Primary Health Care an Important Health Initiative-Awareness of Medical Students from Karachi-Pakistan

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Authors' contributions

This work was carried out in collaboration between all authors. Author NNE wrote the first draft and revisions of the manuscript, managed the literature searches and wrote the protocol. Author RE designed the study, gathered the data and wrote the protocol. Author FNUR gathered the data and wrote the protocol. Author NZ wrote the protocol, performed the statistical analysis and revision of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To assess and compare the awareness on Primary Health Care amongst medical students from different academic years of medical universities in Karachi, Pakistan.
Background: The primary health care (PHC) system in Pakistan is not well developed yet, with lack of access to basic health services and a shortage of primary care physicians. Evaluating the awareness medical students from different years of study have about PHC and whether that influences their career decision-making (medical specialty choices) is important to assess the current state of PHC and predict its future in Pakistan. Hence this study aims to analyze awareness about PHC amongst medical students from different academic years of medical universities.

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Methodology: This cross sectional study was conducted amongst medical students from different academic years of Karachi, Pakistan. Sample size of 400 medical students was calculated by WHO (World Health Organization) sample size estimation calculator and 25% medical students from each year were obtained by non probability quota sampling technique. Data was collected through a structured, self-administered questionnaire. SPSS version 21 was used for data analysis.

Results: Total 400 medical students from different academic years responded in this study with mean score obtained by them is 15.0 ± 2.67. On the basis of mean score obtained by students, the data is dichotomized into two groups i.e. average and above (score $\geq$ 15) and below average (score <15). Most of the medical students from 1st to 4th year of MBBS showed average or above average awareness about PHC. Statistically significant differences were seen in the awareness about some aspects of PHC among 1st and 4th year medical students.

Conclusion: This study highlights key features on the differences in students' awareness about concept of primary health care throughout their medical study. It also identifies challenges related to medical students' level of understanding of the functioning of primary health care system.

1. INTRODUCTION

Primary healthcare (PHC) refers to 'essential health care' that is based on scientifically sound and socially acceptable methods and technology, which make universal health care accessible to all individuals and families in a community. It is through their full participation and at a cost that the community and the country can afford [1].

Medical education worldwide focuses more on training students to practice in tertiary care settings with easy access to new technology, diagnostic tools and a team of experts [2]. Conversely, both the developed and developing parts of the world have been facing challenges in maintaining their primary health care system [3-6]. In Pakistan, the health condition of general population is compromised with poor health indicators. A relative lack of primary health care centers and primary care physicians is well recognized in our country [7].

Emphasis on primary healthcare can be expected to improve health outcomes through improved access to appropriate services, reduced inequities in the population's health and lower costs of care [8]. In this matter, medical students are the most important asset. In order to familiarize the medical students with primary health care (PHC), it is mandatory for medical universities to incorporate community health sciences in their undergraduate curriculum [9]. In this effort, Pakistan along with some other south Asian countries has incorporated community medicine in the undergraduate curriculum

[10-12]. Despite incorporation of the concepts of PHC in medical curriculum it is important to know if medical students in various academic years are aware of the PHC service provision. Literature search also revealed that studies are also scarce on this topic. Hence, the purpose of this study is to explore medical students' state of awareness of PHC, and whether that varies amongst students of first through fourth year of medical studies. Medical students from these four years of MBBS were taken in this survey as concept of PHC was part of curriculum in first four years of MBBS. The study also aims to assess whether the medical schools' curriculum satisfies expectations of new graduates about PHC and whether there is a need to modify the curriculum of medical schools [9].

2. METHODOLOGY

This descriptive cross sectional study was conducted amongst medical students during 2014. Medical students from different academic years of MBBS (Bachelor of Surgery, Bachelor of Medicine) were included in this study. Approval for this study was obtained from Institutional Ethics Committee. The sample size was calculated by using WHO sample size estimation calculator by taking 50% anticipated proportion of students' opinion, at 95% Confidence Interval with 0.05 margin of error. Sample size was calculated as 384 however it was inflated to avoid data wastage.

Non probability quota sampling technique was used to select medical students from 1st through

4th year of MBBS. Among each academic year of MBBS total 110 questionnaires were distributed for equal sample representation.

Data was collected by using pretested, structured self-administered questionnaire constructed after thorough literature search. It had 21 items with nominal response options i.e. true, not true and don't know. Correct answer (true or not true) for each question was given a score of 1 while zero score was given for 'don't know' responses. Therefore the maximum and minimum score that may be obtained through this questionnaire was 21 and 0 respectively. The questionnaires were distributed before the scheduled sessions in classrooms and all the medical students present at the time of data collection were included in the study. Those students who were either absent or did not give consent were not included. Incomplete questionnaires were also not included in the final sample.

SPSS version 21 was used for data entry and analysis. The qualitative variables were presented as frequency and percentages and quantitative variables as mean and standard deviation. Chi Square was applied for finding association between qualitative variables and independent t-test for quantitative variables, with p value less than 0.05 taken as significant.

3. RESULTS

Total 440 questionnaires were distributed among medical students, 110 in each year of MBBS. Response rate was 95.5% from first year, 91.8% from second year, 86.4% from third year and 90% from fourth year. Representation of different years of MBBS from first to fourth year is 105 (26.3%), 101 (25.3%), 95 (23.8%) and 99 (24.8%) respectively. Total 400 medical students completed the questionnaires, among them 105 (26.3%) were males and 295 (73.7%) were females with mean age 20.5 ± 1.4 years ranging from 18 to 23 years. Table 1 illustrates the correct responses given by medical students about PHC. Awareness of medical students about PHC was further assessed based on the academic year of MBBS and their responses, presented in Table 2.

The mean score obtained by medical students regarding awareness of PHC was 15.0 + 2.67, with score of maximum 21 and minimum 1. Details regarding mean score according to year of MBBS is provided in Table 3. On the basis of mean score obtained by students, the data is dichotomized into two groups i.e. average and above average (score $\geq$ 15) and below average (score <15). Fig. 1 illustrates the two groups based on awareness related score from different academic year of MBBS, the difference in their awareness was not significant (P=0.736).

Table 1. Correct responses of medical students regarding Primary Health Care

Items for assessing awareness regarding Primary Health Care		Total (N=400) n (%)
Item 1	Accessibility to health care is a basic concept of primary health care	387 (96.8)
Item 2	The World Health Organization considers primary health care to be the best way to achieve "Health for All."	364 (91)
Item 3	The key approach to achieving primary health care is technology	298 (74.5)
Item 4	One major emphasis of primary health care is disease prevention	367 (91.8)
Item 5	Within a primary health-care system, safe adequate drinking water is considered as important as professional health services	346 (86.5)
Item 6	A statement of commitment to primary health care is ratified at the international conference held at Alma Ata in1978	237 (59.3)
Item 7	An increase in physicians is needed in Pakistan to fully implement primary health care	304 (76)
Item 8	Many governmental departments, such as Agriculture and Municipal Planning, are important for the implementation of the goals of primary health care	300 (75)
Item 9	Within a primary health-care framework, the health-care system is considered to be the key determinant of the population's health	340 (85)

Items for assessing awareness regarding Primary Health Care		Total (N=400) n (%)
Item 10	Primary health care should be provided according to the need of the community	337 (84.3)
Item 11	Primary health care involves, among other activities, working on underlying problems that affect social and emotional health	299 (74.8)
Item 12	An example of a primary health-care strategy to improve the health of the community is to increase the number of cardiac specialists	97 (24.7)
Item 13	Rehabilitative services are part of primary health care	221 (55.3)
Item 14	Improved health educations a key concept in primary health care	352 (88)
Item 15	Cooperation between governments and voluntary organizations is a key concept in primary health care	316 (79)
Item 16	Primary health-care approaches take into consideration ways to provide culturally appropriate care	280 (70)
Item 17	Community participation is central to an effective primary health-care system	353 (88.3)
Item 18	Acute care services are not considered part of primary health-care system	143 (35.8)
Item 19	In a primary health-care system, efforts are made to use the least expensive technology and personnel to achieve positive health outcomes	304 (76)
Item 20	One of the five key principles of primary health care is the provision of high-quality, episodic medical care	226 (56.5)
Item 21	Primary health-care services do not include curative or palliative care	165 (41.3)

Table 2. Difference in correct responses reading awareness about PHC among different academic years of MBBS

Items for assessing awareness about Primary Health Care	1st Year (N=105) n (%)	2nd Year (N=101) n (%)	3rd Year (N= 95) n (%)	4th Year (N=99) n (%)	P-value
Item 1	102 (97.1)	98 (97.1)	91 (95.8)	96 (96.9)	0.527
Item 2	85 (81)	92 (91.1)	90 (94.7)	97 (98)	**0.001**
Item 3	71 (67.6)	68 (67.3)	69 (72.6)	90 (90.9)	**0.001**
Item 4	93 (88.6)	87 (86.1)	94 (98.9)	93 (93.9)	**0.032**
Item 5	92 (87.6)	90 (89.1)	81 (85.3)	83 (83.8)	0.192
Item 6	55 (52.4)	63 (62.4)	38 (40)	81 (81.8)	**0.001**
Item 7	81 (77.1)	76 (75.2)	72 (75.8)	75 (75.8)	**0.041**
Item 8	79 (75.2)	75 (74.3)	66 (69.5)	80 (80.8)	**0.018**
Item 9	88 (83.8)	87 (86.1)	77 (81.1)	88 (88.9)	0.097
Item 10	81 (77.1)	83 (82.2)	76 (80)	97 (98)	0.002
Item 11	82 (78.1)	71 (70.3)	74 (77.9)	72 (72.7)	0.131
Item 12	30 (28.6)	26 (25.7)	22 (23.2)	19 (19.2)	0.246
Item 13	64 (61)	62 (61.4)	54 (56.8)	41 (41.4)	**0.026**
Item 14	85 (81)	89 (88.1)	89 (93.7)	89 (89.9)	0.060
Item 15	78 (74.3)	78 (77.2)	80 (84.2)	80 (80.8)	0.240
Item 16	62 (59)	76 (75.2)	66 (69.5)	76 (76.8)	**0.026**
Item 17	87 (82.9)	90 (89.1)	84 (88.4)	(92 (92.9)	0.110
Item 18	43 (41.0)	35 (34.7)	31 (32.6)	34 (34.3)	0.073
Item 19	81 (77.1)	77 (76.2)	67 (70.5)	79 (79.8)	0.503
Item 20	63 (60)	60 (60.4)	60 (63.2)	42 (42.4)	**0.001**
Item 21	48 (45.7)	50 (49.5)	35 (36.8)	32 (32.3)	**0.012**

4. DISCUSSION

It has been a challenge for medical schools to train doctors competently to respond to community health care needs. Many changes and reforms in medical curricula have been made, focusing on the need to produce holistic physicians through a problem-based, community-oriented approach to medical studies [11]. Therefore, an important strategy is to enhance community-based education for training students in delivering primary health care services.

The results of this study signify a relatively satisfactory contribution of medical curriculum in imparting awareness about PHC, its components and an understanding of its functioning in the first two years of MBBS, followed by incorporating clinical skills and a well-structured training of PHC in the curriculum 3rd year onwards. This is presumably the most effective strategy to improving students' interest and attitude about PHC. It is reflected by the results of this study in which 4th year students who did clinical rotations in PHC, scored higher (15.5 ± 2.06) than 1st year students' (14.8 ± 3.12), however these results are not statistically significant.

A few studies have been conducted in Pakistan to assess awareness, knowledge and attitude of doctors and staff involved in PHC [12], but there is no similar study conducted locally on the students. Hence it becomes more important to assess students' awareness as well, because they will become doctors and serve the country in future. Based on the percentage of correctly answered questions, [13] there was a significant difference among students from 1st and 4th year in various items. Overall medical students were very well aware about some important concepts of PHC like accessibility of health care, health for all, important health provision services, health education and community participation.

The current management of diseases, in particular chronic conditions has substantially great treatment costs and economic burden on the health care budget of countries. It is important now, to diagnose people early in the disease course and start treatment, [14] hence save the people from developing complications that would require higher costs of management. The essence of primary health care, which cannot be overstated, is to emphasize disease prevention rather than treatment. There is a significant increase in percentage of students from 1st year (88.6%) to 4th year (93.9%) who have acknowledged this very important aspect of primary health care (P=0.032). More students from 4th year (98%), than 1st year (81%) also acknowledged that WHO considers PHC as a best way to
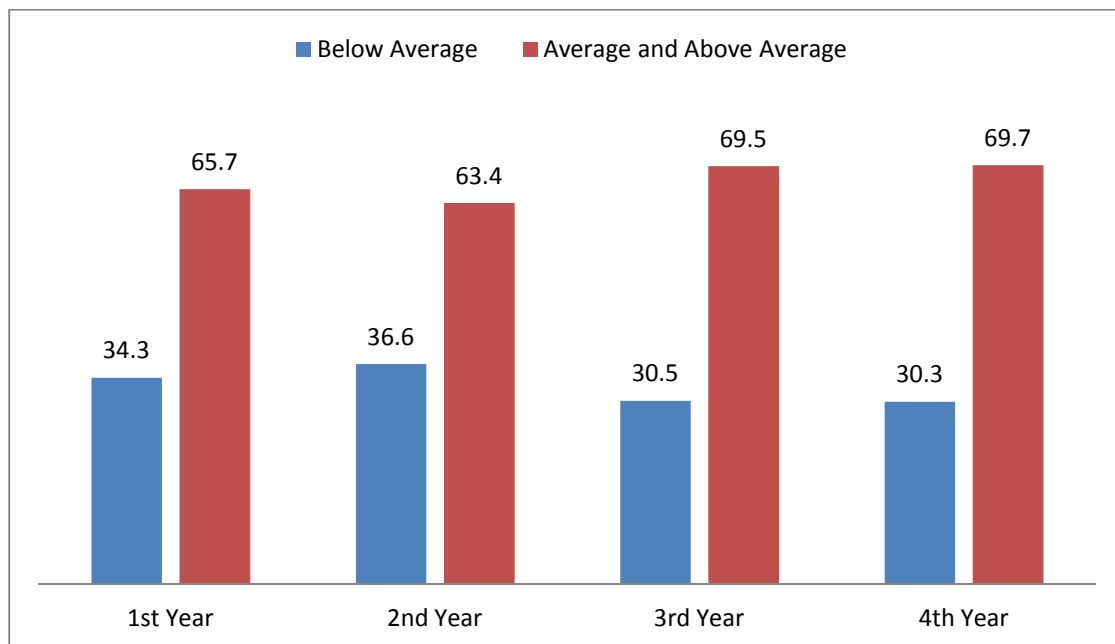

Fig. 1. Comparison of PHC related awareness among students from different academic years of MBBS (%)
P=0.736

Table 3. Score statistics of PHC related awareness on the basis of academic year of MBBS

	Score statistics	Mean + SD	P - value
Year of MBBS	First year (n=105)	14.8 ± 3.12	0.197
	Second year (n=101)	15.2 ± 2.74	
	Third year (n=95)	14.9 ± 2.58	
	Fourth year (n=99)	15.5 ± 2.06	

achieve health for all, with a significant difference (P=0.001). As discussed above, the main reason for these two results could be that 4th year MBBS students are thought to have a generally better understanding of the value and functioning of PHC, given that in addition to classroom teaching they have had clinical training, which 1st year students are yet to experience.

In Pakistan and other underdeveloped countries incidence of water-borne infections is high as safe drinking water is unfortunately still not available to all communities. Safe drinking water must be a necessity rather than a privilege and it is comforting to know that 80.8% of 4th year students acknowledge the need for active involvement of government and municipal departments to achieve this.

5. CONCLUSION

This study highlighted that there were significant differences in the awareness about the aspects and functioning of PHC between students of 1st through 4th year MBBS. While knowledge and awareness about PHC is crucial, it is equally important to encourage current medical students to work in PHC by making it more meaningful and rewarding. A well-functioning PHC system greatly reduces the healthcare costs of a country by addressing population health issues in early stages and preventing others from arising.

CONSENT

All authors declare that 'written informed consent was obtained from the medical students for participating in this study'.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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