

Original Research Article

Evaluation of the National Medical Commission-Mandated Family Adoption Programme as a community-based learning tool among second-professional MBBS students in central India: a cross-sectional study

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ABSTRACT

Background: Community-based medical education is widely recognized as a critical approach for enabling medical students to understand social determinants of health and primary healthcare delivery. In India, NMC introduced the FAP to integrate community-oriented experiential learning into undergraduate medical education while simultaneously addressing community health needs. The main objective of the programme was to encourage medical students to actively participate in community health and well-being and to provide real-world experience in dealing with socio-economic and health-related issues.

Methods: A cross-sectional descriptive study was conducted by the department of community medicine at a tertiary care medical college in central India during July 2024-September 2024. Seven villages were randomly selected under the family adoption programme. Anthropometric measurements, blood pressure assessment, hemoglobin estimation, and random blood sugar testing were performed following standard protocols.

Results: Out of 200 sanctioned MBBS seats, 188 students participated in the programme. A total of 563 households comprising 3,391 individuals were covered. High blood pressure was observed in 12.9 of men and 6.9 of women and high blood sugar was observed in 3.2 of them. At the age of less than five, a quarter of the children (29.4) was found to be shorter than ought to have been, and a fifth (20.7) of the weight. The prevalence of anemia was higher in the adult population (15-49 years old) where 60.0 per cent of women and 37.0 per cent of men were afflicted.

Conclusions: The family adoption programme informed numerous individuals in the society and provided the undergraduates of the medical fields with a practical learning opportunity.

Keywords: Community-based medical education; Community medicine, Family adoption programme, Health camps, Medical education

INTRODUCTION

Community-based medical education (CBME) is recognized as a significant method of aligning the medical school training to the health needs of the population and health system priorities globally. Out of hospital teaching

exposes medical students to issues surrounding the social aspects that influence health, community dynamics and prevention of illness in the actual situation through CBME. Research indicates that an experience in a community during early years leads students to think more clearly in a clinic, speak better with patients, experience more

empathy, and become responsible towards patients and communities.^{1,2}

The National Medical Commission (NMC) in India emphasizes the learning that is based on the actual abilities of the learner and emphasizes on community care. To reinforce this, it has embarked on family adoption programme (FAP). FAP works the medical students with families long periods in rural or under-served regions. Each student in the program will be assigned a specific number of families. The student uses relationships with them, examines their health requirements, provides them with basic prevention care, and learns how health is influenced by social and environmental factors.^{3,4}

A proposed implementation of integrating service learning with medical training as well as enhancing primary health care is the family adoption programme. According to recent research findings, such programs assist students to be more aware of the societal health issues, relate classroom experiences with actual employment, and acquire a feeling of duty to society. Besides that, CBME programs like FAP are used to detect the presence of signs of long-term diseases, nutritional issues, and the absence of health services in communities.⁵⁻⁸

Despite nationwide implementation of the family adoption programme, published evidence evaluating its operational coverage, health screening outcomes, and educational relevance remains limited, particularly from central India. Most available studies focus on perceptions of students and faculty, with fewer reports documenting community-level health indicators generated through FAP activities.^{4,6} Therefore, systematic evaluation of programme implementation and outcomes is necessary to inform policy refinement and strengthen the role of community-based learning in undergraduate medical education.

The present study was undertaken to evaluate the implementation of the National Medical Commission-mandated family adoption programme and to describe the demographic profile and selected health indicators of the adopted population in a central Indian setting.

Aims and objectives

The family adoption programme has been conceptualized as a key component of community-based medical education under the competency-based undergraduate curriculum in India, with an emphasis on experiential learning and social accountability of medical graduates.

Main objective

The main objective of the programme was to encourage medical students to actively participate in community health and well-being and to provide real-world experience in dealing with socio-economic and health-related issues.

Additional objectives

To facilitate early and sustained exposure of undergraduate medical students to community settings and primary healthcare delivery. To enable students to identify common public health problems, including nutritional deficiencies and non-communicable disease risk factors, among adopted families. To promote health awareness and preventive practices within the community through structured health education activities. To strengthen the understanding of medico-social determinants of health among undergraduate medical students through longitudinal family engagement.⁵

METHODS

Sample size

200 MBBS students were included in the study.

Study design

A community-based cross-sectional descriptive study was conducted to evaluate the implementation of the National Medical Commission-mandated family adoption programme (FAP). This design was chosen to document programme coverage, demographic characteristics, and selected health indicators among the adopted population at a defined point in time.⁹

Study Setting

The study was carried out under the department of community medicine at GR Medical College, Gwalior, Madhya Pradesh, a tertiary care teaching institution with designated rural field practice areas. The family adoption programme activities were implemented in villages attached to the medical college for community-based training of undergraduate students.²

Study period

The study was conducted over a period of three months, from July 2024 to September 2024, coinciding with the scheduled Family Adoption Programme activities for second-professional MBBS students (batch 2022).

Study population

The study population comprised families adopted under the family adoption programme by second-professional MBBS students. All individuals residing in the adopted households and present at the time of visit were eligible for inclusion in the study.

Sampling technique

Seven villages were selected using simple random sampling from the list of villages under the rural field practice area of the department of community medicine.

All households adopted by participating students in these villages were included in the study to ensure comprehensive programme evaluation.³

Inclusion criteria

All families formally adopted under the Family Adoption Programme. All household members present at the time of data collection. Individuals who provided written informed consent.

Exclusion criteria

Individuals unwilling to participate. Household members absent during the visit despite repeat attempts

Data collection tools and procedure

The standard family adoption programme form that was used by the National Medical Commission to gather data was used. Student doctors under the tutelage of faculty visited the homes of people and conducted health camps. They collected the data on the demographic information, family structure, socioeconomic status incident using the Modified BG Prasad Scale, and certain health indicators.⁴

We took the measurements of height, weight, waist and hip size using standard procedures. The calibration of blood pressure was performed using a calibrated cuff as per the guidelines. We did capillary or venous blood testing to examine the hemoglobin and the random blood sugar levels according to the usual safety regulations.¹⁰

Quality control

All the students were trained and offered instructions on how to do the data collection hence everyone would do it the same way. Field work was supervised as well as checked by the faculty and postgraduate residents and the data forms were ensured to be completed.

Ethical considerations

The institutional ethics committee of GR Gwalior Medical College gave us study approval. All participants who were adults were informed of their participation in writing, and where there were minors, the parent/guardians were informed, as per the ethical principles of medical research.¹¹

Statistical analysis

The data were inputted into Microsoft Excel and described by simple statistical means. The frequencies and percentages were used to describe the categorical variables. To simplify the results, we used tables and charts to present the results in an easier format. There were no inferential tests of statistics, since this study was primarily concerned with a description of the way the program was undertaken and the result thereof.

RESULTS

The family adoption programme was able to reach a large number of students, and 94.0% of them took part. Those villages were covered and 563 households that included 3,391 people were adopted. Since the parents and students are well connected, 260 people received the health services in the camps, and the percentage of them belonging to the adopted families was approximately two to every three. This demonstrates that the programme was effective and it assisted in engaging the community.

Table 1: Coverage and implementation of the family adoption programme.

Indicators	Number
Sanctioned MBBS seats (Batch 2022)	200
Students participated	188
Villages covered	7
Households adopted	563
Population covered	3,391
Health camps conducted	7
Beneficiaries attended	260
Beneficiaries from adopted households	172

Table 2: Demographic and family characteristics of the adopted population.

Variables	Number (%)
Sex	
Male	1,902 (56.1)
Female	1,489 (43.9)
Family type (households)	
Nuclear	232 (41.2)
Joint	331 (58.8)
Age group (years)	
<5	299 (8.8)
6-14	560 (16.5)
15-45	1,859 (54.8)
>45	673 (19.9)

A mixed population had been adopted where the majority of the population lived in joint families and most of them were working population. More than fifty percent of them were aged between 15 and 45, and this gave a chance to the students to observe people working and capable of forming families. Approximately, one quarter of them were kids or older individuals who require preventive and promotional services.

Distribution of households was even along all income levels; around half were in the middle and the lower-middle classes. This combination of income levels served to make students understand how disparities in income would impact health behavior, diseases, and access to medical care which aligns with the program objective of addressing the income-related health problems.

Table 3: Socioeconomic status of adopted households (modified BG Prasad Scale 2023).

Socioeconomic class	Households (%)
Upper	80 (14.2)
Upper middle	127 (22.6)
Middle	141 (25.0)
Lower middle	143 (25.4)
Lower	72 (12.8)
Total	563 (100)

Table 4: Nutritional status and anemia profile of the study population.

Indicators	Number (%)
Children under 5 years	
Stunted (height-for-age)	88 (29.43)
Wasted (weight-for-height)	28 (9.36)
Severely wasted	23 (7.69)
Underweight (weight-for-age)	62 (20.74)
Overweight	14 (4.68)
Adults	
Women with BMI<18.5 kg/m ²	126 (11.43)
Men with BMI<18.5 kg/m ²	96 (6.71)
Women overweight/obese (BMI≥25 kg/m ²)	284 (25.77)
Men overweight/obese (BMI≥25 kg/m ²)	376 (26.29)

The research discovered that a significant number of children below five years are not having adequate food. One in every three was stunted and one out of five was underweight. There was also observance of undernutrition, and overweight or obesity in adults, indicating that existence are two forms of malnutrition. There are existing species distinctions between women and men with regard to nutrition as women who bear children experience more pronounced anemia compared to men.

Table 5: Screening outcomes for non-communicable diseases and health system linkage.

Screening indicators	Number (%)
Blood Pressure (n=2,532)	
Raised blood pressure	169 (6.67)
Known hypertensives	124 (4.90)
Random Blood Sugar (n=228)	
Raised RBS	48 (21.05)
Known diabetics	40 (17.54)
Health System Linkage	
Population with ABHA ID (n=3,391)	166 (4.89)

*Among those screened

It was identified through screening that a considerable number of participants had high blood pressure and high random blood sugar, which indicated that the community at risk of developing non-communicable diseases exist. In

addition, not many individuals enrolled in Ayushman Bharat Health Account, which means there are issues with digital connection of health and population awareness.

DISCUSSION

The paper examined the process in which the family adoption programme (FAP) of the National Medical Commission was implemented and documented information of individuals that were adopted. We compared the findings with recent Indian research works that had conducted research on FAP, community-based medical education (CBME) and community health outcomes.

Programme implementation and student participation

In our research, 94 out of the total population of eligible MBBS students participated in FAP, taking 563 households and 3,391 individuals. This has been echoed by Yalamanchili et al who reported very high participation with more than 90 percent of undergraduate students at some of the Indian medical colleges involved.³ Similarly, Landge et al also had achieved positive implementation with nearly all students who participated in Phase I MBBS training.⁵ The combination of these results indicates that FAP can be successfully integrated into undergraduate medical programs and it is well received.

Demographic and socioeconomic profile

The number of joint families in this study, 58.8% is comparable to the 55-62 rate of joint families in the community surveys by Rashmi and Kumar.⁴ Most of the individuals were aged 15-45 years with an average age of 54.8 per cent which is equal to the 52-57 per cent of age in recent community training studies.

Socioeconomic assessment revealed that 50.4% of households belonged to middle and lower-middle classes, closely aligning with findings by Kulkarni et al, where approximately 48-53% of families fell within similar socioeconomic strata.² This socioeconomic heterogeneity enhances student exposure to varied determinants of health, fulfilling a core objective of FAP.

Nutritional status and anemia

The prevalence of stunting (29.4%) and underweight (20.7%) among children under five years in the present study is comparable to rates reported by Bhattacharya et al, who observed stunting in 31.2% and underweight in 22.1% of under-five children in rural India.¹⁴ Ranjan et al also reported stunting prevalence ranging from 28% to 35% in similar community settings.¹⁵

Anemia among women aged 15-49 years was observed in 60.0% of participants, closely matching the 58-62% prevalence reported by Bansal et al in rural adult women.¹⁶ Anemia among men (36.9%) was also comparable to

reported prevalence of 34-38% in recent community-based studies. These resemblances indicate that the selected population is comparable to broader rural health trends, which demonstrates that FAP-grounded measurements are depictive.

Non-communicable disease risk factors

Other 6.7 people that were checked in this study had High blood pressure. The rate corresponds to 6-9 percent in other rural researches carried out by Gothankar et al.⁷ It had high random blood sugar in 21.1 percent of individuals checked and that is comparable to 18 to 24 percent by Sathish and others in rural community checks. These findings indicate that the risk of non-communicable diseases is also increasing in the rural setting, and they emphasize the role of early detection in terms of utilization in the community-level, such as FAP.

Health system linkage and digital health

The participants of this study who became sign-up members of the Ayushman Bharat Health Account (ABHA) are only 4.9% of the total population. This low number is comparable to the 5-8 percent enrolment specified by Bhatia et al in rural India, indicating that the issues of awareness and overall access to the internet remain.¹⁹ An additional activity of digital health enrollment during the FAP activities may make health-systems connections more robust and enable students to become familiar with national digital health programs.

Overall interpretation

On the whole, the magnitude and trends of the health indicators observed in the given study are generally consistent with the recent Indian studies. The fact that the prevalence rates in most of the regions are so close indicate that the family adoption programme is a reliable community health assessment and also achieves its primary purpose of providing undergraduate medical learners with real and community-based learning.

Strengths of this study are: large community coverage across seven villages with high student participation. Direct, real-world exposure of medical students to community health and socio-economic determinants. Use of standardized National Medical Commission-prescribed tools for data collection.

Limitations of this study are: cross-sectional design limits causal interpretation. Single-center study with limited generalizability. Reliance on summarized screening data restricted advanced statistical analysis.

CONCLUSION

The family adoption programme assisted the medical students in learning the real life experiences within communities. It enabled them to identify at the early stage

such issues as deficiencies in nutrients, anemia, and predispositions on chronic diseases. The practice of basic health care and proper medical training can be enhanced by supporting such programmes to be more accountable to the society.

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