

## **Analysis of Attrition over a 7-Year Period at the Faculty of Medicine, King Abdulaziz University, Jeddah**

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*Abstract.* The purpose of this study is to determine the attrition rate at the Faculty of Medicine from 1996 to 2002. Review of all students' records (males and females) matriculated during the study period. Non-graduating students' records were further examined to differentiate academic from non-academic attrition and to determine the length of stay in the faculty, frequency of failing examinations and curriculum level at leaving the faculty. Out of 1,725 students admitted to the faculty, 359 left the faculty without graduation. This gives an attrition rate of 20.8% (10.9% for academic reasons). For the non-academic attrition, 81.3% of the students leave after one year, 28.7% of them without failing any examination. In the academic attrition group, 50.5% of the students are dismissed after 2 years and another 25.5% after 3 years. 73.4% of these students fail 4 times before being dismissed. 50.5% of the academic attrition is at the first year of the curriculum. The first year of the curriculum seems to be the biggest hurdle for students. Factual burden, relevance, and types of assessment require review to decrease the academic attrition. Better information about the medical studies should be provided to the students before matriculation to decrease non-academic attrition.

*Keywords:* Medical education, undergraduate, attrition.

### **Introduction**

Medical schools admit students with the intention to graduate them to cover for national needs on medical doctors. Failure of students to graduate can be for academic or non-academic reasons. In both cases, it

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is an important loss of potential manpower for the health services. The purpose of this study is to determine the attrition rate in the cohort of students admitted to the Faculty of Medicine at King Abdulaziz University in the academic years 1416/1417H till 1422/1423H (1996G till 2002G). Further, the level of attrition, length of study, and the number of failures in final examinations are determined.

During the period of the study the Faculty of Medicine at King Abdulaziz University followed a traditional subject-based curriculum of 6 years duration. In each subject in the first 4 years of curriculum an end of year examination and a resit examination before the beginning of the following academic year is provided. Students have to pass each subject within a maximum of 2 years or 4 examination trials. In the curriculum years 5 and 6, there is a final examination every 6 months. Students have to pass every subject and they are allowed 6 examination trials with exceptions allowed through the University Council.

### **Materials and Methods**

Records of admission to the Faculty of Medicine at King Abdulaziz University in Jeddah for the academic years 1416/1417 till 1422/1423 were reviewed. Performance of the students in every end of year and resit examination was recorded. Students were put into 3 groups, *i.e.* students graduating successfully, students dismissed for academic failure, and students leaving the faculty for non-academic reasons. Academic failure is defined as failure to continue the study due to inability to pass a final examination in the time allowed, or after a certain number of repeating the examination. Such students are considered by the faculty to be ineligible to continue their medical studies. Non-academic attrition is defined as the dropout of students although they would be able to continue their studies by academic performance. This includes students who pass or fail the final examination of their year of study, but wish to either transfer to another faculty or to withdraw from the university. For the non-graduating students the length of stay, the number of failures, and the level at which they left the faculty is tabulated.

### **Results**

Table 1 shows the details of the number of admissions by year and gender. Of the 1,725 students (929 males, 796 females) matriculated

during the study period 1,313 students (693 males, 620 females) graduated from the faculty. Of the 412 remaining students 188 (132 males, 56 females) were dismissed for academic failure, 171 (69 males, 102 females) transferred to other faculties or withdrew from the university, and 53 (35 males, 18 females) are still enrolled. This gives an attrition rate of 20.8% (10.9% for academic, 9.9% for non-academic reasons), assuming that the remaining students will eventually graduate, as all are now in curriculum year 5 or 6. Table 2 shows the distribution by gender and year for the cohort of non-graduating students and Tables 3, 4, and 5 show details of results regarding number of failures, length of stays in the faculty, and level at leaving the faculty.

**Table 1. Admissions by year and gender.**

| Year         | Males | Females | Total |
|--------------|-------|---------|-------|
| 1417         | 197   | 128     | 325   |
| 1418         | 110   | 91      | 201   |
| 1419         | 112   | 91      | 203   |
| 1420         | 128   | 116     | 244   |
| 1421         | 108   | 109     | 217   |
| 1422         | 121   | 126     | 247   |
| 1423         | 153   | 135     | 288   |
| <b>Total</b> | 929   | 796     | 1725  |

**Table 2. Details of academic / non-academic attrition.**

| Year         | Academic attrition |         |       | Non-academic attrition |         |       |
|--------------|--------------------|---------|-------|------------------------|---------|-------|
|              | Males              | Females | Total | Males                  | Females | Total |
| 1417         | 58                 | 15      | 73    | 13                     | 34      | 46    |
| 1418         | 15                 | 13      | 28    | 13                     | 7       | 20    |
| 1419         | 11                 | 7       | 18    | 13                     | 10      | 23    |
| 1420         | 11                 | 9       | 20    | 6                      | 14      | 20    |
| 1421         | 10                 | 1       | 11    | 6                      | 12      | 18    |
| 1422         | 4                  | 2       | 6     | 8                      | 11      | 19    |
| 1423         | 23                 | 9       | 32    | 10                     | 14      | 23    |
| <b>Total</b> | 132                | 56      | 188   | 69                     | 100     | 171   |

**Table 3. Number of failures.**

| No. of failures | Academic attrition |         |      | Non-academic attrition |         |      |
|-----------------|--------------------|---------|------|------------------------|---------|------|
|                 | Frequency (%)      |         |      | Frequency (%)          |         |      |
|                 | Males              | Females | All  | Males                  | Females | All  |
| 0               | 0                  | 0       | 0    | 14.5                   | 38.2    | 28.7 |
| 1               | 0                  | 0       | 0    | 10.1                   | 0       | 4.1  |
| 2               | 0                  | 0       | 0    | 63.9                   | 56.9    | 59.6 |
| 3               | 0                  | 0       | 0    | 4.3                    | 3.9     | 4.0  |
| 4               | 69.7               | 83.9    | 73.9 | 4.3                    | 0       | 1.8  |
| 5               | 12.9               | 5.4     | 10.6 | 2.9                    | 0       | 1.2  |
| 6               | 9.1                | 1.8     | 7.0  | 0                      | 1.0     | 0.6  |
| 7               | 6.8                | 7.1     | 6.9  | 0                      | 0       | 0    |
| 9               | 1.5                | 1.8     | 1.6  | 0                      | 0       | 0    |

**Table 4. Duration of stay in the faculty.**

| No. of years | Academic attrition |         |      | Non-academic attrition |         |      |
|--------------|--------------------|---------|------|------------------------|---------|------|
|              | Frequency (%)      |         |      | Frequency (%)          |         |      |
|              | Males              | Females | All  | Males                  | Females | All  |
| 1            | 0                  | 0       | 0    | 78.3                   | 83.3    | 81.3 |
| 2            | 50.8               | 50.0    | 50.5 | 8.7                    | 14.7    | 12.3 |
| 3            | 24.2               | 28.6    | 25.6 | 5.8                    | 0       | 2.3  |
| 4            | 6.1                | 7.1     | 6.4  | 5.8                    | 1.0     | 2.9  |
| 5            | 15.9               | 12.5    | 14.9 | 1.4                    | 0       | 0.6  |
| 6            | 3.0                | 0       | 2.1  | 0                      | 1.0     | 0.6  |
| 7            | 0                  | 1.8     | 0.5  | 0                      | 0       | 0    |

**Table 5. Level at leaving faculty.**

| Curriculum year | Academic attrition |         |      | Non-academic attrition |         |      |
|-----------------|--------------------|---------|------|------------------------|---------|------|
|                 | Frequency (%)      |         |      | Frequency (%)          |         |      |
|                 | Males              | Females | All  | Males                  | Females | All  |
| 1               | 50.8               | 50.0    | 50.5 | 81.2                   | 89.2    | 86.0 |
| 2               | 25.8               | 28.6    | 26.6 | 10.1                   | 8.8     | 9.4  |
| 3               | 15.9               | 16.1    | 16.0 | 8.7                    | 0       | 3.5  |
| 4               | 7.6                | 5.4     | 6.9  | 0                      | 2.0     | 1.2  |

## **Discussion**

For this study period, the Faculty of Medicine at King Abdulaziz University followed a traditional, subject-based curriculum of 6 years duration.

The attrition rate for the seven-year period 1996-2002 is 20.8%. Although considered high<sup>[1-4]</sup>, it is still much less than the calculated 37.3% attrition at the same school for the period 1975-1998<sup>[5]</sup>. This is an important improvement. There are many aspects of the academic activities contributing to this improvement.

The first factor to consider is the curriculum itself. Since the last study<sup>[5]</sup> the faculty has undertaken a rigorous review of the contents of the first year subjects (biology, physics, chemistry), knowing that the highest drop-out rate is at the end of the first year of curriculum. This has resulted in a significant decrease in the factual burden and an improvement in the relevance of information by involving clinicians in the decision on contents of these courses.

The second factor is the faculty development program. The faculty administration has put major efforts in supporting the medical education unit. This unit in turn has conducted many courses to improve teachers' performance, taking into consideration that most teachers have had no structured training in teaching. In the last years we have an increasing number of staff holding degrees in medical education and a very active medical education unit. Theoretically, this is one explanation for the obvious increase in the pass rates in most subjects in recent years (unpublished data).

The third factor is the selection of students<sup>[6,7]</sup>. In addition to the grade of school-leaving examination, especially the science subjects, there was a written admission test. Additionally there was an admission interview by at least 2 faculty staff members. The faculty justified the admission interview with the fact that high-school leaving grades alone are not a good predictor of performance<sup>[8-11]</sup>.

The admission interview was discontinued during the period of this study. One should expect a higher attrition rate without an admission interview, but the opposite is in this case. Further analysis of the data needs to be done in this respect.

The fourth factor to consider is the demographic and social criteria of students<sup>[7,12]</sup>. Unfortunately we have not been able to analyze these factors in the present study. This aspect will be the subject of further research.

An additional factor is the student-teacher and student-bed ratio at our faculty. The university council determines the number of students accepted. Because of the obvious national need to graduate more doctors and the social pressure to take more students, the number of matriculated students was always higher than acceptable by the faculty administration. In turn, the faculty considered the first year of curriculum as being a filter to decrease the number of students proceeding to the medical curriculum. The awareness of the very high attrition rate of 37.3% has resulted in the recruitment of more teaching staff and the expansion of hospital facilities.

The change in content of the first year curriculum and the increase in staff and teaching beds are rather recent, and cannot be a significant factor in the improvement of the attrition rate. The assessment has also not changed significantly. But, the assessors have changed their attitude towards grading markedly and more so in the relatively subjective oral examinations. Older teachers develop a rather lenient behavior in assessment. The records of examination results are presently being analyzed to substantiate this factor. It is also intended to compare these data with the old records to determine the trend in examiner's behavior over a longer period.

The fact that 81.3% of students in the non-academic attrition group leave after the first year and that 28.7% of them do not fail any examination, raises the suspicion that, at least, a big part of them did not make an informed choice going into the medical school. More effort needs to be made in preparing information material on the nature of the study, on the curriculum, and on the expectations from the students.

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## دراسة تحليلية للفاقد الدراسي على مدى سبع سنوات بكلية الطب - جامعة الملك عبدالعزيز بجدة

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المستخلص. دراسة تفاصيل الفاقد الدراسي بكلية الطب خلال الأعوام من ١٩٩٩م حتى ٢٠٠٢م. تمت مراجعة ملفات جميع الطلاب الذين تم قبولهم بالكلية خلال فترة هذه الدراسة، ومن ثم تم تحديد ملفات الطلاب والطالبات الذين غادروا الكلية بدون الحصول على الدرجة المطلوبة، وتحليلها لتحديد نسبة الفاقد تبعاً للأسباب الأكاديمية وغير الأكاديمية مع تحديد فترة البقاء بالكلية وعدد مرات الرسوب وسنوات الرسوب. من بين (١٧٢٥) طالب وطالبة تم قبولهم خلال فترة هذه الدراسة، غادر عدد (٣٥٩) طالب وطالبة الكلية بدون درجة، مما يعني أن نسبة الفاقد الدراسي هي ٢٠,٨٪ (منهم ١٠,٩٪ لأسباب أكاديمية). أما بالنسبة للمجموعة المغادرة لأسباب غير أكاديمية فإن ٨٠,٣٪ منهم يغادرون الكلية خلال السنة الأولى من التحاقهم، ومنهم نسبة ٢٨,٧٪ لم يرسبوا خلال هذه السنة. بالنسبة للمجموعة المغادرة لأسباب أكاديمية فإن ٥٠,٥٪ منهم يتم فصلهم بعد سنتين من الدراسة و ٢٥,٥٪ آخرين بعد ٣ سنوات، ٤,٧٣٪ من هؤلاء الطلاب يرسبون ٤ مرات قبل مغادرة الكلية. ٥,٥٠٪ من هؤلاء الطلاب يغادرون الكلية في المستوى الدراسي الأول. يعتبر المستوى الدراسي الأول هو العقبة الكبرى للطلاب بهذه الكلية. يجب على المسؤولين مراجعة كمية المعلومات



الدراسية، وأهميتها للطبيب، وكذلك طرق التقييم لمحاولة التقليل من الفاقد الدراسي الأكاديمي. كما يجب إعداد كتيبات تعريفية للطلاب عن الدراسة بالكلية، للتقليل من الفاقد الدراسي غير الأكاديمي.