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Faculty perceptions regarding community-based medical education:  
The case of KSA



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المخلص

**أهداف البحث:** هناك قلق بشأن اختيار جودة خريجي الكليات الصحية، وقدرتهم على الاستجابة للاحتياجات الصحية للمجتمع المحلي. التعليم الطبي المبني على المجتمع هو وسيلة لتحقيق التعليم المناسب للاحتياجات المجتمعية. تقدم التعليم الطبي في المملكة العربية السعودية بسرعة جنباً إلى جنب مع توسع ضخم في الاحتياجات والتوقعات الصحية المجتمعية. هدفت هذه الدراسة إلى تقييم تصورات أعضاء هيئة تدريس بكليتي الطب وطب الأسنان نحو مفاهيم مختلفة تعكس التعليم الطبي المبني على المجتمع.

**طرق البحث:** استخدمت هذه الدراسة المقطعية التحليلية والمبنية على المشاهدة استبانة ذاتية تم توزيعها على أعضاء هيئة التدريس في كليتي الطب وطب الأسنان في جامعة طيبة بالمملكة العربية السعودية.

**النتائج:** استجاب 136 من أعضاء هيئة التدريس للاستبانة، بمعدل استجابة 64%. وكانت نسبة الاتفاق أقوى بين أعضاء هيئة التدريس في كلية الطب. كما أظهرت نتائج الدراسة وجود ارتباط بين المفاهيم المختلفة للتعليم الطبي المبني على المجتمع والتجارب التدريسية لأعضاء هيئة التدريس، من خلال المناصب الأكاديمية لتطبيق التعليم الطبي المبني على المجتمع. كانت هناك اختلافات كبيرة في الجوانب الاجتماعية، والثقافية والعرقية للممارسة الطبية.

**الاستنتاجات:** التعليم الطبي المبني على المجتمع هو وسيلة لتحقيق التناسب التعليمي للاحتياجات المجتمعية، وبالتالي يوفر وسيلة لتنفيذ برنامج تعليمي مجتمعي المنحى.

**الكلمات المفتاحية:** التصورات؛ التعليم الطبي المبني على المجتمع؛ المملكة العربية السعودية؛ الممارسة الطبية؛ الخبرة التعليمية

Abstract

**Objectives:** There is great concern about the selection and quality of health college graduates and about their ability to respond to local community health needs. Community-based medical education (CBME) is a means of achieving educational relevance to community needs. In KSA, medical education has rapidly progressed in tandem with huge expansions in community health needs and expectations. This study aimed to assess the perceptions of the faculty members of the colleges of medicine and dentistry towards different concepts reflecting CBME.

**Methodology:** This analytical, observational and cross-sectional study used a self-administered questionnaire that was given to the faculty members of the colleges of medicine and dentistry at Taibah University, KSA.

**Results:** As many as 136 faculty members responded, a response rate of 64%. The percentage of agreement was strongest among the faculty members of the college of medicine. The study findings also showed a relationship between different concepts of CBME and faculty teaching experiences by academic positions for applying CBME. There were significant differences in the social, cultural, and ethnic aspects of medical practice.

**Conclusion:** CBME is a means of achieving educational relevance to community needs and consequently serves as a means of implementing a community-oriented education programme.

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**Keywords:** CBME; Community-based medical education; KSA; Medical practice; Perceptions; Teaching experience

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## Introduction

There is great concern and there are mixed views regarding the selection, implementation and assessment of the quality of health college graduates. Their ability to respond to local community health needs and the improvement in their responses have been the focus of many articles.<sup>1,2</sup> The experience and views of faculty members influence the selection of the type of curricula and the teaching and learning approaches used in the colleges.<sup>3</sup>

Experiential learning is a process by which learners reflect on their experience and draw meanings from such a reflection.<sup>4</sup> This process leads learners to gain new insights and an understanding of themselves and their surrounding environment. In addition, it helps students develop critical thinking and problem-solving skills as well as a stronger service ethic.<sup>5</sup>

Community-based education is a means of achieving educational relevance to community needs and consequently serves as a means of implementing a community-oriented education programme. It consists of learning activities that utilize the community extensively as “a learning environment in which not only students but also teachers, members of the community, and representatives of other sectors are actively involved throughout the educational experience”.<sup>6–9</sup>

According to Hamad, for community-based education to succeed and to be effective, it must have “clear objectives well planned and organized; include the whole curriculum with its activity starting early and continuing through the curriculum years; have the commitment of the total faculty with active participation of all departments and not stand as a function of one department; use active not passive learning methods preferably through a problem-solving process and to be availed the resources especially logistics”.<sup>10</sup>

Community-based education (CBE) allows students the opportunity to attain broader views of their role in their profession. Students, faculty, and community members are actively involved in the process of learning and of responding to local community needs.<sup>11</sup> CBE programmes mainly aim to help students in medical fields to learn about the relationship between patients’ physical and social environment and their health and well-being; community resources, problems and population health; the use of epidemiology and other scientific approaches to assess health problems in a community; and the use of health promotion techniques and interventions to address community health problems.<sup>11</sup> It can be argued that CBE is a ‘win–win’ programme, as it provides both the training institution and the service site with additional resources. The benefits to the students involved with CBE are well-documented in the literature, and the students reveal improved practical knowledge and

skills and a more positive attitude towards their patients and colleagues.<sup>1</sup>

The question “Does community-based education increase students’ motivation to practice community health care?” has been answered positively. This is shown by the community-based education-inspired students who practise clinical services.<sup>8</sup> Student enthusiasm has increased in health education activities, and those who take part have shown a positive influence and have improved their instructional quality, based on outcomes.<sup>7,8</sup>

Hamad explains that certain issues and concerns clearly indicate that the expression ‘community-oriented medical education’ (COME) is still misunderstood. Seven major questions are highlighted with reference to his personal experience and the literature.<sup>3</sup>

What do we mean by COME, community-based education (CBE) and community-based learning (CBL)? COME is third-grade medical education producing third-grade graduates and ‘barefoot doctors’. COME produces community health doctors/specialists; it is not scientifically based (based only on soft sciences), and basic sciences are neglected. Moreover, graduates from COME programmes are not competent in dealing with patients, as they spend most of their time in the community. In addition, if it is community-oriented medical education, what purpose does the hospital serve?

According to Telmesani et al.,<sup>12</sup> in KSA, medical education has been progressing rapidly, and this has been accompanied by huge expansions in community health needs and expectations. Within a short period of time, the number of medical schools has increased from 5 with traditional disciplined-based curricula to 24 that implement curricula that vary from the traditional to more innovative, problem-based, community-oriented programmes. This growth in the number of medical colleges will shift the focus to an urgent need to ensure greater quality in responsiveness to the health of the Saudi community.<sup>12,13</sup>

Community partnership within medical education could train a cohort of medical students prepared to practice in the rapidly changing health care environment, one which now includes an important new agenda of community accountability.

The importance of this study arises from a lack of local studies explaining any initiative towards the implementation of CBME or any attempts to determine its importance.

### *Aim of the study*

This study aims to assess the perception of the staff members of the College of Medicine and the College of Dentistry towards different concepts reflecting community-based medical education (CBME). The present study will also evaluate the staff members’ opinion regarding the application of CBME curricula in their colleges, and the extent to which these perceptions support curriculum transformation to apply CBME curricula.

### *Specific objectives*

1. Assess the faculty’s perception of the concept of CBME.
2. Compare the perceptions of the College of Medicine and the College of Dentistry towards CBME.

3. Identify CBME concepts that match with higher agreement in both colleges and determine whether different personal characteristics affect the respondents' perceptions.
4. Identify faculty perceptions that support the possibility of applying CBME in their schools.

## Materials and Methods

This study was conducted in the College of Medicine and the College of Dentistry of Taibah University, Almadinah Almunawwarah, KSA. These colleges have been using the traditional curriculum for the past five years, with an intake of more than 170 students annually. There are a total of 213 faculty members in both institutions: 156 in the Medical College (111 males and 45 females) and 57 in the Dental College (38 males and 19 females). Faculty members in both colleges are assigned to teach either basic science courses or clinical courses as part of Taibah University's major project for teaching and learning quality improvement initiatives. It is believed that both colleges have now reached the stage where they can apply major educational reforms to their respective curricula and monitor the ways in which these curricula are being delivered.

The study included all academic staff assigned with lecturer duties and clinical services duties in both the College of Medicine and the College of Dentistry. The point of interest here is that they are a mix of different nationalities, qualifications and expertise. This study was conducted in September 2014.

The present study is an observational, analytical, cross-sectional study. A self-administered questionnaire has been used to assess faculty perceptions regarding different concepts of CBME. The questionnaire is derived from the literature on CBME and designed to reflect different important issues related to CBME that highlight its importance, applicability and major advantages.

The questionnaire consists of four parts:

**Part I:** The introductory aspect, which requires information regarding voluntary participation and privacy of information.

**Part II:** General data related to academic degree, college, profession, sex, and previous exposure to or experience in implementing CBME.

**Part III:** Information about perceptions of the staff members of the College of Medicine and the College of Dentistry towards different concepts reflecting CBME. This consists of 32 statements targeting different concepts of CBME.

**Part IV:** Open-ended questions regarding staff awareness of the type of curriculum implemented in their college and whether they recommend their College Board to shift to a CBME curriculum. A 5-point Likert-type response scale has been used, ranging from 1 (strongly disagree) to 5 (strongly agree). The scores of statements 5, 8, 12, 13, 22, and 31 are reversed (i.e., the correct answer is "disagree"). These are assigned the highest score to ensure that answers have no standard format; therefore, staff members must read each item carefully before responding. During the data analysis phase, the 5-point scale was transformed into a 3-point response scale ranging from 1 (disagree) to 3 (agree), with 2 corresponding to 'don't know'.

The questionnaire is drafted in English and is pretested before beginning data collection. Piloting of the questionnaire has been done to check its validity and reliability. Face validity is performed by revising the instrument's appearance to be a good measure of the concept needing to be measured, which can also be considered a subtype of content validity. Content validity is assessed by reviewing the literature. Reliability of the questionnaire is calculated using the Cronbach  $\alpha$  test for internal consistency and is judged by the internal consistency coefficient (Cronbach  $\alpha$ ) of the questionnaire items; 0.765 indicated a good degree of internal consistency.

Data have been collected, coded and analysed using SPSS software Version 20 under Windows 8. Quantitative analysis is done using frequency distributions mean and standard deviations when applicable, followed by inferential statistics using a Chi-Square test and a Fisher's exact test, and P-value is set at 0.05 to consider significance. Qualitative analyses for open-ended questions are performed and summaries of responses are recorded, analysed and categorised into different themes.

## Results

A total of 136 (64%) staff members have filled in the questionnaire. Of them, 80 (37.6%) are from the College of Medicine and 56 (26.3%) from the College of Dentistry, and the questionnaire was distributed between the male and female populations. Regarding academic positions, Professors represent 40% and 27%, Associate Professors 33% and 25% and Assistant Professors 28% and 48% from the Colleges of Medicine and Dentistry, respectively ( $p = 0.45$ ).

Years of teaching experience ranged from 4 to 35 years, with a mean of  $12.9 \pm 5.6$  years. This was then categorised into two groups: 10 years or less, 52 (38%), and over 10 years of teaching experience, 84 (62%).

There was no significant statistical difference between genders of study participants  $p = 0.11$  (Table 1).

As demonstrated in Table 2, when asking about the type of curriculum offered in each college, only 77 (56.6%) have reported that they are aware of the curriculum type being utilized. Of those reporting knowing the type of curriculum being used, 80% have answered correctly regarding the type of curriculum. Regarding study participants' opinion about recommending the application of introducing CBME

**Table 1: Demographic characteristics of participants.**

College	Medicine No (%)	Dentistry No (%)	Total No (%)
Participants	80/213 (37.6%)	56/213 (26.3)	136/213 (63.84%)
<b>Academic position</b>			
Professors	32/80 (40%)	15/56 (27%)	47/136 (34.6%)
Associate Professors	26/80 (33%)	14/56 (25%)	40/136 (29.4%)
Assistant Professors	22/80 (28%)	27/56 (48%)	49/136 (36%)
<b>Gender</b>			
Male	64/80 (80%)	38/56 (67.9%)	102/136 (75%)
Female	16/80 (20%)	18/56 (32.1%)	34/136 (25%)

**Table 2: Faculty awareness and recommendation for their curriculum.**

College	Medicine No. (%)	Dentistry No. (%)	Total No. (%)	P value
Faculty awareness of the type of the curriculum	54/80 (67.5%)	23/56 (41%)	77/136 (56.6)	0.002
Recommendation of applying CBME curriculum	66/80 (82.5)	44/56 (78.6)	110/136 (80.9)	0.566

into the curriculum, 110 (81%) are in favour and 19% are against it.

There is a significant statistical difference between faculty staff members from the College of Medicine and the College of Dentistry regarding the type of curriculum being offered: 54 (67.5%) respondents from the College of Medicine and 23 (41%) from the College of Dentistry are correct about the type of curriculum being used ( $P = 0.002^{**}$ ). However, there is almost no significant difference regarding the recommendation of applying CBME among staff members of both colleges: 66/80 (82.5%) and 44/56 (78.6%) from the College of Medicine and Dentistry, respectively ( $P = 0.566$  NS).

#### *Relationship between faculty and opinions regarding different statements about CBME*

Based on [Table 3](#) and [Figure 1](#), note that staff members in the College of Medicine have given a higher percentile of agreement regarding statements 7, 9, 11, 15, 16, 18, 24 and 26 than those in the College of Dentistry. There is a significant statistical difference in these 8 items ( $p < 0.05$  and  $p < 0.01$ ).

Statements number 21 {CBME may equip students with competencies that they would never learn otherwise, e.g., ability to work in a team} and 22 {Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community} showed that staff members from the College of Dentistry have a higher percentage of disagreement than those from the College of Medicine ( $p < 0.05$ ) ([Figure 2](#)).

#### *Relationship between experience as not underlined in CBME and response of study participants to questionnaire statements*

Based on [Table 4](#) and [Figure 3](#), we can observe that there are some significant statistical differences between those with previous experience and those with no previous experience regarding six statements dealing with CBME. Those with no previous experience show a higher percentage of agreement for statements 5, 12 and 30 ( $p < 0.01$ ), while those with previous experience with CBME report a higher degree of agreement for statements 10, 13 and 15 ( $p < 0.05$ ).

#### *Relationship between teaching experience and study participants' opinion regarding CBME*

[Table 5](#) and [Figure 4](#) show that staff members with teaching experience of over 10 years have responded with a

high percentage of agreement to statements 11, 15 and 17 ( $p < 0.05$ ). However, for statement 24, those with an experience of 10 years or less amounted to 58%, compared to 45% for those with over 10 years' experience ( $p = 0.01$ ).

#### *Relationship between academic position and study participants' opinion regarding CBME*

[Table 6](#) and [Figure 5](#) compare the responses to different statements related to CBME according to academic position. It can be observed that there is a significant statistical difference between academic positions in relation to statement 6, as Assistant Professors obtain the highest score in (Do not know) regarding this item ( $p = 0.025$ ). However, for statement 16, Assistant Professors show a lower percentage agreement in the (Do not know) response than Professors and Associate Professors ( $p = 0.019$ ). As for the statement regarding keeping the curriculum updated ([Table 6](#)), since priorities of health problems change constantly, Associate Professors have the lowest degree of agreement (60%) compared to Professors and Assistant Professors (92% and 82% respectively), ( $p = 0.009$ ).

## **Discussion**

This study aims to assess the perception of staff members of the College of Medicine and the College of Dentistry towards different concepts reflecting community-based medical education (CBME). In addition, their opinion on the application of CBME curricula in their colleges and the extent to which these perceptions support curriculum transformation to apply CBME curricula were evaluated.

The results illustrate that the faculties in both colleges agree with almost the majority of the concepts regarding CBME even without the presence of statistical significance. This, however, is more the case with faculty from the College of Medicine. In addition, the results show a relationship between different concepts of CBME and faculty teaching experience, academic positions, and their experiences (if any) in applying CBME in other institutions previously.

Institutes, universities, insurance and funding bodies and local communities are progressively looking for an answer to the concern that recognizes the significant influence of social, political and economic factors on health behaviour and outcomes. These concerns have had an impact on the importance of scientific research needed to translate research findings into applicable changes in practice and policy.<sup>14</sup> Unlike other studies in the field, the present one is unique because it aims to target both medical and dental college faculties, whereas most of the available literature targets the medical faculty alone.

As for the faculty's perception of the concept of CBME in general and the comparison between the College of Medicine and the College of Dentistry, results have shown that the faculty in both colleges agree with statements 7, 9, 11, 15, 16, 18, 21, 22, 24 and 26, which are related to very important issues associated with CBME. However, staff members of both colleges have disagreed regarding statement 22, that 'graduates from CBME programmes are not competent in

**Table 3: Relationship between faculty and opinions regarding different statements about CBME.**

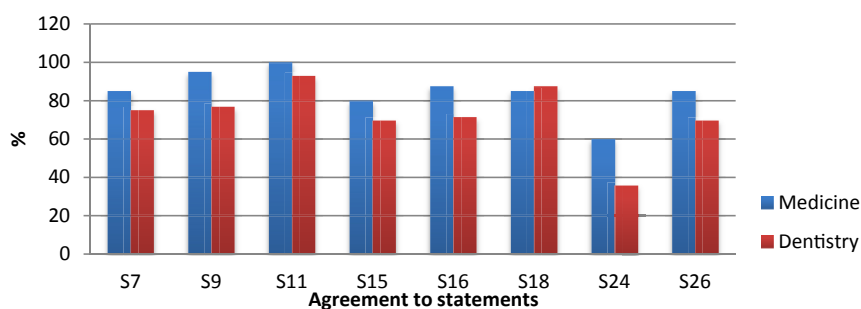
Statement	Medicine (Agree)		Dentistry (Agree)		P value
	N = 80	%	N = 56	%	
1. CBME represents an important trend in current methods of medical education.	78	97.5	53	94.6	0.227
2. CBME involves the integration of education and productive work within the learning process.	78	97.5	50	89.3	0.116
3. CBME is associated with efforts to involve students and educational institutions in national development.	72	90	48	85.7	0.605
4. CBME is associated with efforts to combine theory with practice.	70	87.5	47	83.9	0.234
5. CBME is third-grade medical education producing third-grade graduates and 'barefoot doctors'.	36	45	16	28.6	0.152
6. In CBME, student activities are related to planned educational goals and objectives.	72	90	47	83.9	0.109
7. CBME gives students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice.	68	85	42	75	0.016*
8. CBME is not scientifically based (based only on soft sciences) and basic sciences are neglected.	28	35	19	33	0.545
9. CBME requires a synthesis of clinical skills, knowledge, capabilities and attitudes.	76	95	43	76.8	0.004**
10. CBME is directed towards priority health needs.	68	85	48	85.7	0.72
11. CBME trains students to work together as a multidisciplinary team (involving students, teachers, community members and representatives of health and other sectors).	80	100	52	92.9	0.015*
12. CBME focuses mainly on the health of the community, not the individual.	48	60	34	60.7	0.168
13. CBME produces community health doctors/specialists.	62	77.5	41	73.2	0.147
14. CBME can help graduates consider the well-being of patients, families and the community.	74	92.5	50	89.3	0.461
15. CBME gives students a foundation for a holistic approach to health care delivery.	64	80	39	69.6	0.042*
16. CBME keeps the educational process up to date by continuously confronting students with reality.	70	87.5	40	71.4	0.006**
17. CBME improves the quality of health services.	74	92.5	48	85.7	0.103
18. CBME may contribute to equity in health services delivery.	68	85	49	87.5	0.049*
19. CBME may equip students with competencies they would never learn otherwise, e.g., leadership skills.	64	80	43	76.8	0.248
20. CBME may equip students with competencies they would never learn otherwise, e.g., the capability to interact with the community.	72	90	45	80.4	0.121
21. CBME may equip students with competencies they would never learn otherwise, e.g., the ability to work in a team. (Disagree)	54 10	67.5 12.5	38 14	67.9 25	0.037*
22. Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community. (Disagree)	26 24	32.5 30	18 28	32.1 50	0.021*
23. CBME may help in strengthening the college in some aspects, such as politically.	48	60	29	51.8	0.163
24. CBME may help in strengthening the college in some aspects, such as financially.	48	60	20	35.7	0.006**
25. CBME may help in strengthening the college in some aspects, such as morally.	64	80	42	75	0.52
26. CBME keeps the curriculum updated, since the priorities of health problems constantly change.	68	85	39	69.6	0.033*
27. One of the challenges of CBME is giving priority to student improvement rather than health services improvement.	40	50	24	42.9	0.212
28. One of the challenges of CBME is maintaining proper coordination between health institution and educational institution.	72	90	46	82.1	0.095

**Table 3** (continued)

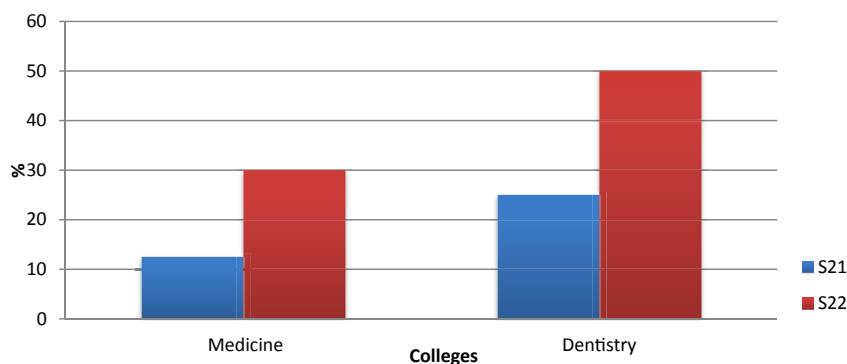
Statement	Medicine (Agree)		Dentistry (Agree)		P value
	N = 80	%	N = 56	%	
29. One of the main challenges of CBME is lack of complete faculty commitment to it.	46	57.5	36	64.3	0.687
30. Resistance from health professionals responsible for health services is one of the difficulties expected.	50	62.5	42	75	0.281
31. CBME is expensive and requires more resources than do traditional approaches.	42	52.5	28	50	0.808
32. Lack of continuity of financial support from health and academic institutions will hinder the implementation of CBME.	50	62.5	43	76.8	0.159

\*P significant at 0.05 level.

\*\*P significant at 0.01 level.



**Figure 1:** Agreement of faculty staff members regarding different CBME statements.



**Figure 2:** Disagreement of faculty staff members regarding different CBME statements.

dealing with patients, as they spend most of their time in the community,' where it is related to a reverse statement. This seems acceptable, as the percentage of respondents who with experience and who have been engaged in implementing CBME is very low (17.64%), which reflects such results. In regard to the variation in responses to questionnaire statements, results have shown that the respondents from the College of the Medicine gave a higher percentage of agreement regarding statements 7, 9, 11, 15, 16, 18, 24 and 26 than did those from the College of Dentistry. We can argue that this is because those statements are directed at explaining issues belonging mainly to a process related to the field of medicine more than to the field of dentistry, in which students spend their entire college years in a dental clinic setting and are rarely exposed to such issues related to the previous statements. Additionally, according to Figure 2, 'CBME can equip students with competencies that they would never

learn otherwise', and 'Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community'.

In addition to the degree of agreement, we can observe that faculty members from the College of Dentistry have a higher percentage of disagreement regarding teamwork than those from the College of Medicine. This is because dentistry as a speciality does not usually require teamwork in giving dental services, whereas in medicine the patient is managed by different speciality teams. Generally, these results reflecting faculty agreement are shown in Table 1, for example, the ability of CBME to offer students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice. Moreover, CBME gives students a foundation for a holistic approach to health care delivery, as indicated in other studies.<sup>7,8,14</sup>

**Table 4: Relationship between experience of CBME and responses of study participants to questionnaire statements.**

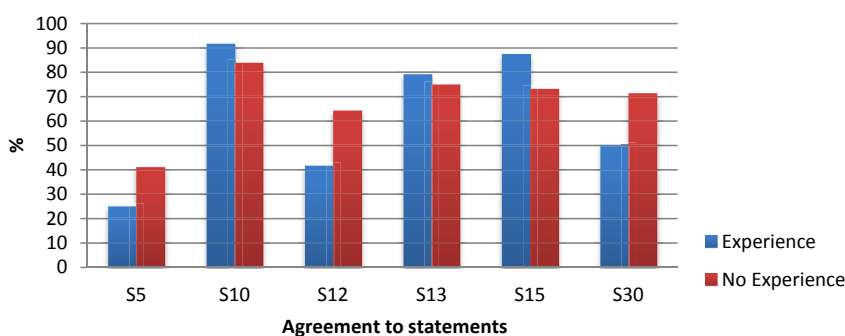
Statement	Experience (Agree)		No experience (Agree)		P value
	N = 24	%	N = 112	%	
1. CBME represents an important trend in current methods of medical education.	24	100	107	95.5	0.573
8. CBME involves the integration of education and productive work within the learning process.	24	100	104	92.9	0.402
9. CBME is associated with efforts to involve students and educational institutions in national development.	22	91.7	98	87.5	0.695
10. CBME is associated with efforts to combine theory with practice.	21	85.5	96	85.7	0.396
11. CBME is third-grade medical education producing third-grade graduates and 'barefoot doctors'.	6	25	46	41.1	0.001**
12. In CBME, student activities are related to planned educational goals and objectives.	21	87.5	98	87.5	0.735
13. CBME gives students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice.	17	70.8	93	83	0.215
14. CBME is not scientifically based (based only on soft sciences) and basic sciences are neglected.	4	16.7	43	38.4	0.94
15. CBME requires a synthesis of clinical skills, knowledge, capabilities and attitudes.	22	91.7	97	86.6	0.667
16. CBME is directed towards priority health needs.	22	91.7	94	83.9	0.013*
17. CBME trains students to work together as a multidisciplinary team (involving students, teachers, community members and representatives of health and other sectors).	24	100	108	96.4	0.347
18. CBME focuses mainly on the health of the community, not the individual.	10	41.7	72	64.3	0.002**
19. CBME produces community health doctors/specialists.	19	79.2	84	75	0.01*
20. CBME can help graduates consider the well-being of patients, families and the community,	24	100	100	89.3	0.244
21. CBME gives students a foundation for a holistic approach to health care delivery.	21	87.5	82	73.2	0.024*
22. CBME keeps the educational process up to date by continuously confronting students with reality.	22	91.7	88	78.6	0.269
23. CBME improves the quality of health services.	23	95.8	99	88.4	0.517
24. CBME may contribute to equity in health services delivery.	20	83.3	97	86.6	0.765
25. CBME may equip students with competencies that they would never learn otherwise, e.g., leadership skills.	21	87.5	86	76.8	0.350
26. CBME may equip students with competencies that they would never learn otherwise, e.g., the capability to interact with the community.	20	83.3	97	86.6	0.85
27. CBME may equip students with competencies that they would never learn otherwise, e.g., the ability to work in a team.	13	54.2	79	70.5	0.084
28. Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community.	6	25	38	33.9	0.075
29. CBME may help in strengthening the college in some aspects, such as politically.	13	54.2	64	57.1	0.315
30. CBME may help in strengthening the college in some aspects, such as financially.	13	54.2	55	49.1	0.677
31. CBME may help in strengthening the college in some aspects, such as morally.	17	70.8	89	79.5	0.649
32. CBME keeps the curriculum updated, since the priorities of health problems constantly change.	19	79.2	88	78.6	0.424
33. One of the challenges of CBME is giving priority to student improvement rather than health services improvement.	10	41.7	54	48.2	0.395
34. One of the challenges of CBME is maintaining proper coordination between health institution and educational institution.	21	87.5	97	86.6	0.704

**Table 4** (continued)

Statement	Experience (Agree)		No experience (Agree)		P value
	N = 24	%	N = 112	%	
35. One of the main challenges of CBME is lack of complete faculty commitment to it.	17	70.8	65	58	0.357
36. Resistance from health professionals responsible for health services is one of the difficulties expected.	12	50	80	71.4	<0.001**
37. CBME is expensive and requires more resources than do traditional approaches.	10	41.7	60	53.6	0.213
38. Lack of continuity of financial support from health and academic institutions will hinder the implementation of CBME.	19	79.2	74	66.1	0.451

\*P significant at 0.05 level.

\*\*P significant at 0.01 level.

**Figure 3:** Relationship between experience in CBME and agreement to questionnaire statements.**Table 5: Relationship between teaching experience and study participants' opinions regarding CBME.**

Statement	Teaching experience 10 years or less (Agree)		Teaching experience over 10 years (Agree)		P value
	N = 52	%	N = 84	%	
1. CBME represents an important trend in current methods of medical education.					
2. CBME involves the integration of education and productive work within the learning process	48	92.3	80	95.2	0.426
3. CBME is associated with efforts to involve students and educational institutions in national development.	45	86.5	75	89.3	0.817
4. CBME is associated with efforts to combine theory with practice.	44	84.6	73	86.9	0.191
5. CBME is third-grade medical education producing third-grade graduates and 'barefoot doctors'.	20	38.5	32	38.1	0.801
6. In CBME, student activities are related to planned educational goals and objectives.	42	80.8	77	91.7	0.106
7. CBME gives students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice.	44	84.6	66	78.6	0.651
8. CBME is not scientifically based (based only on soft sciences) and basic sciences are neglected.	21	40.4	26	31.0	0.379
9. CBME requires a synthesis of clinical skills, knowledge, capabilities and attitudes.	45	86.5	74	88.1	0.585
10. CBME is directed towards priority health needs.	45	86.5	71	84.5	0.449
11. CBME trains students to work together as a multidisciplinary team (involving students, teachers, community members and representatives of health and other sectors).	48	92.3	84	100	0.010*
12. CBME focuses mainly on the health of the community, not the individual.	27	51.9	55	65.5	0.167
13. CBME produces community health doctors/specialists.	39	75	64	76.2	0.432

(continued on next page)



Table 5 (continued)

Statement	Teaching experience 10 years or less (Agree)		Teaching experience over 10 years (Agree)		P value
	N = 52	%	N = 84	%	
	14. CBME can help graduates consider the well-being of patients, families and the community.	46	88.5	78	
15. CBME gives students a foundation for a holistic approach to health care delivery.	35	67.3	68	81	0.02*
16. CBME keeps the educational process up to date by continuously confronting students with reality.	42	80.8	68	81	0.269
17. CBME improves the quality of health services.	42	80.8	80	95.2	0.026*
18. CBME may contribute to equity in health services delivery.	43	82.7	74	88.1	0.511
19. CBME may equip students with competencies that they would never learn otherwise, e.g., leadership skills.	39	75	68	81	0.544
20. CBME may equip students with competencies that they would never learn otherwise, e.g., the capability to interact with the community.	45	86.5	72	85.7	0.597
21. CBME may equip students with competencies that they would never learn otherwise, e.g., the ability to work in a team.	36	69.256	56	66.7	0.119
22. Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community.	16	30.8	28	33.3	0.916
23. CBME may help in strengthening the college in some aspects, such as politically.	34	65.4	43	51.2	0.08
24. CBME may help in strengthening the college in some aspects, such as financially.	30	57.7	38	45.2	0.01*
25. CBME may help in strengthening the college in some aspects, such as morally.	43	82.7	63	75	0.08
26. CBME keeps the curriculum updated, since the priorities of health problems constantly change.	40	76.9	67	79.8	0.728
27. One of the challenges of CBME is giving priority to student improvement rather than health services improvement.	23	44.2	41	48.8	0.846
28. One of the challenges of CBME is maintaining proper coordination between health institution and educational institution.	42	80.8	76	90.5	0.244
29. One of the main challenges of CBME is lack of complete faculty commitment to it.	33	63.5	49	58.3	0.757
30. Resistance from health professionals responsible for health services is one of the difficulties expected.	36	69.2	56	66.7	0.950
31. CBME is expensive and requires more resources than do traditional approaches.	24	46.2	46	54.8	0.521
32. Lack of continuity of financial support from health and academic institutions will hinder the implementation of CBME.	31	59.6	62	73.8	0.159

\*P significant at 0.05 level.

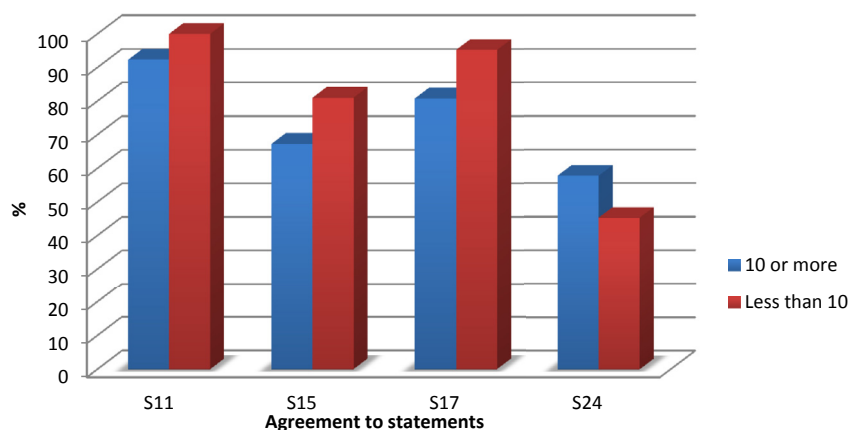


Figure 4: Relationship between teaching experience and agreement to CBME statements.

**Table 6: Relationship between academic position and study participants' opinions regarding CBME.**

Statement	Professors (Agree)		Associate Prof. (Agree)		Assistant Prof. (Agree)		P value
	N = 47	%	N = 40	%	N = 49	%	
1. CBME represents an important trend in current methods of medical education.	47	100	37	92	47	95.9	0.452
2. CBME involves the integration of education and productive work within the learning process.	45	95.7	38	95	45	91.8	0.739
3. CBME is associated with efforts to involve students and educational institutions in national development.	41	87.2	39	97.5	40	81.6	0.141
4. CBME is associated with efforts to combine theory with practice.	40	85.1	35	87.5	42	85.7	0.408
5. CBME is third-grade medical education producing third-grade graduates and 'barefoot doctors'.	21	44.7	11	27.5	20	40.8	0.553
6. In CBME, student activities are related to planned educational goals and objectives. (Do not know)	45	95.7	37	92.5	37	75.5	0.025*
7. CBME gives students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice.	1	2.1	3	7.5	10	20.4	
8. CBME gives students more opportunities than hospital-based education to learn about the social, cultural, and ethnic aspects of medical practice.	34	72.3	36	90	40	81.6	0.087
9. CBME is not scientifically based (based only on soft sciences) and basic sciences are neglected.	18	38.3	14	35	15	30.6	0.593
10. CBME requires a synthesis of clinical skills, knowledge, capabilities and attitudes.	45	95.7	36	90	38	77.6	0.97
11. CBME is directed towards priority health needs.	36	76.6	38	95	42	85.7	0.115
12. CBME trains students to work together as a multidisciplinary team (involving students, teachers, community members and representatives of health and other sectors).	47	100	39	97.5	46	93.9	0.203
13. CBME focuses mainly on the health of the community, not the individual.	31	66	27	67.5	24	49	0.123
14. CBME produces community health doctors/specialists.	37	78.7	30	75	36	73.5	0.698
15. CBME can help graduates consider the well-being of patients, families and the community.	43	91.5	38	95	43	87.8	0.617
16. CBME gives students a foundation for a holistic approach to health care delivery.	37	78.7	30	75	36	73.5	0.105
17. CBME keeps the educational process up to date by continuously confronting students with reality. (Do not know)	39	83	33	82.5	38	77.6	0.019*
18. CBME improves the quality of health services.	8	17	7	17.5	5	10.2	
19. CBME may contribute to equity in health services delivery.	42	89.4	38	95	42	85.5	0.172
20. CBME may equip students with competencies that they would never learn otherwise, e.g., leadership skills.	38	80.9	36	90	43	87.8	0.248
21. CBME may equip students with competencies that they would never learn otherwise, e.g., the ability to work in a team.	40	85.1	31	77.5	36	73.5	0.479
22. CBME may equip students with competencies that they would never learn otherwise, e.g., the capability to interact with the community.	41	87.2	34	85	42	85.7	0.979
23. CBME may equip students with competencies that they would never learn otherwise, e.g., the ability to work in a team.	35	74.5	23	57.5	34	69.4	0.358
24. Graduates from CBME programmes are not competent in dealing with patients, as they spend most of their time in the community.	16	34	13	32.5	15	30.6	0.054
25. CBME may help in strengthening the college in some aspects, such as politically.	26	55.3	23	57.5	28	57.1	0.424
26. CBME may help in strengthening the college in some aspects, such as financially.	27	57.4	21	52.5	20	40.8	0.198
27. CBME may help in strengthening the college in some aspects, such as morally.	40	85.1	30	75	36	73.3	0.673
28. CBME keeps the curriculum updated, since the priorities of health problems constantly change.	43	91.5	24	60	40	81.6	0.009**
29. One of the challenges of CBME is giving priority to student improvement rather than health services improvement.	18	38.3	18	45	28	57.1	0.334

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Table 6 (continued)

Statement	Professors (Agree)		Associate Prof. (Agree)		Assistant Prof. (Agree)		P value
	N = 47	%	N = 40	%	N = 49	%	
28. One of the challenges of CBME is maintaining proper coordination between health institution and educational institution.	45	95.7	31	77.5	42	85.7	0.108
29. One of the main challenges of CBME is lack of complete faculty commitment to it.	29	61.7	24	60	29	59.2	0.975
30. Resistance from health professionals responsible for health services is one of the difficulties expected.	34	72.3	28	70	30	61.2	0.271
31. CBME is expensive and requires more resources than do traditional approaches.	26	55.3	21	52.5	23	46.9	0.788
32. Lack of continuity of financial support from health and academic institutions will hinder the implementation of CBME.	32	68.1	27	67.5	34	69.4	0.952

\*P significant at 0.05 level.

\*\*P significant at 0.01 level.

The current study (i) identifies CBME concepts that match with higher education in both colleges and (ii) links them by a discussion of different respondent characteristics that affect their perceptions. The results showed that there were significant statistical differences between those with previous experience in implementing CBME and those with no previous experience regarding many statements dealing with CBME (5, 10, 12, 13, 15 and 30). Those who had no previous experience showed a higher percentage of agreement for statements 5, 12 and 30. This seems practical, as statements 5 and 12 were reversed statements and for those who had no previous experience such results were expected. 'Resistance from health professionals responsible for health services is one of the difficulties expected' was foreseen in implementing CBME, given the interaction between different groups of students, faculty, and health professionals working in the community. In agreement with our findings, several studies concluded that those with previous experience in CBME reported a higher degree of agreement in implementing the CBME curriculum, reflecting a good understanding in such a concept.<sup>9,15</sup>

Our study also demonstrated a statistical significance regarding the effect of teaching experience and its impact on faculty members' perceptions regarding CBME. Those with teaching experience of over 10 years responded with a high percentage of agreement that in a CBME curriculum the students can work together in teams. CBME provides students with a foundation for a holistic approach to health care delivery and improves the quality of health services. However, staff members with less teaching experience agreed that CBME can strengthen the college in some areas, such as finance. This could be attributed to their brief experience in this field, if any.

Interestingly, the results show a relationship between the effect of faculty members' academic position and their perceptions of CBME. There is a significant statistical difference between academic positions in relation to statements 6, 16 and 26. For statement 6, Assistant Professors have the highest score in (Do not know) regarding this item. However, for statement 16, Assistant Professors show a lower percentage in the (Do not know) response than Professors and Associate Professors. This is because Assistant Professors

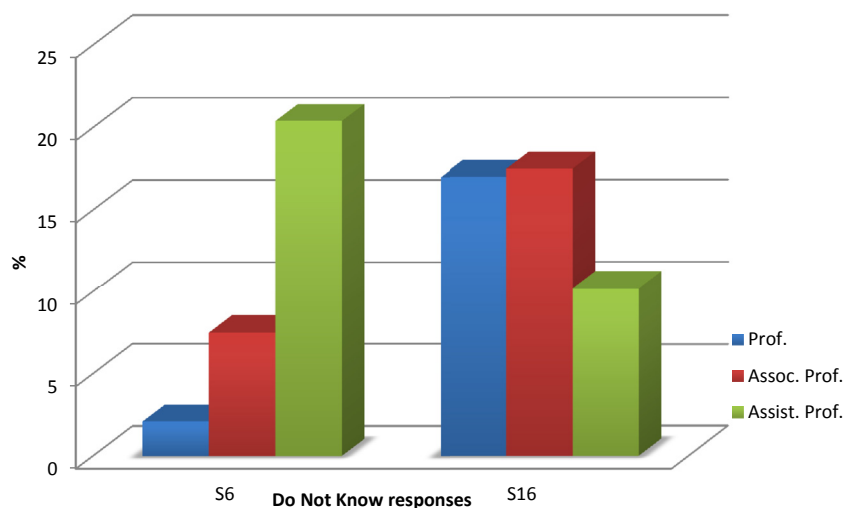


Figure 5: Relationship between academic degree and not knowing some statements related to CBME.

were younger and unable to comment clearly on issues related to accumulated experience with different types of curricula, such as the CBME curriculum.

It is worth noting that, regarding statement 26 (keeping the curriculum updated), since priorities of health problems change constantly, Associate Professors have the lowest degree of agreement (60%) compared to Professors and Assistant Professors (91.5% and 81.6% respectively). This finding is difficult to explain, and further study is needed to clarify the speciality of the majority of Associate Professors, as they may come from different basic science backgrounds. Additionally, faculty perceptions which support the possibility of applying CBME in their schools are considered in this study. Although the majority of respondents recommended the application of CBME as the main strategy in their curriculum, there is almost no difference regarding the recommendation to apply CBME among staff members in both colleges. Staff members from both colleges strongly supported the urgent need for CBME because of its benefits to the community and for the Dental and Medical colleges.

Both the College of Medicine and the College of Dentistry apply traditional curricula. When staff members are asked about the type of curriculum offered in each college, only 56.6% reported knowing it, whereas 43.3% reported not knowing it. Of those reporting an awareness of curriculum type, qualitative analysis showed that around four-fifths had the correct answer. This can reflect the fact that faculty members in both colleges need to be better trained and fully oriented about curriculum types, curriculum planning, and implementation.

## Conclusion

The majority of the faculty members in both the Medicine and Dental colleges have recommended the implementation of a CBME curriculum because CBME can meet faculty and student educational needs and the community's health needs. CBME, in their opinion, has a positive effect on the college teaching environment and on student performance, allowing students to become competent in serving their community.

## Recommendations

Certain recommendations can be extracted from this study:

1. The need to orient and teach faculty members about different types of curricula, their advantages and disadvantages, and which curriculum is being applied in their colleges.
2. If they are not planning to implement a CBME curriculum, colleges must establish certain modules or courses that orient faculty members and students to different aspects of community health needs and other factors revolving around these concepts.

3. Previous faculty experiences with CBME should be invested in establishing initiatives planned towards the health of the community.

## Conflict of interest

The author has no conflict of interest to declare.

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