

Final-Year Medical Students' Perceptions Regarding the Curriculum in Public Health

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ABSTRACT

Background: The Faculty of Medicine, University of Colombo, has an integrated curriculum in which teaching of public health takes place through a series of modules which span the full five-year study programme. **Aim:** To assess final year medical student perceptions regarding the public health curriculum and to identify factors which influence this. **Materials and Methods:** The study was cross sectional. Convenience sampling was utilized on final-year students of the Faculty of Medicine, University of Colombo, Sri Lanka. A self-administered 4-point Likert scale questionnaire covered general opinion on public healthcare and perceptions about the curriculum. Data were analyzed using descriptive statistics and Chi-square tests. **Results:** One hundred and eighty four students (94%) participated in the study. Eighty-two percent (148) viewed public health as an important field. Only 9% (16) were interested in a career in public health. A significant association was found between choosing public health as career and the following: perception of public health as an important field; holding a good opinion about public health prior to commencement of the course; having found the field-based experience enjoyable and beneficial to the community; and feeling competent to work in the community at the end of the course ($P < 0.01$). With regard to teaching methods, group activities and discussion-centered activities were identified positively (153, 83% and 125, 68% respectively). The majority of students indicated that they were not stimulated to read more on the subject or regularly revise what they have learnt, both during the introductory public health programme and during the final year. **Conclusions:** The curriculum has been able to create a positive opinion about public health. However, students lack enthusiasm to learn independently. Experiential, group-centered teaching activities and a constructivist approach may be more effective in promoting independent learning. Perceptions are important and should aid in structuring the curricula.

Keywords: Community medicine, curricula, medical students, perceptions

Introduction

The importance of community-based health education in undergraduate curricula has been validated in medical education and practice.^(1,2) The current shift of emphasis from curative to preventive medicine makes community-based medical education of utmost importance. Even though only a small proportion of medical graduates will eventually choose public health as their specialty,

a thorough knowledge-base established through robust undergraduate training programmes in community medicine is essential for all practicing doctors. Despite this, the importance and significance of public health are often not fully appreciated,^(1,3) with more emphasis being placed on hospital-based and curative medicine.

While medical curricula must be effective and relevant as they are of fundamental importance in the training of doctors,⁽⁴⁾ how effective or relevant they are may be a matter of perception.⁽⁵⁾ Poor implementation of curricula is known to result in unfavorable student perceptions.⁽⁶⁾ Furthermore, positive perceptions are known to increase student motivation and, therefore, learning. Brooks, a constructivist, suggests that student opinion should be sought and valued.⁽⁷⁾ Thus, frequent assessments of student perceptions are recommended

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and many agree that they are useful in the structuring of the curriculum,^(8,9) making them more acceptable and beneficial.

Since the integration of public health into the medical curriculum of the Faculty of Medicine, University of Colombo, Sri Lanka, the Community Sciences Stream has maintained a dynamic approach toward its teaching. The public health curriculum of the Faculty of Medicine, Colombo, spans the five years of undergraduate training and is delivered as subject modules. The introductory sessions, dealing with the concept of health promotion, are conducted by weekly lectures, small group discussions, and student presentations. Apart from conventional lectures and small group discussions, during the third and fourth years, the stream provides students with opportunities for experiential learning. This is by way of a community-based programme, the purpose of which is to enable students to describe and assess health needs at community, family, and individual levels, become familiar with resources for health promotion, and to plan, implement, and evaluate sustainable interventions to improve health. Groups of students are allocated to specified communities (known as the "community attachment programme") and families (known as the family attachment programme) for a period of 12–18 months thus acquiring the competence to intervene and provide first-contact health care and promote health at various levels.^(10,11) This includes a research project, carried out in groups of three, during which students learn to develop a research idea, design a research protocol and data collection instrument, understand the ethical implications of research, conduct and analyze the results of the study, and finally, draft a research report and paper. The final-year teaching programme concentrates on community perspectives of medical care and is conducted by way of a string of lectures and interactive case discussions on health in hospitals, relaying of health-related information, social responsibilities of doctors, and how aspects of the community impact the outcome of clinical management. The aim of our study was to assess student perceptions of the public health curriculum and to identify factors which influence these.

Materials and Methods

Design

The study design was cross sectional. Data were gathered at the Faculty of Medicine, University of Colombo, Sri Lanka, in 2010.

Participants

All medical students in their final year were invited to participate in the study. Out of 196 students, 184 students, i.e., 94% agreed to participate in the study

following completion of the five year curriculum in public health. Recruitment was carried out amongst final-year students following a compulsory student activity so as to maximize participation; however, student participation was completely voluntary. Convenience sampling method was utilized and those not present on the day of assessment were excluded from the study.

Data collection

The study instrument was a self-administered questionnaire. The questionnaire was prepared following focused group discussions among graduates of the same institution, who had also completed the public health course as part of their curricula. The questionnaire, in addition to gathering demographic data, asked students to evaluate the public health curriculum as a whole and to state their perceptions on specified components of the stream, such as the introductory programme, community-based learning, research project, and the final-year module on community perspectives of medical care through 90 separate questions. A 4-point Likert scale was used to score and collect information and students were offered the options "Definitely," "Somewhat," "Not really," and "No." When not considered individually for purposes of analysis, the responses "Definitely" and "Somewhat" were grouped together as a positive response and "Not really" and "No" as a negative response.

Statistical analysis

Data analysis was carried out utilizing Statistical Package for the Social Sciences 18[®] analytical software package. Descriptive statistics was utilized to present demographic data. Relationships were analyzed using Pearson's chi-square test.

Ethical considerations

The study received ethical approval from the Ethics Review Committee of the Faculty of Medicine, University of Colombo. Anonymity of the students was assured.

Results

Hundred and eighty-four students ($n = 184$) who had completed their medical undergraduate course agreed to complete the questionnaire. Of those, 48% were males and 52% were females, which is comparable to the gender distribution in our faculty. Forty-eight percent ($n = 84$ out of 174) were residents of Colombo, a district which is the urban hub of the country, while the majority (69.3%, $n = 122$ out of 176) had received their secondary education there as well. Forty-nine percent ($n = 89$ out of 144) had scored more than 60%, which is considered a class grading, at the most recent public health exam.

The general view of students regarding public health

By the end of the course, 81.8% ($n = 148$ out of 181) agreed to the question “I think public health is an important field.” Eighty-five percent ($n = 155$ out of 182) accepted “what I learnt will benefit me in the future” and the majority (67.5%, $n = 112$ out of 166) was satisfied that “the programme has prepared me well to work in the community”. Sixty-four percent ($n = 116$ out of 180) accepted they “had a good perception regarding public health prior to starting the course.”

Significant associations between viewing public health as an important field in medicine were found with having had a good opinion about public health prior to starting the course, perceiving the “community attachment programme” as enjoyable, perceiving the module on community perspectives of medicine as enjoyable, and perceiving themselves prepared and competent to work in the community at the end of the course ($P < 0.01$). Only 9% ($n = 16$ out of 179) definitely agreed with the statement “I am interested in taking up a career in public

health,” while 43% ($n = 76$ out of 179) were definite that they were not. There was a significant association between students considering a future career in public health care and having had a good opinion about public health prior to starting, believing public health to be an important field, perceiving the “community attachment programme” as enjoyable and beneficial to the community, enjoying the module on community perspectives of medicine, and perceiving themselves prepared and competent to work in the community ($P < 0.01$). Gender, grading obtained at the last public health examination, district of residence and district of school (both classified as belonging to Colombo, the urban hub of the country or the other districts) did not appear to influence their choice ($P > 0.05$) [Table 1].

Student perceptions on community-based learning

As described above, this portion of the curriculum is conducted in three parts – a “community attachment programme,” a “family attachment programme,” and a research project. During the community attachment

Table 1: Factors determining (a) the perception of public health as an important field and (b) the interest in choosing a career in public health

Variable	Public health perceived as an important field		Interest in choosing a career in public health	
	χ^2	P value	χ^2	P value
Gender				
Male ($n = 87$)	0.251	0.617	3.335	0.068
Female ($n = 94$)				
District of residence				
Colombo ($n = 84$)	0.203	0.652	0.006	0.940
Other ($n = 90$)				
District of School				
Colombo ($n = 122$)	0.911	0.340	0.039	0.843
Other ($n = 54$)				
Having had a good opinion regarding the field of public health before starting the programme				
Yes ($n = 116$)	17.569	<0.01	24.586	<0.01
No ($n = 64$)				
Grading achieved at the last public health exam				
>60% ($n = 89$)	1.118	0.290	0.929	0.335
<60% ($n = 55$)				
Having enjoyed the module on the community perspectives of medicine				
Yes ($n = 99$)	14.861	<0.01	9.497	<0.01
No ($n = 84$)				
Having enjoyed the community attachment programme				
Yes ($n = 122$)	25.928	<0.01	10.292	<0.01
No ($n = 62$)				
Perceiving themselves prepared and competent to work in the community				
Yes ($n = 112$)	57.537	<0.01	29.007	<0.01
No ($n = 54$)				
Perception regarding public health as an important field				
Yes ($n = 148$)	NA	NA	12.398	<0.01
No ($n = 33$)				
Perception that the community benefitted by the attachment programme				
Yes ($n = 117$)	23.48	<0.01	15.285	<0.01
No ($n = 66$)				

programme, groups of 15–20 students are allocated to specified areas of a community to engage in public-health-related activities. Sixty-six percent ($n = 120$ out of 182) of students agreed to the question “I enjoyed the community attachment programme” and 65.2% ($n = 120$) accepted “I learnt a lot about public health.” Sixty-four percent ($n = 117$ out of 183) believed “The community benefitted from our interventions,” while 70.6% ($n = 117$ out of 180) accepted that it was personally beneficial as they agreed to the statement “I feel what I learnt through this programme will be of use to me in the future.” Forty-five percent ($n = 83$) definitely felt “The community was welcoming” and 34.6% ($n = 62$ out of 179) agreed definitely to the statement “The community cooperated with our efforts.”

Multiple site visitations are essential for the community-based programme throughout the allocated time period. Only 25% ($n = 46$) of the students perceived “The community was definitely located at a convenient location,” while 47.3% ($n = 87$) disagreed with the statement “I had no difficulty in travelling to the community.” Of the sample questioned 54.1% ($n = 99$ out of 183) agreed that “Time had been utilized efficiently” throughout the attachment and 19.7% ($n = 36$ out of 183) were definite regarding that view. However, 56.4% ($n = 102$ out of 181) disagreed with the statement “I am interested in working in the field in the future.”

Statistically significant associations were found between feeling satisfied about the amount they had learnt through the programme and students who had had a good opinion of public health prior to commencement of the course, those who had found the community attachment programme to be personally beneficial, those who felt that time had been utilized effectively, those who found their allocated communities cooperative and had enjoyed the attachment, and those who perceived the community benefitted ($P < 0.05$, $P < 0.01$) [Table 2].

Further, enjoyment of the community attachment programme was significantly related to the convenience of the location and ease of travel to the chosen community, its residents’ cooperation, students perceiving the experience as personally beneficial and students believing that time had been utilized effectively ($P < 0.01$) [Table 3].

When considering the “family attachment programme,” during which pairs of students are allocated to provide community-based care to specified families, most students (66.5%, $n = 121$ out of 182) agreed that it was personally beneficial as they accepted the statement “I feel what I learnt through this programme will be of use to me in the future.” Fifty percent ($n = 90$ out of 181) agreed “We were able to identify significant health

Table 2: Factors determining satisfaction with regards to the amount learnt about public health through the community attachment programme

Variables	χ^2	P value
Having had a good opinion regarding public health before starting the programme		
Yes ($n = 116$)	4.126	<0.05
No ($n = 64$)		
Considered personally beneficial		
Yes ($n = 127$)	41.154	<0.01
No ($n = 53$)		
Concept of time being used effectively		
Yes ($n = 99$)	50.965	<0.01
No ($n = 84$)		
Community being cooperative		
Yes ($n = 136$)	23.223	<0.01
No ($n = 43$)		
Perceiving that the community benefitted		
Yes ($n = 117$)	33.456	<0.01
No ($n = 66$)		
Enjoying the attachment		
Yes ($n = 120$)	35.532	<0.01
No ($n = 62$)		

Table 3: Factors which determine students enjoying the community attachment programme

Variables	χ^2	P value
Location of allocated community being convenient		
Yes ($n = 116$)	13.135	<0.01
No ($n = 68$)		
Ease of travel to community		
Yes ($n = 97$)	11.244	<0.01
No ($n = 87$)		
Community being cooperative		
Yes ($n = 136$)	37.384	<0.01
No ($n = 43$)		
Considered personally beneficial		
Yes ($n = 127$)	44.502	<0.01
No ($n = 53$)		
Concept of time having been used effectively		
Yes ($n = 99$)	79.305	<0.01
No ($n = 84$)		

issues” in their allocated families and 54.1% ($n = 98$ out of 181) accepted “The family was truly appreciative of our efforts.” The majority (61.7%, $n = 113$ out of 183) firmly believed “The family was welcoming” and 53.3% ($n = 97$ out of 182) definitely felt “The family was cooperative with the interventions.” Most (45.6%, $n = 83$ out of 182) agreed “I enjoyed working with my allocated partner.” Sixty-four percent ($n = 117$ out of 182) were of the opinion that “Time was spent effectively” throughout the programme.

Student views regarding the research project

The Research project encourages students to develop and conduct a health-related study under guidance. Seventy-four percent ($n = 133$ out of 181) disagreed to the statement “I had been involved in research prior to the community research project.” By the end of the course,

50% ($n = 91$ out of 182) agreed "I am satisfied with my knowledge on research methodology." Eighty-seven percent ($n = 159$ out of 183) accepted "I am competent in applying for ethical clearance." The programme also gave the students an opportunity to learn how to use data analytical packages (e.g., SPSS®) and 73.6% ($n = 134$ out of 182) felt "I am competent in using SPSS." Majority definitely agreed to the statements "I personally benefitted from this programme" and "I am interested in doing future research" (60.1%, $n = 110$ out of 183 and 54.6%, $n = 100$ out of 183, respectively). Seventy-four percent ($n = 135$ out of 183) perceived that "Time had been spent effectively." However, only 36.4% ($n = 67$ out of 183) accepted "I was able to publish or present our findings." Having a sound foundation in knowledge in carrying out research (methodology, utilizing data analysis software, and ethical considerations), feeling time was used effectively during the project, finding research to have been personally beneficial and having an opportunity to publish or present findings, all showed significant association with enthusiasm for future interest and involvement in research ($P < 0.01$) [Table 4].

Perceptions regarding the introductory phase and final year programme of the public health curriculum

In the introductory sessions, a majority of 61.4% ($n = 113$) accepted "The topics were interesting" and 85.8% ($n = 157$ out of 183) considered "The topics were useful." However, most (58.7%, $n = 108$) disagreed with the statement "The lectures were interesting." The majority accepted "I enjoyed working in a group" and "I enjoyed the discussions" (83.2% $n = 153$, 67.9% $n = 125$, respectively) and most (67.9%, $n = 125$) agreed with the opinion "Small group discussions were an effective method of learning." Eighty-one percent ($n = 142$ out of 175) agreed with "I gave presentations" on the study topics. However, only 7.1% ($n = 13$ out of 183) definitely felt that "Time had been used effectively." Of those questioned, 79.3% ($n = 145$ out of 183) and 77.5% ($n = 141$ out of 182) respectively disagreed with the statements "I was stimulated to read more" and "I regularly revised what I learnt."

The final year of the curriculum, based on community perspectives of medicine, is delivered via a series of lectures and interactive case discussions. Sixty percent ($n = 110$ out of 182) felt "The lectures were interesting," most (77.6%, $n = 143$ out of 183) were of the view "The topics were useful" and 54.1% ($n = 99$ out of 183) accepted the statement "I enjoyed the lectures." Forty-five percent ($n = 81$ out of 182) definitely agreed with the statement "What I learnt will be beneficial to me in the future." However, 25.3% ($n = 46$ out of 182) definitely disagreed with the statement "The lectures did not interfere with ward-learning" and only 25% ($n = 45$ out of 180) definitely agreed that "We were able to concentrate

Table 4: Factors shown to generate interest in future research among students following the community medicine research programme

Variables	χ^2	P value
Adequacy of knowledge in methodology		
Yes ($n = 158$)	27.229	<0.01
No ($n = 24$)		
Knowledge of data analysis software usage		
Yes ($n = 134$)	31.989	<0.01
No ($n = 48$)		
Knowledge of ethical aspects		
Yes ($n = 159$)	25.238	<0.01
No ($n = 23$)		
Concept of time being used effectively		
Yes ($n = 135$)	13.213	<0.01
No ($n = 48$)		
Finding the project personally beneficial		
Yes ($n = 155$)	24.342	<0.01
No ($n = 28$)		
Having the opportunity to publish or present		
Yes ($n = 67$)	0.943	>0.05
No ($n = 116$)		

on what was taught." Only 16.4% ($n = 30$ out of 183) definitely perceived "Time was utilized effectively" in the final year, while the majority (57.3%, $n = 105$ out of 183) agreed otherwise. The majority (84.5%, $n = 153$ out of 181) accepted "I attended lectures because attendance was recorded." Most disagreed to the statements "I was stimulated to read more" and "I regularly revised what I learnt" (38.3%, $n = 69$ out of 180 and 42.8%, $n = 77$ out of 180, respectively).

Discussion

As described above, well-implemented curricula are received positively by students and are more likely to facilitate learning. The method that we used to assess student satisfaction with the curriculum was measurement of student perceptions. It may be argued that students perceptions of various aspects of the course are interdependent, and therefore, cannot be considered in isolation or that students who view a certain area of the curriculum positively are more likely to view others in a similar manner due to characteristics of their personality. While this may be true, it does not detract from the evidence that perceptions influence learning, whatever their basis may be. It is clear that perceptions alone may be inadequate in aiding assessment as they are subjective and liable to be affected by various situations and variables. However, when combined with an additional objective measure it holds great value.⁽¹²⁾

The results of our study acknowledge the importance that students place in the field of public health as most students believe it will be of value in later practice. Although public health was not a popular choice of career, this is likely to have had many other contributory

factors, and it is thus difficult to conclude that this was a reflection of how important the teaching programme was perceived to be. In our study, the region of residence and schooling did not show an association with public health being a career choice. It would have been interesting to compare the backgrounds of students interested in a career in community medicine with those who were not in greater detail, as McAuliffe and Barnett suggest that there is a relationship between an individual's background and choosing to work in a similar setting.⁽¹³⁾ However, analysis did reveal that career choice is affected by various perceptions on community-based learning, including perceiving the experience as mutually beneficial. A similar view is shared by Modipa who, in his study on career choice, hypothesizes that individuals must be motivated by a need to work and serve for the good of the community.⁽¹⁴⁾ Thus, allocating students to communities with obvious health-needs may help students identify important health concerns and observe tangible improvements following interventions, rendering the experience more exciting and inspiring while providing valuable service to the community.

Making the process of learning active, enjoyable and obviously personally beneficial, encourages students to be more involved in the education they receive. The community stream does employ some of these ideas. For example, field-based activities ("community" and "family" attachment programmes) which are mostly student-oriented and engaging were found to be enjoyable. These ideas are further strengthened by a study on medical students by Duke *et al.*, which, at its core, tests the same notion. He suggests that greater engagement will improve knowledge and a fun and structured experience will enhance learning.⁽¹⁵⁾ Nosek *et al.*, in a similar study states that attention is held longer when learning is made fun, and students prefer enjoyable teaching methods.⁽¹⁶⁾ That being said students appeared to have problems with the access to their allocated community and since students appeared to find community-based learning less productive and enjoyable, when they perceived the location inconvenient, making field-based training accessible and enjoyable may ensure students better appreciate the community attachment programme and the field of public health.

The research programme which utilized some of the above-mentioned principles was received very positively by students. Directly integrating the programme with a student scientific forum or student-based journal, which allows students to present their findings, may increase student perception of achievement and render the programme more productive.

In the final year, most perceived that lectures had a

tendency to disrupt their clinical work and claimed they were not able to fully concentrate on the subject matter, even though most agreed they found the lectures interesting which is in contrast to their response in regard to the introductory lectures in public health. It appears that students still have a tendency to give greater priority to clinical work over activities related to the public health curriculum. These observations have also been made by Dare and Bullen who state that there is a perception that population health is considered a poor cousin of the clinically orientated medical specialties.⁽¹¹⁾ If Public Health cannot at this point compete with its clinical counterpart a possible compromise would be to reduce the likelihood of any negative perceptions. Therefore, a suggestion would be to either conclude all components of the course prior to the final year, when students are likely to be more receptive, or to integrate community-based medicine with ward activities in the final year.

One of the notable pitfalls in the curriculum was its failure to stimulate independent learning as large numbers admitted that they did not feel inspired to read up more on the topics taught, even though most found lecture topics useful and interesting. However, group and discussion-centered activities were received positively among our study populace. Bobby *et al.* suggest the combination of SGDs followed by presentations is an efficacious method of learning⁽¹⁷⁾ and our students, too, appeared to agree. A similar opinion, regarding problem-based learning (PBL) sessions, is shared by Kwan, who hypothesised that a PBL-based curriculum is better than typical didactic teaching and will make students lifelong learners.⁽¹⁸⁾ Both these methods utilize group-based teaching at their core, a feature already present in the current system. Constructivists argue that while the responsibility of learning should be borne unto to the learner, instructors should be facilitators and not teachers, thus taking on a more passive role. To be effective, learning environments should guide students to reach their own understanding, while increasing students' sense of autonomy and engagement in their education.⁽¹⁹⁻²²⁾ Based on these principles, we propose that introducing more problem-based activities, in preference of lectures, for delivery of factual knowledge, may, apart from being interesting, have the added advantage of promoting lifelong learning by motivating students to learn both independently and from one another.

This study utilized one hundred and eighty-four final year students who had completed their undergraduate course in medicine at the Faculty of Medicine Colombo, one of eight medical faculties in the country which have a combined annual output of 1100 doctors. However, the curriculum in public health and how it is implemented varies in each faculty and this study utilized convenience sampling for recruitment of its participants due to low

sample numbers as each academic year has only 200 students \pm 10 and only final years were considered; thus, it could be argued that the findings cannot be generalized to represent all the medical graduates of the country. However with a recruitment rate of 94% the findings of this study give a clear picture of the perceptions of students of the Faculty of Medicine, Colombo. It would have been interesting to analyze each faculty individually and to understand variations in perception as per the curricula in place and it is our recommendation that similar studies be carried in other faculties as well.

Conclusions

The curriculum in place has been able create a positive opinion about public health among medical students of the Faculty of Medicine, Colombo, who understand its significance. However, students lack interest and motivation to learn independently and clinical components of medicine still take preference over public health. Active, engaging, and enjoyable methods of group-based teaching and a constructivist approach will likely be better received than traditional methods such as lectures, and we recommend the use of problem-based learning for delivery of factual knowledge. Ensuring teaching activities and programmes are structured, time-efficient, and student friendly will make the course more enjoyable and productive. While community-based learning is viewed positively by students, making these experiences mutually beneficial to both community and students is likely to inspire students to think favorably about a future in public health. We recommend that student opinions and perceptions should be assessed periodically to aid in the development of medical curricula.

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