Objectives: To study the relationship between student motivation for learning and 38 factors related to teaching, curriculum and administration.

Method: A total of 231 male and female medical students in the first three pre-clinical years participated in the study by completing a questionnaire.

Results and Conclusions: Factors that have been rated as strong promoters of motivation include: injecting relevant clinical information into lectures, encouraging student participation, revising previous lectures, using explanatory Arabic phrases, using the chalk board, providing specific course objectives, adopting one easy reference, concentrating on the core curriculum and showing respect to students. Factors that have been evaluated as inhibitors of motivation included: content overload, unscheduled quizzes, giving one quiz per subject in a semester, difficult exams and afternoon lectures.

Key Words: Student motivation, Medical education, Teaching style, Medical curriculum, Saudi Arabia

Correspondence to:
Dr. A.O. Bamosa, Department of Physiology, College of Medicine, King Faisal University, P.O. Box 2114, Dammam 31451, Saudi Arabia
INTRODUCTION

The College of Medicine in King Faisal University operates a 6-year conventional curriculum consisting of a pre-clinical (3.5 years) and a clinical (2.5 years) periods. Following the successful completion of the 6 years, graduates are then required to spend a period of one year for internship. The study plan is designed to offer subjects in an annual system in the first 3 years and for the remaining period, in a semester system. Every year, the college admits about 90 male and 50 female students who score at least 90% in their high school and who have also passed an entrance examination and an interview. The medium of instruction to sex-segregated groups in the college is English, whereas the native language of the students is Arabic. Attendance at lectures is compulsory and a student who absents himself/herself for more than 35% of the course will be barred from sitting the final examination. Despite the fact that our admission procedures select almost the best students, many faculty members have observed that a significant number of students exhibit a lack of motivation. This is shown by absence from classes, poor attention to the tutors and other signs of a lack of interest in lectures. Motivation is influenced by both internal and external factors. \(^1\) The newly-admitted students are exposed to a different academic environment, curriculum and teaching style as well as new university policies and bylaws. The curriculum committee in our college is in the process of evaluating the curriculum to reform it. Therefore, the objective of this study is to examine the influence of certain factors related to teaching, curriculum and administration on student motivation as perceived by our preclinical students. This study might help the college administration in adopting a strategy for curriculum reform, and designing a suitable staff development programme.

MATERIALS AND METHODS

A total of 231 students (150 males and 81 females) from the three academic levels of the pre-clinical period participated in the study (Table 1). A questionnaire examining the relationship of certain factors affecting student motivation to learn was administered to every student participating in the study. The selection of variables in the questionnaire was based on our impression developed out of more than 10 years experience in teaching and giving advice to students, as well as from discussions with faculty members of different departments in the college. After stating the purpose and explaining the items in the questionnaire and how to answer them, the students were requested to ask for any clarification, before attempting to answer the questionnaire. The questionnaire was distributed in classrooms in a period of two weeks of no examinations. The students were also invited to write comments on issues they felt relevant to the study but not included in the questionnaire. The questionnaire contained 38 items grouped under three main titles teaching (style, audio-visual and personal quality), curriculum (objectives, content, references and assessment) and administration (appendix 1). The students were asked to rate every item on a 3-point scale (promoter, inhibitor, don't know). A second questionnaire on the frequency of the presence of selected items from the first questionnaire was also administered to every

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Table 1: Sample size and distribution

| Academic level | Male N (%) | Female N (%) |
|---------------|------------|--------------|
| Level I       | 65 (71)    | 46 (71)      |
| Level II      | 39 (60)    | 28 (53)      |
| Level III     | 46 (59)    | 7 (17)       |
| Total         | 150 (64)   | 81 (49)      |
| Grand Total   | 231 (59)   |              |
student at a subsequent session (appendix 2). Data was entered into a personal computer and the frequency of responses to each item of both questionnaires was computed.

RESULTS
Our sample represented more than half (59%) of the total registered pre-clinical students (Table 1). The frequencies of the responses of the students on items relating to the teaching style are shown in Table 2 while those relating to the use of audiovisual and personal quality of teacher are presented in Table 3. Table 4 and 5 show the responses of students on items relating to curriculum and administration, respectively. Overall, there is no striking difference between the responses of male and female students except in allotting marks for attending lectures. There was a general agreement among the students from the three academic levels in their responses to a majority of items in the questionnaire. However, while the majority of the first level students thought that giving more than 2 quizzes and adopting more than one reference per subject are promoters, the majority of students in second and third levels evaluated the same items as inhibitors. Responses of students to the existence in reality of items in the second questionnaire are shown in Table 6 and 7.

The students had suggested other factors that they thought would promote motivation. These included hospital visits, and reduction of overcrowding in Level III courses. They also suggested that there should be intervals between weekly quizzes, and that final examinations should be taken at the end of every semester instead of having comprehensive examinations at the end of the year. They asked for the introduction of modern techniques in learning (e.g. computer), provision of current books, the avoidance of didactic lectures, the improvement of coordination between departments and horizontal integration between subjects in the pre-clinical phase.

DISCUSSION
Most of the factors evaluated in this study are easy to adopt or abandon. Although the curriculum in the pre-clinical years is concerned with basic sciences, most students thought that the introduction of some clinical information into lectures would improve motivation and facilitate learning. The students thought that motivation could be improved with the provision of clinical information to make the basic science subjects more realistic and consequently facilitate learning.

Many faculty members use the conventional style of lecturing where students are passive recipients. However, these students clearly favored student participation. They believed that there was little enjoyment in the majority of lectures, partly because of the lack of student participation. Indeed, many investigators have reported that there is greater enthusiasm for learning on the part of students when the focus in the classroom is changed from teacher-centered to student-centered. There are many techniques of changing the traditional lecture into a more enjoyable interactive lecture with greater student participation.

The majority of students considered the revision of a previous lecture a promoter of learning. This is done to refresh students' memory and stress basic principles as well as forge a link to subsequent information, thereby facilitating comprehension. This is, unfortunately, lacking in many of our lectures, but can be done by asking questions to create an active learning environment which compels and encourages students to read previous lectures.

A lot of our students have problems with
Table 2: The effect of variables related to teaching style on motivation as perceived by the pre-clinical students

| FACTORS                      | MALE % | FEMALE % |
|------------------------------|--------|----------|
|                              | Promoter | Inhibitor | Promoter | Inhibitor |
| TEACHING STYLE               |         |          |          |          |
| Clinical information         | 89      | 4        | 96       | -        |
| Enjoyment                    | 94      | 4        | 95       | 3        |
| Student participation        | 83      | 11       | 83       | 10       |
| Revising previous lecture    | 94      | 4        | 88       | 11       |
| Using some Arabic phrases    | 82      | 13       | 74       | 20       |
| Written questions in tutorial| 85      | 7        | 86       | 12       |
| Posing question in tutorial  | 83      | 11       | 87       | 12       |
| Revising subject in tutorial | 93      | 5        | 96       | 2        |
| More than one teacher        | 55      | 38       | 63       | 30       |
| Single teacher               | 46      | 47       | 36       | 57       |

Table 3: The effect of variables related to audiovisual and tutor's personal quality on motivation as perceived by the pre-clinical students

| FACTORS                        | MALE % | FEMALE % |
|--------------------------------|--------|----------|
|                                | Promoter | Inhibitor | Promoter | Inhibitor |
| Audiovisual                    |         |          |          |          |
| Using chalkboard               | 93      | 5        | 100      | -        |
| Using slides projector         | 82      | 15       | 87       | 10       |
| Using transparencies           | 76      | 21       | 62       | 26       |
| Alternating Audiovisuals       | 95      | 4        | 98       | -        |
| Using more than one audiovisual aid | 86   | 8        | 92       | 4        |
| Tutor's personal quality       |         |          |          |          |
| Showing respect for students   | 100     | -        | 95       | 5        |
| Praising motivated students    | 86      | 7        | 73       | 14       |
| Blaming lazy students          | 46      | 47       | 24       | 67       |

Table 4: The effect of curriculum related variables on motivation as perceived by the pre-clinical students

| FACTORS                        | MALE % | FEMALE % |
|--------------------------------|--------|----------|
|                                | Promoter | Inhibitor | Promoter | Inhibitor |
| CURRICULUM                     |         |          |          |          |
| Clarity of objectives          | 92      | 3        | 90       | 3        |
| Detailed and lengthy contents  | 7       | 89       | 6        | 90       |
| Reference                      |         |          |          |          |
| Easiness                       | 88      | 7        | 86       | 10       |
| Availability                   | 90      | 8        | 91       | 9        |
| More than one reference        | 38      | 52       | 40       | 47       |
| Quizzes                        |         |          |          |          |
| Scheduled                      | 98      | 1        | 99       | 1        |
| Unscheduled                    | 15      | 79       | 8        | 88       |
| One quiz per subject in a semester | 30   | 66       | 20       | 79       |
| Two quizzes per subject in a semester | 68  | 27       | 81       | 16       |
| More than two per semester     | 51      | 46       | 50       | 40       |
| Quality of Exams               |         |          |          |          |
| Link to objectives             | 96      | 3        | 94       | 4        |
| Degree of difficulty           | 28      | 63       | 21       | 65       |
Table 5: The effect of administration related variables on motivation as perceived by the pre-clinical students

| FACTORS ADMINISTRATION                  | MALE % | FEMALE % |
|-----------------------------------------|--------|----------|
|                                         | Promoter | Inhibitor | Promoter | Inhibitor |
| Taking attendance                       | 65 | 30 | 52 | 39 |
| Giving weight for attendance            | 54 | 42 | 46 | 47 |
| Availability of faculty                 | 95 | 3 | 90 | 7 |
| Academic advise                         | 78 | 13 | 77 | 13 |
| Good departmental relationship with student | 95 | 4 | 88 | 11 |
| Responding to student needs             | 89 | 10 | 79 | 20 |
| Comfortable lecture rooms               | 90 | 9 | 81 | 15 |
| Afternoon lectures                      | 17 | 80 | 4 | 94 |

Table 6: Evaluation of the presence in our college of certain teaching variables related to motivation as perceived by the pre-clinical students

| FACTORS | PRESENCE IN REALITY % |
|---------|-----------------------|
|         | < 50% | 50-75% | > 75% |
| Clinical information in lectures        | 79 | 17 | 4 |
| Teaching enjoyment                      | 90 | 8 | 2 |
| Students participation in lectures       | 94 | 4 | 2 |
| Revising previous lecture               | 93 | 5 | 2 |
| Using some Arabic phrases               | 73 | 16 | 11 |
| Written questions in tutorial           | 89 | 7 | 4 |
| Posing question in tutorial             | 86 | 11 | 3 |
| Revising subject in tutorial            | 91 | 8 | 1 |
| Showing respect for students            | 43 | 29 | 28 |
| Praising motivated students             | 79 | 15 | 6 |
| Blaming lazy students                   | 86 | 9 | 5 |

Table 7: Evaluation of the presence in our college of certain curricular and administrative variables related to motivation as perceived by the pre-clinical students

| FACTORS | PRESENCE IN REALITY % |
|---------|-----------------------|
|         | < 50% | 50-75% | > 75% |
| Clear course objectives                  | 77 | 17 | 6 |
| Detailed and lengthy course contents      | 17 | 19 | 64 |
| Ease of reference                        | 75 | 16 | 9 |
| Availability of reference                | 65 | 16 | 20 |
| More than one reference                  | 84 | 10 | 6 |
| Exams linkage to objectives              | 39 | 36 | 25 |
| Exams degree of difficulty               | 32 | 36 | 32 |
| Availability of faculty                  | 60 | 29 | 11 |
| Academic advise                          | 78 | 12 | 10 |
| Good departmental relationship with student | 64 | 20 | 16 |
| Administration's response to student needs | 82 | 14 | 4 |
| Comfortable lecture rooms                | 88 | 8 | 4 |
the language as the teaching is in a foreign language. This might explain why most of the students preferred the use of some Arabic phrases in lectures. Interestingly, the frequency of females who favored the use of Arabic phrases was less than males. However, the use of Arabic phrases should clearly be limited to situations in which the tutor feels that the students are unable to comprehend what is being taught.

Out of the three different audiovisuals usually used in teaching, the students preferred the chalkboard. Using the chalkboard gave the students a good opportunity to write lecture notes. Since the use of slides and overhead projectors tended to be fast, the deficiency in English made it difficult for the students to take proper notes when they were used. When these are used, students have little time to take notes, continue to listen and keep pace with the information being delivered in the lecture.

Clear course objectives were not provided to the students by many of our departments. Clear objectives that help to identify the course material and guide learning were considered by the majority of students as motivation promoters. Curriculum committees should ensure that every course has specific objectives, which are made accessible to students. In addition to facilitating learning the availability of specific objectives would make students aware of the scope of the course. The objectives would also act as guidelines for tutors to cover the required material and avoid unnecessary detail.

Assigning more than one reference text by the departments was seen as motivation inhibitor by majority of second and third level students. Possible causes of this include the lack of time. As students take four different lectures per day, the deficiencies in their language makes reading a very time-consuming activity.

Our students preferred easy references and most of them depended mainly on notes. The university policy prohibits the provision of lecture notes and handouts to the students. The college administration believes that in addition to being good for self-learning, reading textbooks is an important means of improving one's language. Although students who regularly read improved their language, many complained that they wasted a lot of time and got fewer marks than those who only read notes. However, later in the clinical years many of them came to appreciate the worth of the habit of regular reading.

Although tutors agree that teaching should be concentrated on core material, many have the tendency to go into unnecessary detail. This could explain the feeling of our students that our curriculum is overloaded. Selection of basic science material based on clinical relevance would help not only in identifying the core curriculum but also in avoiding unnecessary detail that overloads the curriculum.

Tutorials in our curriculum are designed to offer the tutor the opportunity to revise the material covered in previous lectures with the students. Different methods are used to achieve this objective. Our students considered all forms of tutorials (distribution of written questions, posing questions in tutorial and revision of topics by tutor) as promoters. However, they thought they derived the greatest benefit from the tutorials when lecture material was reviewed.

It is obvious from our results that scheduled quizzes are perceived as strong promoters of learning. This is in agreement with a previous report that stated that assessment had a marked effect on medical students' learning. On the other hand, a majority of our students did not like unscheduled quizzes as many of them had not developed the habit of studying regularly. They rather read intensively for examinations, a habit acquired from their pre-university days.
As an administrative policy, taking attendance is a debatable issue. Our students were positive about taking the roll. Interestingly, there was a gender difference in the perception of the importance of attendance. As expected, the sympathetic response to the needs of students by departments and the administration was considered a strong promoter.

Overall, the results reported in this study warrant a change in our present curriculum. It is suggested that the teaching approach in the pre-clinical years should foster horizontal integration and increase the number of tutorials based on clinical problems in order to facilitate vertical integration.

CONCLUSION
Our students think that the tutor in the pre-clinical phase, could motivate them more if he/she: provided clinical information, encouraged students participation, revised previous lectures, used the necessary explanatory Arabic phrases, used the chalk board, provided clear specific course objectives, adopted one easy reference, concentrated on the core curriculum and avoided lecturing in the afternoon.

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