connection between program activities and their real-life relevance. When students and families understand the bidirectional benefits of their involvement, interest and participation are likely to improve. Offering incentives such as recognition, academic credit, or certificates of appreciation can further boost student involvement. Enhancing faculty support and adjusting the timing of visits to more convenient hours, organising health camps for extended durations, can facilitate better community interaction. Incorporating a structured student feedback system will enable real-time adjustments and foster a sense of ownership and motivation among students. These measures can significantly increase student interest in the program, ultimately aiding in the collection of complete and accurate data to build a healthier, disease-free community

3.2.2. Unresponsiveness of families

The organization of free medical camps for common diseases and screenings increases trust in the programme and encourage active participation, provision of treatment at discounted rates upon referral to hospitals showing families that the programme has tangible advantages, advance communication regarding visit and camp schedules through health workers like ASHA or Anganwadi workers, ensuring availability of adequate medical equipment for clinical and anthropometric assessments, and timely follow-up or potentially supplemented by telemedicine consultations involving faculty are some of the solution which significantly enhance responsiveness from families. These strategies also contribute to increased confidence among students, facilitating more accurate and hesitation-free data collection.

3.2.3. Trust and communication barriers

Planning time-tables with less gap between visits helps in reducing the time between visits thus strengthens rapport and keeps the families engaged, training for native language for students enables better communication, making families feel understood and respected. Counselling skills among students helps in addressing sensitive topics with empathy, encouraging open dialogue. Emphasizing confidentiality builds trust and reassures families, making them more willing to share accurate information and lastly orientation and awareness about the purpose and benefits of the program fosters collaboration and dispels mistrust or misconceptions.

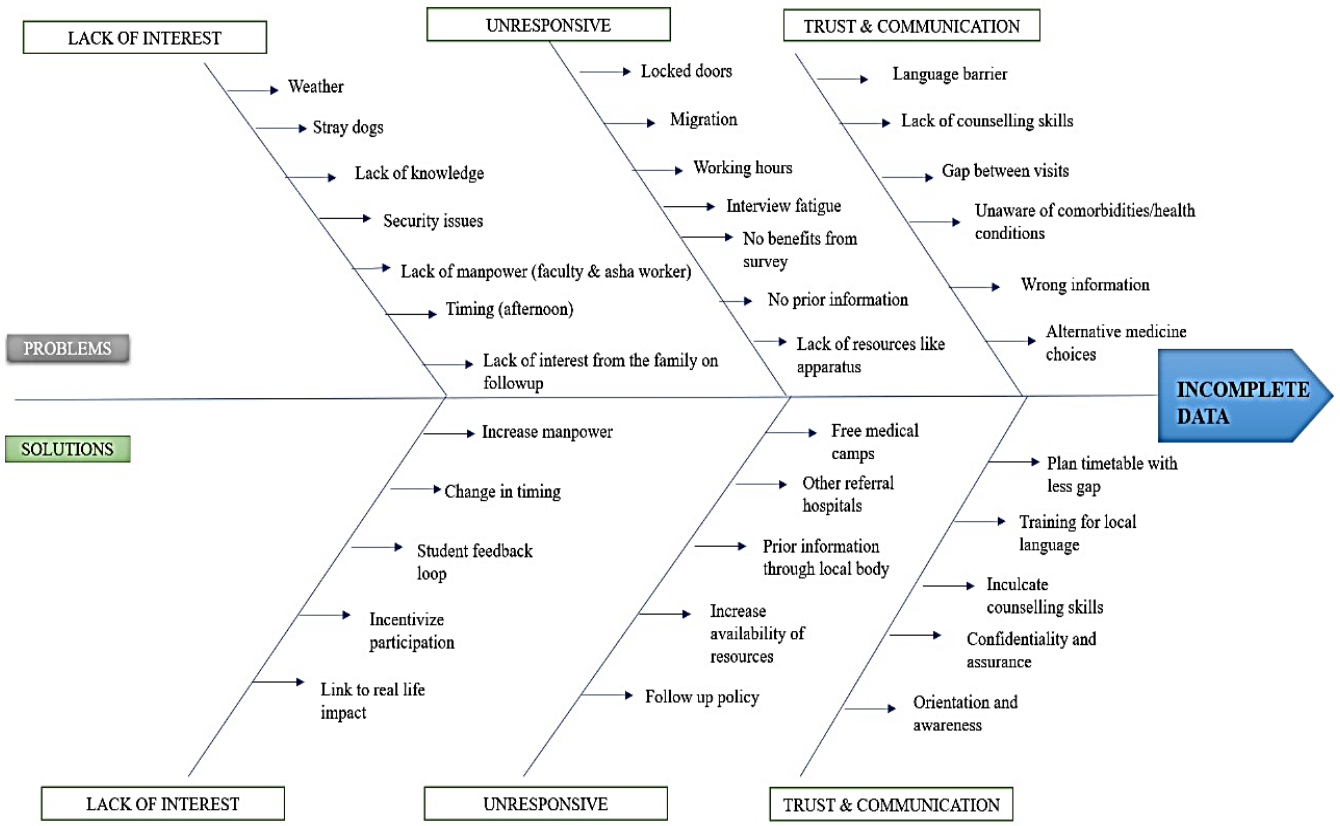

Figure 1: Fishbone diagram explaining the problems identified and probable solutions

4. Discussion

The Family Adoption Programme (FAP) is a cornerstone initiative envisioned by the NMC to align Indian undergraduate medical education with the principles of social accountability and community engagement. It is designed to bridge the gap between classroom learning and real-world health care delivery by immersing medical students in the sociocultural and epidemiological realities of rural populations.[1,2] Students develop critical skills in communication, empathy, and primary care delivery by structured interactions, fulfilling key competencies outlined in the Curriculum for the Indian Medical Graduate.[2,3]

Vanikar and Kumar emphasised that, FAP encourages students to understand the lived experiences of village communities and thereby reshaping their approach towards patient care.[1] Recent literature by Kulkarni and Joshi suggests that FAP fosters early professional identity formation among students and prepares them for ethical and context-sensitive practice in underserved communities.[4] The hands-on involvement through repeated visits to the families ensures familiarity with community dynamics, enabling better recognition of social determinants of health.

Despite its potential, the implementation of FAP is not without challenges. Our analysis used the Fishbone (Ishikawa) diagram method to systematically identify causes of incomplete data collection, which is a common barrier to effective community follow-up. Root causes for incomplete data collection were categorized into three broad themes: lack of interest, unresponsiveness, and gaps in trust and communication. Within these themes, key contributing factors included, unfavourable timing of visits, lack of manpower, absence of prior community sensitization, and limited counselling skills among students.

Shikha et al in the SWOC analysis reported that limited resources, resistance and unavailability of family during visit, language barrier, time variability and constraint, existing cultural taboos in the family are few weaknesses and challenges identified in their study.[12] These results are in line with our study where our analyses echoed the same observations.

In an article on reflections of a medical student, the student quoted that “I felt that I was not equipped to answer if I had to face any health-related queries”, “families were very reluctant about sharing information”,[13] similarly in our study, lack of knowledge is one of the reasons for lack of interest among participants.

Scarcity of the manpower required to carry out visits in terms of students’ security and timely allotment of families was the challenge felt by the Residents in New Delhi[14] and this result is in line with ours where security issues and lack of manpower (faculty and ASHA worker) was the reason for poor interest.

A major hurdle encountered by Shah et al., in the smooth implementation of the program were mainly due to lack of transport and logistics, shortage of manpower, language barrier, lack of interest and clinical knowledge in the students.[15] Kaushal et al. suggested that creating a clear academic and community incentive structure, including certificates of appreciation and academic credit, helped boost student engagement.[10] Our findings also support this strategy, as a lack of visible academic value contributed to student disinterest. Incorporating FAP achievements into internal assessments or recognizing exemplary work during institutional events could serve as strong motivators. All these challenges are observed in our study where it led to incomplete data collection. Including student reflections and incorporating community inputs into program planning not only makes the experience richer but also ensures relevance and adaptability over time.

To enhance participation and data completeness a multifaceted approach is essential. Aligning program activities with real-world relevance such as addressing local health issues, can significantly boost student motivation and foster a sense of purpose. Incorporating incentives like academic credits or certificates, along with flexible scheduling and extended health camp durations, can further encourage involvement along with structured feedback mechanisms. To improve family responsiveness, organizing free medical camps and offering discounted treatments upon referrals can build trust and demonstrate tangible benefits. Effective communication through local health workers like ASHAs of that village, ensuring adequate medical equipment, and providing timely follow-ups, possibly via telemedicine, are also crucial. Overcoming trust and communication barriers involves reducing gaps between visits to maintain rapport, training students in local languages, and enhancing their counselling skills to address sensitive topics empathetically. Emphasizing confidentiality and conducting orientation sessions about the program's purpose can further build trust and collaboration. Collectively, these strategies not only enhance student engagement but also ensure accurate data collection, contributing to the development of a healthier, disease-free community. Ultimately by these we will be able to achieve the goals of FAP under NMCs Competency-based frameworks.

5. Conclusion

The Family Adoption Programme marks a significant advancement in promoting socially responsive medical education in India. To enhance its effectiveness, integrating structured quality improvement tools like the Ishikawa diagram during planning and evaluation phases can help identify root causes of challenges and streamline program delivery. Our study was able to identify notable obstacles in data collection, primarily due to factors such as lack of interest, unresponsiveness of families, and trust and communication barriers. These issues are often compounded by adverse weather conditions, safety concerns, low health literacy, scheduling conflicts, and language differences. Addressing these challenges requires implementing strategies that boost student engagement, enhance family participation, and improve communication channels.

6. Source of Funding

Nil.

7. Conflict of Interest

Nil.

8. Acknowledgement

We acknowledge study participants, staffs of department of Community Medicine, JSS Medical College.

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Cite this article: Gowda RS, Shree A, Joy J, Doddaiah SK. Identifying challenges and solutions: A fishbone analysis of the family adoption program. *Indian J Forensic Community*. 2025;12(2):91–96.