

## Five Years Of Family Medicine Undergraduate Education In Ghana: A Wake-Up Call!

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### SUMMARY

**Objectives:** Given the introduction in 2008 of undergraduate family medicine in the University of Ghana, the study aimed to identify the perceptions of medical students in Ghana about family medicine with regard to knowledge and relevance as well as specialty preferences.

**Design:** A cross-sectional survey

**Method:** Investigators conducted yearly surveys of first clinical year students at the University of Ghana School of Medicine and Dentistry over a 5-year period (2008-2012) using a semi-structured questionnaire. Data was analysed using the first class group as baseline for comparison.

**Main outcome measures:** Trends in respondents' awareness of different aspects of family medicine, their attitudes towards the specialty and their expressed preference or lack of preference for family medicine as a potential specialty for themselves.

**Results:** Over the five-year period, 748 of 893 eligible first year students participated which comprised 84% of students. Awareness of family medicine as a medical specialty remained high but insignificantly declined over the period of study (88% to 80%,  $p=0.058$ ). Preference for family medicine as career choice remained low at 4%, but an increase from 2% baseline though insignificant ( $p=0.397$ ). The primary reason for not listing family medicine as career choice was unfamiliarity with the specialty (80%).

**Conclusion:** Although awareness of family medicine among medical students in Ghana remains relatively high, their knowledge is insufficient to influence their career decisions for family medicine. This is a wake-up call!

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**Keywords:** education, family medicine, Ghana, primary care, undergraduate

### INTRODUCTION

The factors affecting the choice of family medicine by medical students for specialty training has been a subject of much study for over a decade.<sup>1,2,3</sup> There has been great interest in this topic given a clear need globally to expand primary care services.<sup>4,5,6</sup> However, both previous and current studies indicate a declining interest in family medicine and other primary care specialties in most industrialised countries.<sup>1-3,7</sup> Various reasons have been adduced to the decline including negative comments by other specialists about family medicine, the

perceived relative lack of prestige of the specialty, inadequate remuneration relative to workload, and delayed recognition and support by medical schools and health care systems.<sup>8,9</sup> The survival and growth of the specialty, however, depends to a large extent on a vibrant undergraduate programme. Studies have shown that early exposure of medical students to a family medicine programme or some form of physician contact is associated with increased knowledge and positive attitudes towards family medicine in the short term.<sup>10-16</sup>

Family medicine residency programme was introduced in Ghana in the early 1990s. Given the importance of understanding the role of family medicine and its contribution to health systems and primary care, a pilot programme was developed in 2008 for undergraduate medical students of the University of Ghana School of Medicine and Dentistry (UGSMD), previously known as University of Ghana Medical School (UGMS).<sup>17</sup> The UGSMD is the premier medical school and one of four medical schools in Ghana. The family medicine programme consists of about fifteen hours of didactic lectures and a seminar in the first clinical year (level 400). The goal was to improve the knowledge of medical students about the discipline of family medicine over time and hopefully increase support and interest in the specialty. The discipline operates as a unit of the department of community health.

Early findings from just the first year ('Class of 2010') indicated a high level of awareness about family medicine but few students who wanted to choose it as a specialty because of inadequate understanding. This was published in a peer-reviewed journal.<sup>18</sup> Student surveys were continued annually since 2010 to observe longitudinal trends, with a focus on student knowledge of the specialty, attitudes, and preferences for specialty training. This constituted the aim of the study.

## METHODS

### Study population

First clinical year students (level 400) of UGSMD, Korle-Bu, Accra were surveyed annually from 2008-2012. The students were designated as 'Class of 2010' up to 'Class of 2014' according to their respective years of graduating from medical school; for example, data for the graduating 'Class of 2010' was collected in 2008 in the students' first clinical year. In 2009, the school began a 4-year Graduate Entry Medical Programme (GEMP) for students who already hold a bachelor's degree to run parallel to the existing traditional 6-year medical training programme.

The two streams are combined during the clinical years. The subjects in classes of 2010, 2011, and 2012, therefore, consisted of only students in the traditional programme while the classes of 2013 and 2014 also included students from GEMP. Information on the population of each class was obtained from the Academic Affairs Office, UGSMD.

### Design and setting

This was a cross-sectional survey. All students who were present in class on the day of the study and agreed to participate in the study were surveyed.

Students were under no obligation to complete the study if they did not want to, and they were assured that neither participation nor abstention from the study would affect their status. The study was approved by the Ethical and Protocol Review Committee of the University of Ghana Medical School. At the time of the survey, the students had had no formal exposure to family medicine in the medical school.

### Data collection

Participants were interviewed using an anonymous (coded) semi-structured questionnaire assessing socio-demographic characteristics, aspects of their awareness of family medicine, attitudes towards the practice of family medicine and issues related to training and specialty choices.

The test items were essentially the same across the years except for the classes of 2013 and 2014 which had an expanded section on demographics and multiple responses to one item on specialty choice influences. It took an average of fifteen minutes to complete the questionnaire. The questionnaire was pre-tested among volunteers in the final year of medical school to ascertain the consistency of answers given for each test item.

Questionnaires were administered fifteen minutes before the first lecture in family medicine was delivered in class. To maintain anonymity, students were not asked to disclose their identity. There was no incentive for participation.

### Statistical Analysis

The data for each year was entered by a statistician into MS Access (versions 2007, 2010). Data was cleaned by two of the investigators including the principal investigator and analysed with Stata 13.1 (College Station, TX). Characteristics of study population and questions on awareness, attitudes and specialty preferences were analysed by summary statistics.

Data from 2010 was used as the baseline to compare with data from 2011-2014 and bivariate analysis was performed using chi-squared and Fisher's Exact tests. We also performed multivariate logistic regression to evaluate the impact of demographic variables (age, gender and nationality), programme type, and awareness of family medicine on specialty choice. Confidence intervals were reported at 95% and significant associations were depicted by a p value less or equal to 0.05.

**RESULTS**

**Demographics**

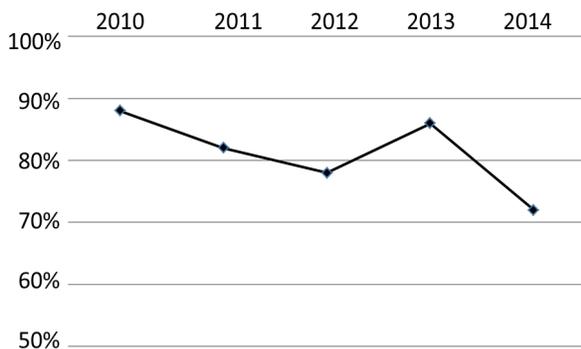
Seven hundred and forty-eight students were interviewed over the study period of five years out of a total population of 893 students at the school, covering 84% of the eligible population. Detailed demographic characteristics of respondents were collected for the 2013 and 2014 classes only and are shown in Table 1.

**Table 1** Characteristics of respondents (for classes of 2013 and 2014, except otherwise indicated)

Characteristic	Number (n)	Percentage (%)
Age in years: (Mean, SD)	23±2.0	-
Sex:*		
Male	163	54
Female	141	46
Nationality:		
Ghanaian	276	88
Non-Ghanaian	36	12
Type of programme:		
Traditional	228	73
GEMP	84	27
Participating students / class size (all years):		
Class 2010	92 / 152	61
Class 2011	177 / 194	91
Class 2012	167 / 180	93
Class 2013	156 / 179	87
Class 2014	156 / 188	83
<b>Total</b>	<b>748 / 893</b>	<b>84</b>

\*Some responses were missing.

The male: female ratio was 1.2: 1 and the ages ranged from 19 to 39 years with 23 years as the mean age. Ghanaian students and those pursuing the traditional programme were in the majority. For all demographic variables there was less than 4% missing data.



**Figure 1** Awareness of family medicine, by class year

**Awareness and attitudes**

Levels of awareness of family medicine were relatively high over all five years, although there was a general downward trend over the period except for the class of

2013 (Figure 1). The overall change, however, was not significant (p=0.058).

Table 2 compares responses of the combined classes of 2011-14 with 2010 as baseline. The combined classes showed a significant change in the sources of awareness (p<0.0005).

**Table 2** Awareness and attitudes about family medicine for combined classes (2011-2014) compared to class of 2010 as baseline.

Response	2010	2011-2014	p-value
Aware of family medicine	81 (88%)	523 (80%)	0.058
Source of information (n=552)			
Friends, colleagues and relations	21 (27%)	175 (37%)	<0.0005
Preclinical training / university	17 (22%)	98 (21%)	
Private reading / internet	17 (22%)	168 (35%)	
Other sources*	22 (29%)	34 (7%)	
Aware family medicine can be practised in both public and private settings (n=718)	83 (91%)	564 (90%)	0.397
Aware family physician focuses on both individuals and families (n=402)†	66 (73%)	214 (69%)	0.903
Agree/Strongly agree family physician can provide 85-95% of medical care (n=400)‡	49 (54%)	211 (68%)	<0.0005
Agree/Strongly agree family physician will significantly reduce costs and improve health care delivery°	71 (80%)	261 (80%)	0.776

\*Includes 13% who attended promotional seminars in 2010. †Compares 2010 to 2013/2014 only (question not asked in 2011 and 2012). °Compares 2010 to 2011/2012 only (question not asked in 2013 and 2014).

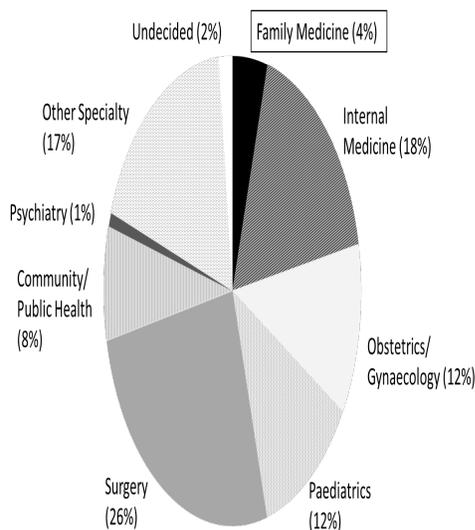
Excluding “other sources” of information, friends, colleagues and relations continued to serve as the highest source of information for the students in both groups with the combined classes showing an increase. Unlike in 2010, however, private reading/internet was rated higher than preclinical/university in the later years.

In comparison to the class of 2010, the combined classes reported less awareness of family medicine as a medical specialty, reduced awareness of practice locations of family physicians, and reduced awareness of target clientele for family physicians. However, in the later years, there was significant increase in the level of agreement about the family physician’s ability to provide total care for 85% - 95% of the population.

**Preference for family medicine as a specialty**

Figure 2 presents the overall specialty preferences for the five combined classes. Except for psychiatry (1%),

family medicine was the least preferred (4%). Personal interest was cited as the greatest factor influencing specialty preference (87%). Overall, the intent to choose family medicine was not impacted by age, nationality, gender, awareness of the specialty, or type of programme (traditional versus GEMP).



**Figure 2** Overall specialty preferences of medical students (2010-2014)

The most common reason individuals gave for not listing family medicine as their specialty choice was being unfamiliar with the specialty (80%), followed by the wide breadth of knowledge of the specialty (8%), and lack of interest (6%).

When divided into two time periods, 2010 versus 2011-2014, we noted the following findings in bivariate analysis: Compared to 2010, students in the later years were more likely to express intent to choose family medicine (2% versus 4%) but this difference was not statistically significant ( $p=0.397$ ). Compared with 2010, students in the later years were also less likely to report that the primary reason they would not choose family medicine was due to the wide breadth of knowledge (15% versus 6%,  $p=0.001$ ) and more likely to report they would not choose family medicine due to lack of interest (0% versus 7%,  $p=0.02$ ).

## DISCUSSION

In this study, we investigated the perceptions of medical students introduced to family medicine for the first time in the University of Ghana School of Medicine and Dentistry over a period of five years. The demographics of the study population were comparable to the class demographics of first clinical year students obtained

from the medical school administration over the five year study period suggesting that our findings were representative of the overall population.

Although awareness of family medicine as a medical specialty remained high for all the classes, there was a general downward trend over the period as seen in figure 1. Insignificant as the trend may seem, it could be an early warning sign about the decreasing availability of information on the specialty at the preclinical level. The surge in awareness of the class of 2013 was surprising and could not be explained by any changes in the family medicine curriculum.

Awareness of family medicine as a medical specialty did not translate into a significant choice of the specialty as a future career although we noticed some increase in preference in the latter years. The major reason for not choosing family medicine was inadequate knowledge about the specialty at the preclinical level.

In general, there were significant differences in the sources of information about family medicine. The difference in the source of information did not appear to be attributed to university sources but increasingly from acquaintances and personal reading. This gives credence to the earlier observation of the general downward trend in awareness of family medicine at the preclinical level.

Furthermore, in 2010, seminars organized by the faculty to promote the specialty to undergraduates and medical officers constituted a significant proportion of “other sources” (13%). These seminars were however discontinued in subsequent years for logistics reasons resulting in the sharp fall in the “other sources” category. Our findings compare somewhat with findings in the literature. In a study in Greece students rated acquaintances (i.e. colleagues, parents, relatives) as their highest source of information (83%) but rated University, and personal reading (medical journals, the internet) very low (8% and 7%).<sup>2</sup>

The study did note an increase in agreement about the family physician’s ability to provide most of his client’s medical care which is a welcome endorsement of the vital role the family physician is expected to play in health delivery especially primary care<sup>4-6,19</sup>

Preference for family medicine generally continued to be very low compared to more established specialties although there were modest but insignificant gains. Unfamiliarity with the specialty was the most pronounced reason given for not planning to choose family medicine and this did not change across the time period.

The wide breadth of knowledge as a factor for rejecting family medicine became less significant in the latter years while a lack of interest gained significance in the latter years.

As indicated earlier, the literature is resplendent with recommendations on ways to create sustained interest in family medicine among medical students. In the early stage of medical education, exposure through programmes such as an introductory course or contact with family physicians whether in academia or in practice, have been shown to have a positive influence on attitudes of students in the short term.<sup>12,20,21</sup>

During the clinical years, a defined curriculum or course in family medicine, an elective course in the final year, utilization of variety of learning and teaching activities, role modelling by family physician faculty, the concept of multiple mentorship (i.e. access to different mentors by a mentee), and being valued by preceptors have had positive influence on career decisions in family medicine and primary care.<sup>3,10,11,13,15,22,23</sup> The impact of some of these exposures on family medicine and primary care career decisions, however, needs further evaluation.<sup>12-14,16</sup>

The challenges encountered by family medicine at the University of Ghana, may explain some of the findings in our study. With the discontinuation of the annual family medicine promotional seminars for medical students, the faculty has no contact with preclinical students to provide early exposure to the specialty. There also does not seem to be a clear administrative policy regarding the place of family medicine in the medical school.

Over the study period there had been no opportunity for students to have a formal clerkship in their later clinical years. Fortunately, in 2015, a four-day clerkship was instituted for final year (level 600) students and future research will evaluate the effect of this clerkship on student attitudes towards family medicine as a career choice.

### Limitations of the study

Students in our study participated voluntarily and answers about intent may not capture changes in an individual student's preferences about specialty choice over time. While we did not measure exact response rate, the number of returned surveys comprised a large majority of the total class size and demographics of respondents suggest they were representative of the overall eligible population.

The relatively lower rate of participation by the class of 2010 could be attributed to unpreparedness of the stu-

dents or lack of interest, being their very first formal encounter with family medicine as well as it being the first family medicine lecture in the University; or it could be that only a small portion of the class attended lecture on that day. Over the study period, slight variations were introduced into some of the questions for clarity. This posed challenges in comparing certain variables to the baseline class group, so comparisons were restricted to the class groups in which identical questions were asked.

The study was conducted in only one medical school located in Accra, the more developed capital city of Ghana. Our findings may, therefore, have limited generalisability to the other medical schools in different parts of the country. UGSMD however, is the only medical school in Ghana with an undergraduate family medicine programme to date. We intend to conduct a broader study to include preclinical students in the other medical schools in the country to assess preclinical knowledge of family medicine.

## CONCLUSION

Awareness of family medicine as a medical specialty remained high over the study period. The downward trend, though not significant, is worrisome. This is buttressed by the fact that majority of students who did not consider family medicine as a career choice did so because of inadequate knowledge of the specialty. Measures should be put in place to increase early exposure of preclinical students to the discipline. Promotional seminars should be reinstated; innovative evidence-based learning and teaching techniques should be employed to make the best of a short clinical clerkship, and the unit should explore avenues to create additional learning experience for medical students who wish to consider family medicine as a future career choice. This indeed should be a wake-up call!

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