Original Article

The socio-demographic profile of family physician graduates of blended-learning courses in India

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Abstract

Context: India's lean cadre of 250,000 general practitioners and 30,000 government doctors has limited options to update themselves. Since 2006, Christian Medical College (CMC) Vellore has run blended-learning programs in family medicine, namely, postgraduate diploma in family medicine (PGDFM) and master in medicine in family medicine (M.MED FM) training more than 3000 doctors. A graduate follow-up study was undertaken in 2022. **Aim:** The aim of the study was to describe the socio-demographic characteristics of family physicians (FPs) in India who graduated between 2008 and 2018 from the FM blended-learning programs run by the CMC, Vellore. **Settings and Design:** Informed by an empirical-analytic paradigm, this descriptive study used a cross-sectional survey design to uncover graduate FPs' profiles, practices and experiences. **Methods and Materials:** Using a purposively designed, piloted and validated electronic questionnaire, data were collected between March and July 2022, deidentified and analysed using Statistical Package for Social Sciences (SPSS)™ and Epi Info™. **Results:** Among the 438 FP respondents (36%), there was an almost even split in gender (49.3% male, 50.7% female). Moreover, 25.8% were below the age of 40 years, 37.4% were in the 40–49 age group, and 33.8% were 50 years of age or older; 86% lived and worked in urban areas. The PGDFM or M.MED FM was the highest educational qualification of 64.4% of the doctors. Male FPs pursued postgraduate studies at a significantly younger age and earned significantly more than their female counterparts. **Conclusions:** The blended learning model creates an important pathway for doctors, especially women, to pursue higher education with flexibility. Preferential selection criteria can target rural-based physicians. Strong policy-level advocacy is needed to establish FM as a specialty with equitable pay scales. Socio-demographic profiling can be used as an effective advocacy tool.

Keywords: General practice, graduate follow-up, family medicine, family physician education

Introduction

India's 1.4 billion strong population presents huge healthcare needs. Presently, approximately 250,000 general practitioners[1] and 30,000[2] government doctors are an essential but lean component of the country's healthcare workforce. The general shortage of healthcare providers is compounded by a number of organisational and capacity development issues in the healthcare system, and these make the already difficult task of being able to meet the needs of India's 1.4 billion population even harder. India has historically experienced a significant urban-rural skew in healthcare provider distribution. According to the World Health Organisation (WHO), 80% of doctors are concentrated in urban areas, where fewer than 35% of the population lives.[3,4] There are also structural and systemic gender inequalities in employment, pay and education in India. According to the International Labour Organisation, women in healthcare earn 34% less than their male counterparts, a gender differential in income that is greater than the 28% global average.[5] Due to societal expectations and traditional gender roles, women doctors in India also often face

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obstacles in pursuing postgraduate education or specialised training and maintaining a work-life balance. The healthcare workforce in general is further compromised by inadequacies in professional training, especially the lack of structured continuous education that negatively impacts levels of competence.[6,7] Together, these structural and systemic factors compound one another to play out as compromised and inadequate services that add to the public and private cost burden of healthcare, patient and provider dissatisfaction and India's dismal health indices.[8,9] The weight of this dysfunctional reality is disproportionately borne by middle-income, marginal and poor individuals, families and communities.

To bridge some of these gaps in the Indian healthcare system, one possible solution was to create a large contingent of multi-competent specialist family physicians (FPs) to support quality primary healthcare.[10,11] In 2006, the Distance Education unit at the Christian Medical College (CMC) Vellore took up this challenge and started a 2-year blended learning diploma programme to equip FPs to provide a single-window, ethical, patient-centred, wholistic healthcare service.[12] Although not the first family medicine programme in India, the 'postgraduate diploma in family medicine (PGDFM)' provided a practical pathway for GPs and doctors to update their professional qualifications without having to commit to 3-year residential postgraduate studies. Recognition of this diploma by the Medical University, Tamil Nadu, India, in 2012 led to the introduction of the 'master in medicine in family medicine (M.MED FM)'. Together, they laid the foundation of family medicine in India. Between 2006 and 2016, these programmes enrolled and trained some 3000 private practitioners and 250 government doctors as FPs. And with this initiative, the value of upskilling doctors through education and training also became more visible to the government.[13]

Although awareness of family medicine has grown among policymakers, the medical fraternity, and the general population at large, it is known that FPs have found it difficult to apply their generalist and inclusive principles in India's strong, specialist-driven medical culture.[14] There is therefore a need to develop a better understanding of family medicine as a discipline. One way to do this is through insight into the contribution that the qualification makes to FPs working lives, practices and professional developmental needs.

Globally, graduate follow-up surveys are integral to monitoring and evaluating higher education system performance.[15–17] They are particularly important in health and other professional education as they provide information on the contribution of qualifications to graduate professional life. They also inform curricular modifications so that intended or desired educational and practice outcomes are achieved. Aside from anecdotal feedback from students on their experiences with and the impact of FM programmes in their professional lives, research in India on the subject is limited to a 2013 demographic study of enrolled students in PGDFM and M.MED FM.[18] To address this dearth in knowledge, a study was undertaken in 2022 to systematically assess FP graduate distribution, experiences of practice, roles in the national health system and professional development needs. The results presented here draw from this study.

Aim

The aim of this paper was to describe the socio-demographic characteristics of FP graduates in India. Data are drawn from the study entitled, "The demographic characteristics, practice experiences, roles and development needs of FPs who graduated between 2008 and 2018 from the Family Medicine Blended Learning 2 Year Diploma run by the CMC, Vellore, India".

Materials and Methods

Data are drawn from a cross-sectional survey of doctors trained through blended-learning diploma programmes in family medicine. A formal IRB and ethical clearance were obtained for both organisations involved. All FP graduates who completed the diploma programmes between 2008 and 2018 were invited to participate in the study and were provided information about the nature, purpose, risks and benefits of the research. Graduates were motivated to participate in the study by email, phone calls and messaging, as well as the offer of a set of free professional development materials as an incentive for the completion of the questionnaire. Participation was voluntary and consent was signed by the participants electronically. Using a purposively designed, piloted and validated electronic questionnaire, data were collected between March 2022 and July 2022. They were deidentified and anonymised. Descriptive statistics for the data presented here were generated using Statistical Package for Social Sciences (SPSS) ™ and Epi Info™ and analysed through an empirical analytic paradigm, 438 respondents completed the questionnaire. They constitute 36% of the 1213 FP graduate population.

Results

Four hundred and thirty-eight respondents completed the questionnaire. They constitute 36% of the 1213 FP graduate population.

Moreover, 55.7% (n = 236) of respondents had a PGDFM and 44.3% (n = 194) had a university-approved M.MED FM. Both qualifications are 2-year blended learning courses offered by CMC Vellore and follow the same curriculum. The State Medical University of Tamil Nadu has an additional certificate for graduates domiciled in Tamil Nadu.

Demographic profile

Table 1 shows the demographic profile of the study participants.

Moreover, 49.3% self-reported their gender as male and 50.7% as female (n = 216 and, n = 222, respectively). In terms of their age, 25.8% (n = 113) were above 29 and below the age of 40,

Table 1: Demographic profile of the study participants

Demographic characteristic	*n*	%
Gender		
Male	216	49.3
Female	222	50.7
Age		
50 and above	148	33.8
40–49	164	40.4
29–39	113	25.8
Marital status		
Single	26	5.9
Married	391	89.3
Divorced/separated	9	2.1
Undisclosed	12	2.7
Religion		
Hinduism	213	48.6
Christianity	147	33.6
Islam	39	8.9
Jainism	3	0.7
Buddhism	2	0.5
Sikhism	5	1.1
Other	5	1.1
None	12	2.7
Undisclosed	12	2.7
Nationality		
Indian	419	33.8
Non-resident Indian (NRI)	15	40.4
Foreign national	4	25.8

40.4% (n = 164) were in the 40–49 years of age group, and a little over a third (33.8%, n = 148) were 50 or older. Most respondents were married (n = 291, 89.3%), with 8% being single (n = 26) and divorced or separated (n = 9).

Table 2 sets out the association between FP gender and age.

Although proportionally more FPs were middle-aged (40–49 years of age), there is a significant gender difference among younger and older graduates. Proportionally more male graduates were below 40, while more female graduates were older (50 years and older).

The majority of respondents were married (89.3%), with only 5.9% of them being single, and 2.1% being divorced or separated.

Geographical distribution

Figure 1 portrays the geographical distribution of the FPs.

Among graduates, nearly all (n = 419, 95.7%) are Indian citizens, 3.4% (n = 15) are non-resident Indians (NRI), and only four (0.9%) are foreign nationals. In terms of geographic location, most (n = 377, 86%) live and work in urban areas. Over half (n = 252, 57.5%) are located in cities, 28.5% (n = 125) are in towns, while only 13.9% (n = 61) are in villages. In terms of national distribution, over half the graduates work in the south zone of India (n = 237,54.1%).

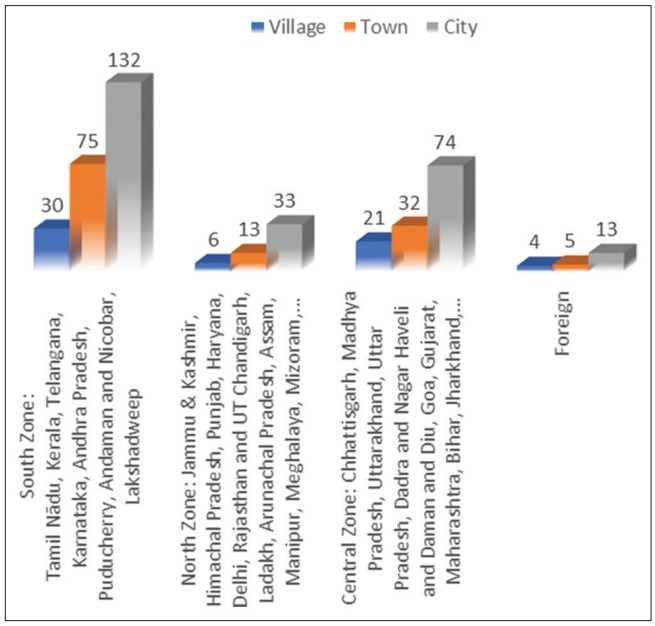

Figure 1: Geographical distribution of the FPs

Qualification

The PGDFM or M.MED FM is the highest educational qualification of nearly two-thirds of the doctors (n = 275, 64.5%). The remainder mostly have other postgraduate diplomas or master's degrees (n = 151, 35.5%), while five have doctorates and two are superspecialists.

Table 3 sets out the association between FP gender and age.

There is a statistically significant gender difference in level of education among FP graduates (*P* value = 0.007). The blended learning diploma of PGDFM/M.MED FM was the highest educational qualification for 68.5% (n = 147) of female and 60.6% (n = 128) of male graduates. Of the FPs with postgraduate qualifications additional to those in FM, fewer females than male FPs had any other postgraduate or master's qualifications (n = 48, 22.3% F; n = 66, 31.3% M) and none had doctorates or super specialisations.

Economic status

Table 4 sets out the association between FP annual income and selected FP demographic characteristics.

The data show that almost three-quarters of FP graduates (74.1% total; 64.8% male; 83.5% female) earned less than 14 lakhs per annum, with a large proportion among this group (38%) earning under seven lakhs per annum. A fifth (n = 81, 20.8%) earned between 14 and 35 lakhs and 5% (n = 20, 5.1%) earned above 35 lakhs a year.

The study found a statistically significant relationship (*P* value 0.000) between gender and FP graduate annual income. Among those at the bottom end of the income spectrum, almost

2/5th (n = 71, 37%) of female but only 1/5th (n = 40, 20%) of male FPs earned less than seven lakh rupees. At the top extreme, only 5 (3.5%) females compared to 15 (n = 15, 16.8%) male FPs earn above 35 lakhs.

There was no statistically significant association between annual income level and age, place of work or geographical location. This, however, may be an artefact of the small number of high-end earners who mostly live in cities (75%), in the south and central zones or abroad.

Discussion

The demographic and personal profile data of the surveyed FP graduates has given us insights into the following:

Gender-related issues

The almost even split between female and male FPs in this study is similar to the demographic study done in 2013[18] and reflects student enrollment characteristics in the FM blended learning courses. As in several other countries, FM is one of the specialties where there is a significant proportion of female residents.[19,20] Although this study did not examine respondents reasons for choosing the specialisation, research elsewhere has found that specialisation choices are influenced by personal background and place of origin, curriculum and medical school culture, lifestyle, work-life balance and disciplinary interest.[21] The fact that more female doctors take up FM could be associated with several factors. These include that CMC started as a women's medical college and always prioritises women in selection for various courses as well as personal preferences for the patient experience, the learning environment and the relational elements of FM and discouragement from or avoidance of male-dominated specialties.

The study's finding that male FPs pursue postgraduate studies at a younger age than their female counterparts likely reflects gendered domestic and social responsibilities that disproportionately place the burden of care on women, even in professional households.[22,23] Due to various factors, women doctors in India often face obstacles in pursuing postgraduate education and specialized training or maintaining a work-life balance.[22] Tlaiss *et al*.[24] attribute these to social determinants that, at the macro-level, involve socio-cultural factors such as patriarchy, gender roles and societal expectations. At the meso-level, they point to organisational factors where female development and progress are hampered by gender discrimination in the workplace as well as the absence of family-friendly policies. And at the micro-level, individual factors that include personal choices around child rearing and care, as well as domestic responsibilities influence their ability to meet shift and on-call demands and take initiatives to advance in their careers.[25]

The results of this study suggest that continuing professional development and gaining new qualifications are easier for female doctors to achieve when learning is delivered in a way that allows them to continue with domestic, social and work responsibilities while learning. This is the case in many countries, especially low- and middle-income countries (LMICs).[26]

FP distribution-related issues

Across the globe (Lancet, WHO), the absolute shortage of primary care and other physicians relative to population is compounded by drivers of geosocial maldistribution that lead to clinician concentration in urban and richer regions within and between countries.[3,27]

In India, 80% of doctors and 67% of all healthcare workers are concentrated in urban areas, where about a third of the population lives.[4,28] Also, the poorer areas of northern and central India have lower densities of health workers compared to the southern states.[29]

Various strategies to improve equity to bring about redress have been recommended (WHO, RACGP). Among others, these include financial incentivization, preferential admission and targeted selection from underserved and underrepresented

Table 2: Association between gender and age

Gender	Age			Total
	50 and older	40–49	29–39	
Male	58	86	64	208
	27.9%	41.3%	30.8%	100%
Female	90	78	42	210
	42.9%	37.1%	20.0%	100%
Total	148	164	106	418
	35.4%	39.2%	25.4%	100%

Chi-square value=11.866[a]. significant at 5% level and at 2 df

Table 3: Association between gender and education

Gender	Highest level of education					Total
	Postgraduate education – PG diploma(including PGDFM/M.MED FM)	Postgraduate education – diploma (DGO/DCH etc.)	Postgraduate education – masters degree (MD/MS, etc.)	Postgraduate education – superspecialist degree (MCh)	Postgraduate education – doctoral degree (PhD)	
Male	128	10	66	2	5	211
	60.6%	4.7%	31.3%	0.9%	2.4%	100%
Female	147	20	48	0	0	215
	68.5%	9.3%	22.3%	0.%	0%	100%
Total	275	30	114	2	5	426
	64.5%	7.0%	26.8%	0.5%	1.2%	100%

Table 4: Association between annual income and selected demographic characteristics

Demographic variable	Annual income							
	<$10,000 (<7 lakh rupees) (*n*=111)		$10,001-$19,999 (7-<14 lakh rupees) (*n*=178)		$20,000-$49,999 (14-<35 lakh rupees) (*n*=81)		$50,000 or more (35 lakh rupees or more) (*n*=20)	
	n	%	*n*	%	*n*	%	*n*	%
Gender								
Male	40	20.4	87	44.4	54	27.6	15	7.6
Female	71	36.6	91	46.9	27	13.9	5	2.5
Age								
>50 years	47	12.7	52	13.3	33	8.5	7	1.8
40–49 years	32	8.2	76	19.5	33	8.5	10	2.6
25–39 years	32	8.2	50	12.8	15	3.8	3	0.8
Place of work								
Village	15	3.8	29	7.4	12	3.1	1	0.3
Town	31	7.9	55	14.1	23	5.9	4	1.0
City	65	16.7	94	24.1	46	11.8	15	3.8
Geographic distribution								
South zone	72	18.5	97	24.9	31	7.9	7	1.8
Central zone	27	6.9	54	13.8	30	7.7	7	1.8
North zone (including north east)	9	2.3	26	6.7	14	3.6	1	0.3
Foreign	3	0.8	1	0.3	6	1.5	5	1.3

communities as well as undergraduate and postgraduate training designed to routinely include practice in remote, rural and underserved communities.[30] In CMC Vellore, preferential admission scoring, financial assistance offered to those working in areas of need, and the setting up of learning centres closer to their homes have helped recruit FPs in rural and remote areas. This said, more needs to be done, including the need for educators and policymakers to take account of social identity, cultural preferences, and the personal motivations of FPs.[31]

FP income-related issues

Consistent with other Indian pay-scale sites, the data from this study show that the average FP annual income is less than 14 lakhs per annum (<$20,000), and a significant proportion of these professionals (38%) earn under seven lakhs per annum (<$10,000).[32,33] This is significantly less than their USA and other high-income country (HIC) FP counterparts, where the median annual income is between $200,000 and $249,999. (ABFM: National Graduate Survey, 2022).[34,35] It is also among the lowest among other specialisations in India, Australia, South Africa and elsewhere.[36] According to the Physician Compensatory Report 2023, for example, even in HICs like the USA, FM is among the 20 specialties with the lowest average annual compensation.[37]

The creation of a cadre post for FPs is essential to establishing family medicine as a specialisation supporting primary healthcare.[38] Yet, as in many LMICs, there are no FP posts in the Indian Public Health System many LMICs.[39,40] During residential training and in multi-specialty private hospitals, they are often used as cheap labour[41] in any area of need as FPs can manage a wide variety of things. Although some try to start solo or group practices to counter this situation, this approach comes with its challenges due, amongst other things, to the lack of regulatory guidelines for FM, a lack of understanding of the specialisation, commercial pressures of running practices, an inability to ensure consistency in services, and a lack of integration into government services.[42]

The study finding that women FPs earn significantly less than their male counterparts confirms gender payment discrepancies among professionals within disciplines. Although this differential may, in part, be attributed to them working fewer hours, it is unlikely to be the primary driver for their income inequality and is something that needs further investigation and policy-level interventions.[43]

Conclusion, Recommendations and Limitations

- The blended learning model creates an important pathway for the pursuit of specialisation, higher education qualifications and professional development for clinicians working in the primary care sector who are unable to pursue full-time studies for both economic and social reasons. The study found that this was especially the case for female doctors.
- Income levels reported in the study found that most FM graduates earn between seven and 14 lakhs per annum. This is low both in absolute and relative terms when compared to other professionals and other clinical specialisations, respectively. In addition, the study confirms that the gender disparities ubiquitous among professionals and workers in the healthcare sector and beyond, extends to FM, with significantly more female than male FPs reporting incomes of less than seven lakhs per annum.
- As of 2013, this study found that FMs in India are concentrated in urban areas and in the better-developed south zone. This gap can be addressed in several ways by the programme, including by developing information dissemination pathways and by applying preferential selection criteria to target physicians in rural and remote areas. Also, because the

lifeworld is different in rural and remote areas, research is needed to better understand the programmatic support required by local doctors to pursue FM as a specialisation and to assist qualified FPs to practice in their communities.
- This socio-demographic and personal profiling of FP graduates can be used as an effective advocacy tool to influence relevant stakeholders to promote the much-needed specialty of family medicine in India.

The limitations of this study are as follows: 1) This was a cross-sectional study. As a snap shot in time, it does not lend itself to analysis of behaviour over time or causal relationships. 2) The data are based on self-reporting. 3) The survey had a reasonable but low response rate due to the study being done during the coronavirus disease 2019 (COVID-19) pandemic, difficulty in tracing all FP graduates and absence of external compulsion to drive graduates to complete the survey. 4) As an electronically administered survey, the response rate may also have been affected by IT and connectivity issues. 5) This was a population study. Although all eligible graduates were invited to participate, not all did so. The findings therefore may reflect biases and may not be generalisable to the total population, as sampling was not random.

List of abbreviations

Abbreviation	Definition
FP	Family physician
FM	Family medicine
CMC	Christian Medical College
PGDFM	Postgraduate diploma in family medicine
M.MED FM	Master in medicine in family medicine
IPGDFM	International postgraduate diploma in family medicine
HIC	High-income countries
LMIC	Low- and middle-income countries
NHSRC	National Health Systems Resource Centre
AFPI	Academy of Family Physicians of India
CPD	Continuous professional development
CME	Continuing medical education
FDP	Faculty development program
PHC	Primary health centre
CHC	Community health centre
DNB	Diplomate in National Board

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Prof. Jannie Hugo, Head of the Department of Family Medicine, University of Pretoria	Facilitated the study through permissions and approvals
Dr. Frikkie Kellerman, Faculty, Dept. of Distance Education, Christian Medical College, Vellore	Academic support
Dr. Summa Joy, Faculty, Dept. of Distance Education, Christian Medical College, Vellore	Academic support
Dr. Evangeline Grace	Statistical support
Distance education IT/admin team	Participant management

Ethical policy and institutional review board statement

A formal IRB and ethical clearance were obtained in both organisations: Christian Medical College, Vellore, India (IRB NO: 11127) and the University of Pretoria (NO: 54/2021).

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Conflicts of interest

There are no conflicts of interest.

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