Exploring primary and secondary healthcare physicians' perceptions on pursuing population medicine as a main career: Implications for health policy and academia

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ABSTRACT

INTRODUCTION Although population medicine is a cornerstone in preventing and controlling diseases, worldwide shortages of specialists in this field continue to rise. The aim of this study is to explore physicians' (primary and secondary healthcare) perceptions on pursuing population medicine as a main career.

METHODS Responses were obtained via an online self-administered questionnaire from Arabian Gulf University medical graduates, during the period February–April 2022, who had valid email addresses on the Alumni Association database. Information included demographic data, physicians' employment health sector and medical career choices. In addition, perceptions towards pursuing a career in population medicine were documented.

RESULTS Completed questionnaires were received from 190 physicians, of whom 24.7% and 63.2% were in primary and secondary healthcare, respectively. While most of the physicians did not consider specializing in population medicine upon their undergraduate graduation (81%), those who ended specializing in primary healthcare (53.2%) were significantly more likely than their counterparts in secondary healthcare (17.5%) to consider pursuing a career in population medicine if they were to get the opportunity now ($p<0.001$). Further, 69.5% of physicians felt that there is a need to integrate training in population medicine as part of the clinical rotations.

CONCLUSIONS While physicians' attitudes towards population medicine remain unfavorable, primary healthcare physicians are more likely to pursue a career in this field. It would be worthwhile to incorporate population medicine within doctors' clinical training. Further, preventive medicine and health promotion activities should be part of the undergraduate medical curricula as well as residency training programs.

INTRODUCTION

Population medicine encompasses a wide range of activities, including health promotion, public health, disease prevention, and health systems management[1]. It equips the physician with a diverse range of skills and expertise. Within the medical subspecialties, population medicine experts were highly sought for during the recent pandemics to provide guidance and advice on how to deal effectively and efficiently with such unprecedented health circumstances[2-4].

However, countries around the world discovered that there is a severe shortage along with an under-representation of population medicine experts, particularly in public health among the medical personnel. This is not surprising since the medical schools and health institutes traditionally focus in their academic curricula on clinical practice skills and individual patient management care rather than disease control and prevention. Accordingly, medical graduates have unfortunately not been exposed to an optimal range of disease prevention career opportunities, particularly in population medicine. Further, studies reported that most medical graduates do not appreciate a career and research opportunities in the field of population medicine[5-7]. Subsequently, there has been a worldwide chronic shortage of specialists in population medicine that has still not been

appropriately addressed[8,9].

The Arabian Gulf University (AGU) is a regional university established in 1980 and based in the Kingdom of Bahrain. AGU hosts students of both genders from Gulf Cooperation Council (GCC) countries (Bahrain, Saudi Arabia, Kuwait, Oman, UAE, and Qatar). The College of Medicine and Medical Sciences (CMMS) at AGU follows a problem-based, student-centered, and community-oriented curriculum[10]. AGU is one of the leading sources of medical graduates in the GCC region and thus provides an ideal situation to test and develop health-related hypotheses at the regional level. Moreover, it is thought that doctors who graduated from such innovative medical schools would appreciate the field of population medicine more positively than their counterparts from conventional schools[11,12].

This study aims to explore physicians' (in primary and secondary healthcare) perceptions of population medicine as a main career choice. Primary healthcare physicians' category includes generalists, general practitioners, and family physicians who are usually based in primary healthcare centers, while secondary healthcare physicians' category includes doctors who are hospital-based, irrespective of whether these doctors are providing secondary or tertiary healthcare. It is hoped that such an investigation would provide directions with which health policy and decision makers can develop targeted interventions that would encourage a higher number of doctors to join this field.

METHODS

Study design and population

A cross-sectional design was employed in this study. After piloting the research tool, completed responses were obtained during February–April 2022 via an online self-administered questionnaire which was sent to the Doctor of Medicine (MD) graduates from the CMMS at the AGU who had valid email addresses on the AGU Alumni Association database.

Variables

Information was sought on demographic data (age, gender, nationality, healthcare sector of employment and current career level) of the physicians along with history of their healthcare sector employment and medical career choice. Emphasis was given to document physicians' perceptions towards specializing in population medicine. In addition, the need for further training in this field was explored.

Statistical analysis

After the data collection was completed, the data were coded, entered, and analyzed using the Statistical Package for Social Science (SPSS) software version 28. Descriptive statistical analysis of frequencies for each question were computed. To examine physicians' opinions towards population medicine, the respondents were divided into categories according to their healthcare employment sector (i.e. primary healthcare, secondary healthcare, and other sectors). Subsequently, cross-tabulated frequencies and percentages were calculated. Chi-squared test was employed to assess the association between the independent categorical variables and the physicians' healthcare employment sector group. A $p<0.05$ was considered statistically significant.

RESULTS

Completed questionnaires were received from 190 physicians. The mean age of the respondents was 29.9 ± 7.0 years; 71.1% were aged <30 years and 56.3% were females. Table 1 shows that 48.4% of the sample were from Bahrain, 26.3% from Saudi Arabia, 18.4% from Kuwait and 6.8% from other Arab Gulf countries, which is consistent with the nationality pattern of medical students graduating from AGU. Most of the physicians opted to specialize in secondary healthcare (63.2%) rather than primary healthcare (24.7%). As for the career level of the respondents, 62.1%, 13.2% and 24.7% were in-training, middle grades, and specialists/consultants, respectively (Table 1).

Tables 2 and 3 present the relationships between the characteristics of the doctors and their graduation group. A statistically significant association was observed between

Table 1. Sociodemographic characteristics of the physicians, February–April 2022 (N=190)

Characteristics	n	%
Age (years)		
<30	135	71.1
≥30	55	28.9
Gender		
Female	107	56.3
Male	83	43.7
Country of nationality		
Bahrain	92	48.4
Saudi Arabia	50	26.3
Kuwait	35	18.4
Other	13	6.8
Healthcare sector		
Primary	47	24.7
Secondary	120	63.2
Non-clinical and other	23	12.1
Physicians' career level		
In-training	118	62.1
Middle grades	25	13.2
Specialists/consultants	47	24.7

Table 2. Physicians' demographic characteristics according to their graduation group, February–April 2022 (N=190)

Characteristics	2014 or before n (%)	2015–2018 n (%)	2019–2021 n (%)	p
Gender				0.043
Female	35 (71.4)	29 (49.2)	43 (52.4)	
Male	14 (28.6)	30 (50.8)	39 (47.6)	
Country of nationality				0.003
Bahrain	19 (38.8)	36 (61.0)	37 (45.1)	
Saudi Arabia	12 (24.5)	15 (25.4)	23 (28.0)	
Kuwait	9 (18.4)	6 (10.2)	20 (24.4)	
Other	9 (18.4)	2 (3.4)	2 (2.4)	
Healthcare sector				0.064
Primary	13 (26.5)	19 (32.2)	15 (18.3)	
Secondary	27 (55.1)	32 (54.2)	61 (74.4)	
Non-clinical and other	9 (18.4)	8 (13.6)	6 (7.3)	
Physicians' career level				<0.001
In-training	4 (8.2)	38 (64.4)	76 (92.7)	
Middle grades	6 (12.2)	14 (23.7)	5 (6.1)	
Specialists/consultants	39 (79.6)	7 (11.9)	1 (1.2)	

Table 3. Physicians' career choices according to their graduation group, February–April 2022 (N=190)

Choices	2014 or before n (%)	2015–2018 n (%)	2019–2021 n (%)	p
Have you been accepted in a local residency program?				<0.001
Yes	39 (79.6)	38 (64.4)	13 (15.9)	
No	10 (20.4)	21 (35.6)	69 (84.1)	
Which healthcare sector have you joined for your residency?				<0.001
Primary	12 (24.5)	14 (23.7)	2 (2.4)	
Secondary	26 (53.1)	27 (45.8)	13 (15.9)	
Non-clinical and other	9 (18.4)	5 (8.5)	3 (3.7)	
Did not join yet	2 (4.1)	13 (22.0)	64 (78.0)	
During your undergraduate program, have you thought of specializing in population medicine?				0.848
Yes	10 (20.4)	12 (20.3)	14 (17.1)	
No	39 (79.6)	47 (79.7)	68 (82.9)	
If you get the opportunity now, would you specialize in population medicine?				0.038
Yes	15 (30.6)	23 (39.0)	16 (19.5)	
No	34 (69.4)	36 (61.0)	66 (80.5)	
Do you believe there is a need to include an undergraduate clinical rotation in population medicine?				0.222
Yes	38 (77.6)	42 (71.2)	52 (63.4)	
No	11 (22.4)	17 (28.8)	30 (36.6)	

Table 4. The relationships between physicians' perceptions on specializing in population medicine and the healthcare sector, February–April 2022 (N=190)

Perceptions	Healthcare sector			p
	Primary n (%)	Secondary n (%)	Non-clinical and other n (%)	
During your study in AGU, have you thought of specializing in population medicine?				0.131
Yes	13 (27.7)	21 (17.5)	2 (8.7)	
No	34 (72.3)	99 (82.5)	21 (91.3)	
If you get the opportunity now, would you specialize in population medicine?				<0.001
Yes	25 (53.2)	21 (17.5)	8 (34.8)	
No	22 (46.8)	99 (82.5)	15 (65.2)	
Do you believe there is a need to include an undergraduate clinical rotation in population medicine?				0.456
Yes	36 (76.6)	80 (66.7)	16 (69.6)	
No	11 (23.4)	40 (33.3)	7 (30.4)	

the graduation group and gender (p=0.043), nationality (p=0.003), career level (p<0.001), being accepted in a local residency program (p<0.001), and the healthcare sector which the doctor has joined for his/her residency (p<0.001).

When the respondents were asked if they will specialize in population medicine if they get the opportunity now, most of them (71.6%) significantly stated that they would prefer not to (p=0.038) (Table 3). This is in line with the finding that doctors did not view population medicine as their prime career choice during their undergraduate medical program, irrespective of their graduation group (p=0.848) (Table 3). Most of the physicians, regardless of their group of graduation acknowledged the need for including a clinical rotation in population medicine and its subspecialities as part of the clinical rotations during the undergraduate program (69.5%).

Table 4 shows that population medicine was not an attractive career choice for the physicians, irrespective of their current healthcare employment sector. However, physicians who specialized in primary healthcare (53.2%) were significantly (p<0.001) more likely than their counterparts in secondary healthcare (17.5%) to consider pursuing a career in population medicine if they were to get the opportunity now. Further, 69.5% of physicians felt that there is a need to include clinical rotations in population medicine as part of undergraduate clinical rotations.

DISCUSSION

This study found that physicians' attitudes towards population medicine is generally unfavorable. However, pursuing a career in population medicine is more acceptable for primary healthcare physicians compared to their secondary healthcare counterparts. Since the turn of the 21st century, there has been a series of pandemics that have challenged the health authorities around the world and stretched thinly available resources[13]. From the H1N1 (Swine flu) in 2009, the COVID-19 in 2019 and the most recent Monkeypox pandemic in 2022[14], almost all countries, whether low, middle, or high income, were faced with the reality of not having the minimum needed human and equipment resources to cope with such complex health emergencies. These unprecedented crises have put population medicine in the spotlight, a field that was already suffering from shortages of experts and personnel[8,15,16]. This study augments the international academic efforts to encourage more doctors to pursue specialization in population medicine.

Medical graduates do not traditionally choose population medicine as their main career[17]. Published literature indicates that the reasons for this lack of enthusiasm are most likely multifactorial[18]. Hence, addressing these shortages of specialists in population medicine should be part of a comprehensive healthcare plan. According to the published literature[18], possible explanations for this situation are lack of exposure of doctors to career opportunities in population medicine, both during the undergraduate as well as the residency programs. Subsequently, the specialty of population medicine is viewed by graduating doctors as a secondary and a less prestigious specialty rather than a lifetime primary career. In addition, governments have unfortunately been unsuccessful in providing sufficient job opportunities in this domain. A communication gap also

exists between the medical schools' curricula and the needs of the healthcare sectors, with fresh medical graduates not fully understanding the roles and relevance of population medicine in healthcare delivery, disease prevention, and health policy decision making[19].

Limitations

The findings of this study among doctors in the Arab Gulf region are consistent with reports from other parts of the world, where most medical graduates did not opt to pursue a career in population medicine[18]. However, there are some limitations in this research project that we have endeavored to address. First, the study was conducted among the Arab Gulf medical population (i.e. in high income countries) which may put in question the generalizability of the observations from this research investigations for doctors who are practicing medicine in the less economically developed parts of the world. Nevertheless, since the results are consistent with those reported from other populations[18], it would not be inappropriate to apply the findings to other countries. Secondly, social desirability bias should be considered where doctors may have provided responses that they thought were socially desirable rather than their true attitudes. However, it is reassuring that the responses were anonymous and confidential which would have substantially reduced any potential effect of such bias. Thirdly, a cross-sectional descriptive study design was used. Hence, we cannot establish a cause-effect relationship. However, we believe that the study findings provide directions on which future policies for attracting more doctors to join the field of population medicine could be based.

Implications

One of the key results from this research project is that among this medical community, primary healthcare physicians (called generalists in some countries) were significantly more likely to consider pursuing a lifetime career in the field of population medicine compared to clinicians in secondary healthcare (called specialists in some countries). A plausible explanation for this difference in attitudes would be that the clinical duties of primary healthcare physicians involve dealing with population medicine, health promotion, and public health activities. Moreover, these primary healthcare physicians often work with vulnerable groups of the community such as women, elderly, disabled individuals, migrant workers, and marginalized groups, which gives these doctors a unique understanding of the impact of social factors on health. Thus, we believe that one of the practical and innovative approaches to correct the under-representation of population medicine experts and attract higher numbers of doctors to specialize in this field would be through integrating population medicine and public health activities within the clinical residency programs of primary healthcare physicians. Within this context, it is worthwhile to note that recent position papers from expert panel committees[20-22] support such a direction. We also propose that health policy and decision makers may consider as a short-term solution for the current shortage in population medicine experts the creation of a pool of primary care doctors with appropriate training in population medicine who could be utilized during future unexpected health emergency situations.

CONCLUSIONS

While physicians' attitudes towards population medicine remain unfavorable, primary healthcare physicians are more likely to pursue a career in this field. It would be worthwhile to incorporate population medicine within doctors' clinical training. Further, preventive medicine and health promotion activities should be part of the undergraduate medical curricula as well as residency training programs.

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CONFLICTS OF INTEREST
The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none was reported.

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DATA AVAILABILITY
The data supporting this research are available from the authors on reasonable request.

AUTHORS' CONTRIBUTIONS
KA, SA, AA and AD: conceptualization, writing, reviewing and editing. KA, SA and AA: writing of original draft. KA, SA and AA: methods. SA and AM: data curation. AM: data analysis. All authors approved the final version of the manuscript.

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