Why Students consider they failed during their first year at Medical School

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ABSTRACT

This research seeks to search for factors associated with students’ high rate of failure during the first year of medical school. The problem was investigated from various angles associated with the institution, subject, teachers and the students. This is a cross-sectional, quantitative and qualitative descriptive study that explores different aspects that influence a considerable number of students from the first year of Medical school to fail one or more subjects. A questionnaire consisting of three sections was elaborated including: 1) General information; 2) Likert type questionnaire analyzing the following factors: professors, subjects, Institution, personal problems, and study methods and 3) Open end questions. Ninety-eight (98) students participated in this research. The quantitative analysis included frequencies, percentage and medium. The comparative analysis includes school of origin and the four subjects with the highest rate of failure. The courses with the highest rate of failure in the first year of medicine were Anatomy, Biochemistry, Histology and Embryology. Written opinions were associated with personal problems, teaching styles, knowledge and attitudes of the teacher, as well as, aspects related with the courses and the educational institution where they did their Prep School, but the greater impact was the lack of adequate study strategies to prepare for their examinations. Younger students tended to attribute a greater extent of problems to their teachers in courses such as Anatomy ($r_s=-.181; p=.038$), computer sciences ($r_s=-.181; p=0.003$) and on the other hand, older students associated their problems in computer science course to deficient study methods ($r_s=206; p=.021$). Universities must consider offering students counselors, courses and better prepared teachers to help their students and mental health facilities. They must face students unwilling to assist in these options and teachers unwilling to participate in this type of program.

Key words: Medical school, students, failure factors.

INTRODUCTION

This research seeks to search for factors associated with students’ high rate of failure during the first year of medical school. The problem was investigated from various angles associated with the institution, the subject, the teacher and the student.

One of these aspects is the motivation studied in a review (Kusurkar et al., 2011) where it was found that this affected the medical students study strategies, their academic performance and learning and that there are certain aspects that could lead to improvement such as the support of the teachers and peers, as well as, developing their autonomy and competence in managing their studies. Two years later similar results were observed in another study by the same author (Kusurkar et al., 2013).

Other authors found that, in addition to student motivation, their achievements and emotions influenced significantly their learning, suggesting that some of the work to promote both would be: the teaching strategies of the professors that should include assessment, feedback and promotion of self-efficacy directed towards the students, as well as, helping the students with their learning methods which could be improved through the
application of problem-based learning strategies, practices, experiences and collaborative work (Artino et al., 2010; Mann, 1999).

On the other hand, it was observed that stress significantly affect students' learning and is associated with various factors such as the inability to cope with difficult situations, sensation of helplessness and mental stress and that all this worsens with the lack of feedback, excessive burden of work, an extensive curriculum, examinations, lack of time and entertainment facilities, staying away from their families, as well as the parents high expectations. Various researchers proposed that in order to counteract the symptoms (depressive moods, inability to concentrate and irritability, among others), a series of strategies must be applied to help youngsters in the management of stress including the presence of recreational activities in university grounds (Slade and Kies, 2015; Jarwan, 2015), the improvement of teacher-student relationships and changes in the evaluation system, etc (Dahlin et al., 2005; Shaikh et al., 2004; Seeramareddy et al., 2007).

As reported by various authors, continuous exposure to stressful situations can lead to depression (Dahlin et al., 2005) and as such depressive symptoms in the students negatively affected their school performance (Fouilloux et al., 2013).

Cleland et al. (2005) observed in their research that the students with poor academic performance frequently had no idea about the difficulties faced in their learning process, despite getting poor grades from the beginning of their studies. In addition to this, their teachers and tutors do not offer information regarding their school situation, nor do they give the support required to develop their skills in self-reflection and how to find resources that favored their lifelong learning. These authors suggest that the institution should provide students with individualized learning programs, specific remedial tutoring and constant monitoring of their progress.

This is why, as a result of the revision of several studies on the subject, some researchers Doherty and Nugent (2011) and Ferguson et al. (2002) recommended the exploration in greater depth of aspects such as learning styles, social skills and "awareness" (that is, the act of creating awareness in the student for the need to obtain higher grades by being methodical, organized and motivated) due to the relevant impact it has on academic performance. Regarding this last aspect, Stratton and Elam (2014) in their study found a moderate positive association between the level of awareness (consciousness) of students and their academic performance.

In this regard, there was a study where it was reported that self-regulated learning and self-reflection is a key to the ability to learn and was favored when there was supervision and support of the family, help from their peers, the presence of personal and efficient educational characteristics of the instructor, a good educational environment and the presence of personal aspects of the student (Jouhari et al., 2015; Soares et al., 2011).

In this same sense, Dolan et al. (2002) found that passive students during the beginning of their studies can be considered at risk, presenting difficulties in studying; so they recommended providing them with guidance and support before they experience serious academic problems.

Other personal characteristics of students identified as relevant during the learning process and that might predict which of them could be at risk of academic under-achievement were: 1) Having below average grades in science during high school; (2) entering medicine through fast track (BS/MD, Bachelor of Science and Doctor of Medicine); 3) with an average age above 31 years old and 4) entering medical school through a non-unanimous decision of the Committee (Stratton and Elam, 2014).

Other researchers observed that their previous schools also constituted a possible predictor of academic success of students in medicine (Ferguson et al., 2002). Other factors found were the failure of simple tests and the lack of vocation contributing to students dropping out of school; on the other hand, good study habits, sustained effort and tolerance to the frustration were favorable factors for their learning (Hernández et al., 2005).

Hendricson and Kleffner (2002) proposed the following six potential motives which summarized most of the low academic performance factors reviewed earlier and served as a reference for teachers to understand the difficulties faced by students, in order to provide them with the support required: 1) cognitive factors including difficulties in the integration of information with poor Metacognition which hinders the ability of the student to monitor and correct their own performance; (2) inefficient study habits; (3) inadequate educational experiences (unclear objectives, badly organized teaching, lack of support and feedback) or a punitive atmosphere where students avoid approaching their teachers for help; (4) other activities off campus (family and health, etc); (5) student dysfunctional defensive behavior towards the teacher and (6) underlying medical conditions affecting the attention, motivation, energy and emotional balance of the students.

The level of student failure at the Faculty of Medicine in this study is very high and almost 50% of the enrolled population that entered from a varied ambience with different academic school levels and grade averages, etc failed their first year studies. The object of the present study was to learn the opinion of the students regarding the motives that led to them failing in one or more subjects during their first year in medical school and suggest possible solutions.

**MATERIALS AND METHODS**

This is a cross-sectional, quantitative and qualitative descriptive study that explores different aspects that
influence a considerable number of students from the first
year of Medical school to fail one or more subjects. A
questionnaire consisting of three sections was elaborated
including:

1) General information, mentioning the subjects that the
student failed;
2) Items (34) and exposed situations that students
considered contributed to their failure considering the
following factors:

Professors (nine items): This factor has to do with
circumstances associated with the teaching strategies used
by the teacher, his mastery of the subject, as well as their
way of interacting with the student.

Subjects (five items): This refers to the excessive number
of thematic contents of the subjects, the amount of reading
materials to learn as well as, the difficulty in
understanding them.

Institution (four items): Problems associated with the
characteristics of the campus.

Personal problems (nine items): This refers to situations
outside the institution such as personal, family, economic,
physical and emotional problems.

Study methods (seven items): This is associated with the
strategies used by the student in order to prepare for the
examinations.

The response options to each of these items are: 1, if the
situation has to do with their "Anatomy" course; 2)
"Embryology"; 3) "Histology"; 4) "Biochemistry"; 5)
"Integration seminar"; 6) "Computer science"; 7) "Mental
Health" and 8) "Public Health".

3) Open question: The students were requested to offer
more detailed information about factors that could have
influenced significantly their failure in some courses. Of
the total of three hundred and seventy (370) students who
failed their first year and enrolled as repeaters, we
managed to find in the classroom or by e-mail and phone
121 (33%) to whom questionnaires were applied. Twenty-
three (23) students were excluded because they did not
complete the questionnaire, leaving a total of ninety-eight
(98) students for this study.

Quantitative analysis

Descriptive analysis

Tables 1, 2 and 3 showed frequencies, percentages and
medium, as well as, minimum and maximum values
allowed disclosure of the relevant features of our
population.

Comparative analysis

School of origin: This was analyzed in order to identify
whether there were statistically significant differences
among the factors (teacher, course, institution, personal
problems and study methods) that contributed to the
failure of one or several courses associated with the high
school or prep school (two types of public schools, one
with traditional teaching methods and another with a
more active role of the students in their learning process
and those who graduated from private schools).

The four subjects with the highest rate of failure were
Anatomy, Biochemistry, Histology and Embryology. In
order to identify whether there were statistically
significant differences between the factors (teacher,
course, institution, personal problems and methods of
study in each) that contributed to the failure of one or
more of these subjects in the opinion of students, the
Kruskal-Wallis test was used in both as a means of
comparison.

Correlational

In this case, the test of Spearman's rank correlation
coefficient was used in order to investigate whether or not,
there are statistically significant associations between the
age of the students and the factors that attributed to
failure in each course as explained by these students.

Qualitative analysis

In response to their written experience, a group of factors
similar to those observed in quantitative analysis was
formed, but with categories and specific examples that
allowed us to understand better the importance of each
factor.

Ethical considerations

This research work was reviewed and approved by the
commissions of research and ethics of the faculty where
the study took place. Each questionnaire informed the
student of the purpose of the study and that their
participation was voluntary and anonymous.

RESULTS

The students' age ranged from 19 to 25 years; seventy-six
(76) were women (77.6%) while twenty-two (22) were
men (22.4%); most of the students that entered medical
school came from public schools (92.8%). The courses with the highest rate of failure in the first year of medicine were Anatomy, Biochemistry, Histology and Embryology (Table 1).

Their written opinions related to all the factors that influenced their poor results, but most of them were associated with personal problems, teaching styles, knowledge and attitudes of the teacher, as well as, aspects related with the courses and the educational institution where they did their prep school, but the greater impact was the lack of adequate study strategies to prepare for their examinations (Table 1).

Table 2 describes in detail the percentage of students who considered which of the items contributed to their failure, noting in bold letters those that were designated by 50% or more of the students.

Comparing to what extent students who came from public or private schools considered the various aspects under study as causes attributable to the failure of one or several subjects, we found that the teacher factor during their Histology course was regarded by students that came from an active role public prep schools as the main cause of failure of this subject more so, than students from private schools or the traditional public schools ($X^2=6.618; p=0.037$).

It was observed that the four subjects with the highest rate of failure offered statistically significant differences in teacher, course and the institution factors (Table 3).

The Spearman’s rank correlation analysis of the student age as compared with failure factors showed that younger students tended to attribute a greater extent of problems to their teachers in courses such as Anatomy ($r_s=-.181; p=.038$), computer sciences ($r_s=-.181; p=.003$) and on the other hand, older students associated their problems in computer science courses to deficient study methods ($r_s=206; p=0.021$).

For the qualitative analysis, where the student express in more detail the most important factors that, in his or her opinion influenced their failure, we classified their comments in dimensions as:

**Professor**

13.6% of the comments that were made in this dimension referred to the following factors:

- **Teaching methods:** This gives a total of (48.9%). Examples are: "...got no feedback on the topics", "...had doubts... and failure of teachers in answering them properly", "...did have a few teachers who explained clearly and completed the agenda".

- **Domain:** This gives a total of (8.9%). Examples are: "...the teacher confused the issues and did not develop the topics properly" and lastly, "...good teachers were lacking".

- **Teachers attitudes:** This gives a total of (42.2%). Examples are: "...teachers were mean and did not have any patience with us", "teachers had no good disposition", "...the most of the teacher were apathetic and showed no interest in teaching " and as such "...they missed a lot of classes", "Professor... never cared for the group and repeatedly mentioned that he was only here so he would not get bored at home".

**Subject**

5.5% of entries referred to the following factors:

- **Reading materials:** This gives a total of (16.7%). Examples are: "Sometimes the books did not explain things clearly", while "... some books were complicated such that they can not be easily understood".

- **Programs:** This gives a total of (83.3%). Examples are:
### Table 2: Descriptive elements according to different factors associated with failure in different courses (with percentages).

<table>
<thead>
<tr>
<th>Non-accreditation factors with their respective items</th>
<th>Non-accredited courses (percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anat n = 86</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
</tr>
<tr>
<td>Did not understand when the teacher explained the</td>
<td>60.5</td>
</tr>
<tr>
<td>issues.</td>
<td></td>
</tr>
<tr>
<td>The professor was absent from class and that</td>
<td>24.4</td>
</tr>
<tr>
<td>influenced my grades.</td>
<td></td>
</tr>
<tr>
<td>The relationship with the teacher was very tense.</td>
<td>30.2</td>
</tr>
<tr>
<td>The teacher confused me when he changes the subject</td>
<td>54.7</td>
</tr>
<tr>
<td>without finishing the idea.</td>
<td></td>
</tr>
<tr>
<td>As the professor did not finish the program, it was</td>
<td>75.6</td>
</tr>
<tr>
<td>hard to study on my own.</td>
<td></td>
</tr>
<tr>
<td>I think that the teacher did not know his subject</td>
<td>22.1</td>
</tr>
<tr>
<td>well.</td>
<td></td>
</tr>
<tr>
<td>The teacher tests were poorly made.</td>
<td>26.7</td>
</tr>
<tr>
<td>The grade the teacher gave me was unfair.</td>
<td>19.8</td>
</tr>
<tr>
<td>The teacher did not clarify how we would be graded.</td>
<td>38.4</td>
</tr>
<tr>
<td>Subject</td>
<td></td>
</tr>
<tr>
<td>The subject was saturated with too much information</td>
<td>84.9</td>
</tr>
<tr>
<td>to be able to study.</td>
<td></td>
</tr>
<tr>
<td>I was not able to understand the issues of the</td>
<td>52.3</td>
</tr>
<tr>
<td>subject.</td>
<td></td>
</tr>
<tr>
<td>The textbooks were very difficult to understand.</td>
<td>31.4</td>
</tr>
<tr>
<td>The textbooks were too dense.</td>
<td>80.2</td>
</tr>
<tr>
<td>The additional literature we had to study did not</td>
<td>53.5</td>
</tr>
<tr>
<td>give me time to study.</td>
<td></td>
</tr>
<tr>
<td>Institution</td>
<td></td>
</tr>
<tr>
<td>General examinations were confusing.</td>
<td>43.0</td>
</tr>
<tr>
<td>It was difficult to study when there are so many</td>
<td>86.0</td>
</tr>
<tr>
<td>frequent tests.</td>
<td></td>
</tr>
<tr>
<td>I did not find the books in the library needed for</td>
<td>8.1</td>
</tr>
<tr>
<td>study.</td>
<td></td>
</tr>
<tr>
<td>Classroom conditions were not adequate so I could</td>
<td>10.5</td>
</tr>
<tr>
<td>not pay attention.</td>
<td></td>
</tr>
<tr>
<td>Personal problems</td>
<td></td>
</tr>
<tr>
<td>I had many economic problems during the first year.</td>
<td>14.0</td>
</tr>
<tr>
<td>My work left me little time to study.</td>
<td>7.0</td>
</tr>
<tr>
<td>I had family problems that affected my study.</td>
<td>25.6</td>
</tr>
<tr>
<td>My state of mind during the year always was very</td>
<td>48.8</td>
</tr>
<tr>
<td>low.</td>
<td></td>
</tr>
<tr>
<td>The course was not of my interest.</td>
<td>23.3</td>
</tr>
<tr>
<td>I had other personal issues that affected me.</td>
<td>38.4</td>
</tr>
<tr>
<td>I live far away from the University.</td>
<td>36.0</td>
</tr>
<tr>
<td>I was sick.</td>
<td>9.3</td>
</tr>
<tr>
<td>I did not have a suitable place to study at home.</td>
<td>25.6</td>
</tr>
<tr>
<td>Study methods to prepare for the examinations</td>
<td></td>
</tr>
<tr>
<td>I studied the textbook.</td>
<td>84.9</td>
</tr>
<tr>
<td>I studied my notes.</td>
<td>62.8</td>
</tr>
<tr>
<td>I checked the laboratory practices.</td>
<td>10.5</td>
</tr>
<tr>
<td>I reviewed old examination questions.</td>
<td>46.5</td>
</tr>
<tr>
<td>I covered all the objectives of the program.</td>
<td>25.6</td>
</tr>
</tbody>
</table>
"...there were parts of the program that were full of information while some other parts had very little information" and finally, "...too many courses that one could not study all", "...the books were saturated with information".

**Institution**

9.4% of the expressions were attributed to the following factors:

- **Evaluation**: This gives a total of (41.9%). Examples are: "...8.5 accreditation systems prevented me from passing some courses", "it is incredible that an 8.0 average made me to present final examinations" ...,"too many examinations one after another" and lastly, "...the tests themselves were unclear".

- **Transition**: This gives a total of (58.1%). Examples are: "...the change from high school to College", "The old school system really helped me and the University did not", ...,"to come from a public school with group techniques where we managed to pass with minimal effort, you get used to not working", "the change of institutions was very drastic".

**Personal problems**

71.5% of the statements referred to the following factors:

- **Transportation time**: This gives a total of (3%). Examples: "I moved to a new house before now it took me twenty minutes to get here but now an hour and half", "...I live at least two hours from the university and find it very tedious and tiring".

- **Low self-esteem**: This gives a total of (5.1%). Examples are: "My self-esteem during the finals was very low and was unable to pass the tests", ...,"all the teachers believe that they know everything and as such looked down on one making you feel worthless", "Felt disappointed in myself for not succeeding".

- **Emotional problems**: This gives a total of (14.4%). Examples are: "My emotional state of mind was low" or "I felt frustrated". "Since there was a situation that could not be resolved in a conciliatory way and instead of giving a Solomonic solution to my problem I flunked", "There was too much pressure", ...,"entering the Faculty bothered me because I had to leave everything I use to do and was very sad to sit for hours studying and still not making it".

- **Motivation**: This gives a total of (10.2%). Examples are: "I was apathetic, I never showed interest... I was so tired and fed up with everything", ...,"I wanted to learn stuff and also wanted to show I was qualified but I guess there was no enough effort on my part that I know I can give" and lastly, "...loss of interest when I failed an examination".

- **False expectations**: This gives a total of (1.7%). Examples are: "I thought that Medicine was going to be easy", "I was...
going to change to another University because the career was not what I expected".

- **Family problems:** This gives a total of (4.7%). Examples are: "I had family and some economic problems which led me to miss school", "...family problems made me miss classes", "...the socio-economic status of my family" and "family health problems".

- **Interpersonal difficulties:** This gives a total of (4.7%). Examples are: "...I had some personal problems", "...it was hard for me to get accustomed to new people", "I did not choose the best friends or the best group and in general it was wrong and we did not have good communication which originated problems".

- **Poor study strategies:** This gives a total of (30.9%). Examples are: "...not knowing how to study and excel on my own", "...did not have a proper study method, so I did not have the ability to organize my time", "...the teacher did not give us time to take written notes during classes" and "I left important things to study until the end".

- **Deficient knowledge and understanding:** This gives a total of (3.8%). Examples are: "...it was very difficult to understand what I was learning", "...it took me a longer time to comprehend what I was learning", "...I did not have good basic knowledge to understand everything I had to learn".

- **Attention and concentration problems:** This gives a total of (3.8%). Examples are: "...I was always distracted and had a lot to think about", "I was a scattered brain", "Not putting enough attention to classes", "I had problems which made me not concentrate".

- **Lack of constancy and commitment:** This gives a total of (11%). Examples are "I did not study every day", "...did not commit myself to study for the examinations", "...did not fulfill the tasks or was not used to reading and tried to study", "Lack of responsibility".

- **Several other personal factors:** Factores like noticing personal problems, excess confidence, personal habits and issues external to the institution. This gives a total of (6.7%). Examples are: "...personal problems prevented me from concentrating", "...over-confidence, I thought that in the end I could rescue everything", "my... personal habits were different to what the career demanded", "I was accustomed to an active life that gave me time to do sports, go to workshops and fun and still got good grades in prep school" and "Struggled with situations outside of school".

### DISCUSSION

Once the reasons why students in this study failed one or more courses were analyzed, we observed that there was an association that interacted with various factors thereby giving rise to this phenomenon as earlier mentioned in other studies.

The results obtained were similar to factors mentioned by Hendrickson and Kleffner (2002), which corroborate this phenomenon that is not only presenting a certain country but in others as well and that must lead to considering options formulated elsewhere that might help to solve these situations.

Our results are consistent with that of Kusurkar et al. (2011, 2013) where the importance of self-sufficiency lacking in many students, as well as the lack of motivational feedback by teachers that could possibly facilitate an increase in student failure were mentioned. Artino (2010) added to the poor motivation in students and the presence of negative emotional attitudes that was repeatedly pointed out, thus giving us a view of a complex situation that has to be resolved if we intend to help these future professionals.

Ferguson et al. (2002) and Doherty and Nugent (2011) talked about awareness which involves being thorough, careful or vigilant with the desire to do things well. It was formerly thought that the problem of students was the lack of appropriate study methods, but we are of the view that this should have been solved by students earlier from the beginning and it is suggested that developing a more appropriate way to study should be the student's responsibility.

Although most of the students agreed that the reasons for which they failed were associated with themselves, others accepted their involvement, but also mentioned other situations such as the teacher, course and the institution that influenced them, and fewer thought the problem had nothing to do with them.

On the other hand, some mentioned that the time they spent getting to the University or the presence of personal problems and mood changes (71.5%) seemed to create access to other problems.

From the results gathered in this study we agreed with some of the authors that the Institution and teachers must work to find ways to support the students academically and emotionally in order to achieve their goals.

It is accepted that with the support of counselors and in an ideal environment, the selection of the students that enter Medical School should be based on a predetermined profile that includes an adequate pre-university formation, adequate family environment, personal stability, responsibility and commitment. But in most cases these are not taken into consideration, so those who enter must be offered courses to improve their study skills, as well as, channeling them to a mental health department that can provide medical, psychological and psychiatric care when required. Another way to help students could be through the presence of tutors and teachers that are adequately prepared (through compulsory courses) and can detect different situations early in the school year and offer their
support. The teachers must also learn the importance of motivating their students and the Institution must as well motivate the teachers to help the students and offer awards when they stand out in their work. Because many medical schools use researchers as teachers, they must be given a choice to give classes and if it is not their vocation should be allowed to continue with their research rather than make it mandatory to teach.

Together with the aspects presented by other authors, it is necessary to point out once more the importance of the presence of a medical center or mental health programs that have a responsibility to assist students who have medical, physical, and psychological difficulties. In this University, this situation was resolved several years ago with the implementation of these services that seek to support the students.

Even though all proposals listed here could be carried out, it is important to point out the specific situations that may lie with the teacher or students as to take advantage or not of these courses and services.

On one side, we have teachers that generally perceive that their obligation is to provide adequate information to students on a specific course and nothing else, because they consider that they are only the bearers of knowledge, and do not feel they are necessarily obliged to respond to other situations that arise in the class and therefore do not value their educational responsibility. To solve this problem, we proposed that the changes required must be initially addressed by those responsible for personal conversations that encourage and persuade the teacher to participate in the development of these skills in each department, as well as, when a new teacher arrives, he or she must be made aware of this responsibility and accepts it.

Meanwhile, even when students know of the existence of these services that can help them improve, they frequently consider that they do not need them until it is too late or that it is not an obligation to approach or continue within the courses offered or to attend a mental health program. Their attitude depends on the personal ideology of each individual to accept the offer or not and as we know, it is difficult to help someone who does not want to be helped.

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