# The Relation between Medical Student Life, Study Habits, and their Final Year Grade: A Single Centre Study in Egypt

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## ABSTRACT

**Background:** Undergraduate medical education in many developing nations is facing new challenges today and the performances of students as well as physicians in the community are perceived to have largely declined.

**Objectives:** to determine the association between life; study habits and the final year grades of the medical students in Mansoura University.

**Methods:** This was a Comparative Cross-Sectional Study. It was carried out from May to August 2013 among the total of 802 students, who were registered in the practical course that follows their latest years. The data of which was collected using a self-administrated questionnaire. The questionnaire included four parts; the first part covered the personal data. The second part of the questionnaire included the life-style of medical students, and the third part included the studying habits of medical students.

**Results:** 30.3% of students were ranked as excellent according to latest year grades (2012-2013). The most important life-style significant factors affecting the final year grades were internet use and sleeping hours, and the most significant study habits' factors were English proficiency, and study motivation.

**Conclusion:** In this study internet using, sleeping hours, English proficiency, attending tutorials and study motives are the most related factors to the study performance of medical students.

*Key words: Medical students, Excellent, Study performance*

## INTRODUCTION

Undergraduate medical education in many developing nations is facing new challenges today and the performances of students as well as physicians in the community are perceived to have largely declined [1]. Education is an avenue of training and learning, especially in colleges, to improve knowledge and develop skills. The ultimate purpose of education is to empower an individual in order to excelling in a chosen field of endeavor or career, and to be able to impact positively his or her environment [2]. The quality of students' performance remains at top priority for educators. It is meant for making a difference locally, regionally, nationally and globally. Educators, trainers, and researchers have long been interested in exploring variables contributing effectively for quality of performance of learners.

These variables are inside and outside school or college that affects students' quality of academic achievement. These factors may be termed as student factors, family factors, learning environment factors and peer factors [3].

The level of the success college students achieve has far-reaching implications for students' personal and professional lives. Student success has an immediate influence on a student's academic self-

esteem, persistence in elected majors, and perseverance in higher education. Success at college also ultimately impacts students' post-college experiences, such as career choice, personal income and level of success, and degree and nature of participation in community life. Thus, the experience a student has in the introductory college classes she, or he attends can have a significant influence on the course of that student's adult life [2,4].

The medical study program takes six years in the university, which is longer than other curricula. The country spends a lot of money to produce each medical graduate.

Knowing the factors that influence academic achievements among students is the first step to improve the success rates and post college clinical performance and makes medical education programs a nationwide investment. The objective of this study is to conclude the determinants affecting the latest year grades of the medical students in Mansoura University.

## METHODS

A Comparative cross-sectional study was conducted at Mansoura University Hospital. The study was carried out from May to August 2013, because the results of the latest year were declared in January 2013.

***Sample and sample size:*** All medical students were receiving training practical course after their latest year, which is a rotating between different university hospitals' departments. The study was carried out among the total of 802 students, who were registered in this practical course.

***Tools of the study:*** The self-administered questionnaires were distributed during the practical classes. They were completed and collected within the same setting. A researcher was available to answer any enquiry.

***Pilot study:*** 50 pre-final students were randomly selected to conduct pilot study in order to check the validity and clarity of the structured questionnaire and to estimate the time needed to complete the questionnaire. Necessary changes were made after

testing by omission, addition and modification of some questions.

***Data collection:*** A total of 802 questionnaires were distributed and 554 were completed and returned, with a response rate 69 %.

The questionnaire included four parts. The first part covered the personal data (age, residence, grade, marital status, fathers and mothers' education, family income and family problems). The second part of the questionnaire included the life-style of medical students as, sports practicing, music listening, watching TV, internet use, social activities, sleeping hours and smoking. The third part included the studying habits of medical students like, studying companion, studying hours, studying source and techniques and English proficiency. The last part included: students' attendance, private lessons, preparing for the next year and study motivation

The study proposal was approved by the authority of the Faculty of Medicine, Mansoura University. Participation was voluntary without any coercion. Informed consents were obtained from the participants after explanation of the study objectives with strict confidentiality of data collected and the name and identity were optional.

***Statistical analysis:***

The completed questionnaires were subjected to revision, and the collected data were coded, processed and analyzed through SPSS, version 16.0. Variables were presented as number and per cent. Chi-square test of significance was used for comparison between groups. $P \leq 0.05$ was considered statistically significant.

## RESULTS

In our study, it was found that about one third of the students had the excellent grade in their latest year and less than 3% had an accepted grade (table 1). On classifying students according to their last year grades (excellent and less than excellent), it was found that, none of the noted socio-demographic characters were significantly different between students with excellent and less than excellent grades (table 2).

Table 1: Distribution of the medical students according to their last year grade

| Degree | No. | % |
|---|---|---|
| Excellent | 168 | 30.3 |
| Very good and good | 360 | 68.8 |
| Accepted | 16 | 2.9 |
| **Total** | 554 | 100 |

Table 2: Relation between socio-demographic characters of the studied groups and the performance

| Socio-demographic character | Total (554) | Excellent (168) No. | % | Less than excellent (386) No. | % | Sig χ² | P |
|---|---|---|---|---|---|---|---|
| **Gender** | | 42 | 25 | 88 | 22.8 | | |
| male | 130 | 126 | 75 | 298 | 77.2 | 0.31 | .57 |
| female (r) | 424 | | | | | | |
| **Marital status** | | 164 | 97.6 | 384 | 99.5 | | |
| single | 548 | 4 | 2.4 | 2 | 0.5 | | 0.07 |
| married(r) | 6 | | | | | | |
| **Residence** | | 90 | 53.6 | 182 | 47.2 | | |
| urban | 272 | 34 | 20.2 | 102 | 26.4 | | |
| semi-urban | 136 | 44 | 26.2 | 102 | 26.4 | | |
| rural(r) | 146 | | | | | 2.8 | 0.2 |
| **Father education** | | 128 | 76.2 | 304 | 78.8 | | |
| University | 432 | 32 | 19 | 68 | 17.6 | | |
| Secondary | 100 | 8 | 4.8 | 14 | 3.6 | 0.6 | 0.7 |
| Illiterate or basic education(r) | 22 | | | | | | |
| **Mother education** | | | | | | | |
| University | 368 | 110 | 65.5 | 258 | 66.8 | | |
| Secondary | 166 | 54 | 32.1 | 112 | 29 | 1.4 | 0.4 |
| Illiterate or basic education(r) | 20 | 2 | 2.4 | 16 | 4.1 | | |
| **Family monthly income** | | | | | | | |
| enough | 508 | 158 | 94 | 350 | 90.7 | 1.7 | 0.2 |
| not enough(r) | 46 | 10 | 6 | 36 | 7.3 | | |
| **Family problems** | | | | | | | |
| no | 424 | 126 | 75 | 298 | 77.2 | 0.31 | 0.5 |
| yes(r) | 130 | 42 | 25 | 88 | 22.8 | | |
| **Residence during academic year** | | | | | | | |
| with family | 250 | 76 | 45.2 | 174 | 45.1 | | |
| in the campus | 32 | 10 | 6 | 22 | 5.7 | 1.4 | 0.6 |
| with friends | 66 | 16 | 9.5 | 50 | 13 | | |
| alone (r) | 206 | 66 | 39.3 | 140 | 36.3 | | |
| **Medical relative** | | | | | | | |
| yes | 378 | 122 | 72.6 | 256 | 66.3 | 2.1 | 0.1 |
| no(r) | 176 | 46 | 27.4 | 130 | 33.7 | | |

Table (3) shows that two life-style characters were significantly different between the studied groups, namely internet use and sleeping hours. 14.3% of the "excellent students" compared to 9.8% of those "non-excellent" were none internet users. On the other hand, the internet was used for more than four hours between 27.4% of the "excellent students" and 17.6 % of "non-excellent". About 69% of "excellent students" and 57% of "non-excellent" used to sleep eight hours or more per day (p=0.01). In table (4), some studying habits significantly varied between the studied groups, impressively, only 4.8% of "excellent students" compared to 11.9 % of "non-excellent" studied for more than four hours daily. In addition, 48.8% and 40.4 of the "excellent" and "non-excellent" students respectively study periods were between two and four hours daily.

Different study sources were analyzed, which indicate that the internet was consumed by "excellent" (36.9) significantly higher (p=0.04) than "nonexcellent students" (28.5%). "Recording" as a study technique was adopted more frequently among "non-excellent" (46.1%) than students with excellent ones (36.9%) (p=0.04). On the other hand, reading, silently was preferred by 66.7% of "excellent" and 58% of "non-excellent students (p=0.05). English proficiency was significantly reported by more excellent students, where 26.2% of "excellent" and 16.6% of "non-excellent" students ranked themselves as excellent in English language (p=0.009).

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Table 3: Relation between life style of the studied groups and their performance

| Life style | Total | Excellent (N=168) | | Less than excellent (N=386) | | Sig | |
|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | $\chi^2$ | P |
| **Sports** | | | | | | | |
| never | 330 | 90 | 53.6 | 240 | 62.6 | | |
| less than 2 hours daily | 212 | 72 | 42.9 | 140 | 36.3 | 4.9 | 0.17 |
| 3 to 4 hours daily | 8 | 4 | 2.4 | 4 | 1 | | |
| more than 4 hours daily(r) | 4 | 2 | 1.2 | 2 | 0.5 | | |
| **Listening to music** | | | | | | | |
| never | 152 | 40 | 23.8 | 112 | 29 | | |
| less than 2 hours daily | 316 | 96 | 57.1 | 220 | 57 | | |
| 3 to 4 hours daily | 46 | 14 | 8.3 | 32 | 8.3 | 5.2 | 0.15 |
| more than 4 hours daily(r) | 40 | 18 | 10.7 | 22 | 5.7 | | |
| **Watching TV** | | | | | | | |
| never | 62 | 10 | 6 | 52 | 13.5 | | |
| less than 2 hours daily | 290 | 90 | 53.6 | 200 | 51.8 | 7.1 | 0.06 |
| 3 to 4 hours daily | 128 | 44 | 26.2 | 84 | 21.8 | | |
| more than 4 hours daily(r) | 74 | 168 | 14.3 | 50 | 13 | | |
| **Internet use** | | | | | | | |
| never | 62 | 24 | 14.3 | 38 | 9.8 | | |
| less than 2 hours daily | 256 | 76 | 45.2 | 180 | 46.6 | 16 | ≤0.001 |
| 3 to 4 hours daily | 122 | 22 | 13.1 | 100 | 25.9 | | |
| more than 4 hours daily(r) | 114 | 46 | 27.4 | 68 | 17.6 | | |
| **Social network (face book/twitter)** | | | | | | | |
| never | 52 | 16 | 9.5 | 36 | 9.3 | | |
| less than 2 hours daily | 270 | 76 | 45.2 | 194 | 50.3 | 3.5 | 0.3 |
| 3 to 4 hours daily | 120 | 34 | 20.2 | 86 | 22.3 | | |
| more than 4 hours daily(r) | 112 | 42 | 25 | 70 | 18.1 | | |
| **Smoking** | | | | | | | |
| no | 544 | 162 | 96.4 | 382 | 99 | 4.2 | 0.07 |
| yes (r) | 10 | 6 | 3.6 | 4 | 1 | | |
| **Sleeping hours** | | | | | | | |
| less than 8 hours daily | 216 | 52 | 31 | 164 | 42.5 | 8.8 | 0.01 |
| 8 hours or more daily® | 338 | 116 | 69 | 222 | 57.5 | | |
| **Mode of transportation** | | | | | | | |
| private | 54 | 12 | 7.1 | 42 | 10.9 | | |
| taxi | 130 | 40 | 23.8 | 90 | 23.3 | 1.8 | 0.3 |
| public(r) | 370 | 116 | 69 | 254 | 65.8 | | |

Table 4: Relation between the study habits of the studied groups and their performance

| Habit | Total | Excellent (N=168) | | Less than excellent (N=386) | | Sig | |
|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | $\chi^2$ | P |
| **Study Companion** | | | | | | | |
| alone | 492 | 154 | 91.6 | 338 | 87.6 | 2.3 | 0.2 |
| with one colleague | 40 | 10 | 6 | 30 | 7.8 | | |
| with groups(r) | 22 | 4 | 2.4 | 18 | 4.7 | | |
| **Study hours in weekdays** | | | | | | | |
| > 4 hours daily | 54 | 8 | 4.8 | 46 | 11.9 | 8.1 | 0.04 |
| 2 to 4 hours daily | 238 | 82 | 48.8 | 156 | 40.4 | | |
| < 2 hours daily | 198 | 58 | 34.5 | 140 | 36.3 | | |
| don't study (r) | 64 | 20 | 11.9 | 44 | 11.4 | | |
| **Study hours in weekend** | | | | | | | |
| > 4 hours daily | 50 | 10 | 6 | 40 | 10.4 | 4.8 | 0.18 |
| 2 to 4 hours daily | 74 | 28 | 16.7 | 46 | 11.9 | | |
| < 2 hours daily | 118 | 38 | 22.6 | 80 | 20.7 | | |
| don't study (r) | 321 | 92 | 54.8 | 220 | 57 | | |

**Table 4: cont.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Study sources** | | | | | | | |
| text book | 226 | 72 | 42.9 | 154 | 39.9 | 0.4 | 0.5 |
| handout | 392 | 118 | 70.2 | 247 | 71 | 0.03 | 0.8 |
| lectures | 326 | 106 | 63.1 | 220 | 57 | 1.7 | 0.18 |
| internet | 172 | 62 | 36.9 | 110 | 28.5 | 3.8 | 0.04 |
| videos | 176 | 58 | 34.5 | 118 | 30.6 | 0.8 | 0.3 |
| Others | 282 | 80 | 47.6 | 202 | 52.3 | 1 | 0.3 |
| **Study technique** | | | | | | | |
| Mapping | 210 | 60 | 35.7 | 150 | 38.9 | 0.4 | 0.4 |
| note forming | 328 | 94 | 56 | 234 | 60.6 | 1 | 0.3 |
| high lightening | 424 | 130 | 77.4 | 294 | 76.2 | 0.9 | 0.7 |
| summarizing | 314 | 86 | 51.2 | 228 | 59.1 | 2.9 | 0.08 |
| Recording | 240 | 62 | 36.9 | 178 | 46.1 | 4 | 0.04 |
| reading silently | 336 | 112 | 66.7 | 224 | 58 | 3.6 | 0.05 |
| reading loudly | 284 | 80 | 47.6 | 204 | 52.8 | 1.2 | 0.25 |
| start by memorization | 148 | 52 | 31 | 96 | 24.9 | 2.2 | 0.13 |
| reading then memorization | 410 | 128 | 76.2 | 282 | 73.1 | 0.5 | 0.4 |
| **Habits during study** | | | | | | | |
| prefers silence | 410 | 126 | 75 | 284 | 73.6 | 4.9 | 0.08 |
| certain posture | 332 | 102 | 60.7 | 230 | 59.6 | 0.06 | 0.8 |
| eating snacks | 264 | 76 | 45.2 | 188 | 48.7 | 0.5 | 0.4 |
| drinking beverage | 334 | 100 | 59.5 | 234 | 60.6 | 0.05 | 0.8 |
| listening to music | 164 | 48 | 28.6 | 116 | 30.1 | 1.2 | 0.7 |
| listening to Quraan | 210 | 60 | 35.7 | 150 | 38.9 | 0.4 | 0.4 |
| **English proficiency** | | | | | | | |
| Excellent | 108 | 44 | 26.2 | 64 | 16.6 | | |
| very good | 258 | 64 | 38.1 | 194 | 50.2 | 9.4 | 0.009 |
| good (r) | 188 | 60 | 35.7 | 128 | 33.2 | | |

Regarding academic activities reported by students in table (5), neither attendance to lecture, practical sessions, clinical teaching nor have private lessons significantly varied between the studied groups. On the other hand, attending to tutorials was significantly more among non excellent students. Learning difficulties faced "excellent students" more frequently, especially those use self-learning (p=0.03). While that 71.4% of the "excellent students" prepare for the next academic year, only 52.3% of "non-excellent" do that ( p≤0.001). Among study motives, to get post graduate jobs in university was significantly higher among "excellent" (69.6%) than "non-excellent" students (36.4%) (p≤0.001).This motive was reported by (73.6%) of the "excellent" and (52.3%) of "non-excellent" students (p≤0.001). Being not motivated was reported by 15.5% of "excellent" and 38.8% of "non-excellent" students ( p≤0.001).

Table 5: Relation between academic practice and study motivation of studied groups and their performance

| Practice | Total | Excellent (N=168) | | Less than excellent (N=386) | | Sig | |
|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | χ² | P |
| **Attendance to lectures** | | | | | | | |
| yes | 402 | 124 | 73.8 | 278 | 72 | 0.1 | 0.6 |
| no(r) | 152 | 44 | 26.2 | 108 | 28 | | |
| **Attendance to tutorials** | | | | | | | |
| yes | 352 | 96 | 57.1 | 256 | 66.3 | 4.2 | 0.03 |
| no (r) | 202 | 72 | 42.9 | 130 | 33.7 | | |

**Table 5: cont.**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Attendance to practical sessions** | | | | | | | |
| yes | 486 | 142 | 84.5 | 344 | 89.1 | 2.2 | 0.1 |
| no(r) | 68 | 26 | 15.5 | 42 | 10.9 | | |
| **Attendance to clinical teaching** | | | | | | | |
| yes | 398 | 126 | 75 | 272 | 70.5 | 1.1 | 0.2 |
| no(r) | 156 | 42 | 25 | 114 | 29.5 | | |
| **Private lessons** | | | | | | | |
| yes | 150 | 84 | 28.4 | 66 | 25.6 | 0.5 | 0.4 |
| no (r) | 404 | 212 | 71.6 | 192 | 24.4 | | |
| **Facing learning difficulties** | | | | | | | |
| self learning | 292 | 102 | 60.7 | 190 | 49.2 | | |
| ask a colleague | 138 | 38 | 22.6 | 100 | 25.9 | 8.5 | 0.03 |
| ask a faculty member | 48 | 14 | 8.3 | 34 | 8.8 | | |
| Skip(r) | 76 | 14 | 8.3 | 62 | 16.1 | | |
| **Preparing for next academic year** | | | | | | | |
| Yes | 322 | 120 | 71.4 | 202 | 52.3 | 17.5 | ≤0.001 |
| No(r) | 232 | 48 | 28.6 | 184 | 47.7 | | |
| **Method of preparing for next year** | | | | | | | |
| start reading in curriculum | 76 | 26 | 21.7 | 50 | 24.8 | | |
| research project | 43 | 19 | 15.8 | 24 | 11.9 | 1.1 | 0.5 |
| clinical training(r) | 203 | 75 | 62.5 | 128 | 63.4 | | |
| **Motivation to study** | | | | | | | |
| get post graduate job in university | 300 | 206 | 69.6 | 94 | 36.4 | 62 | ≤0.001 |
| family pressure | 228 | 120 | 40.5 | 108 | 41.9 | 0.09 | 0.7 |
| always had high score | 330 | 218 | 73.6 | 112 | 43.4 | 52.3 | ≤0.001 |
| enjoy studying | 232 | 130 | 43.9 | 102 | 39.5 | 1 | 0.2 |
| not motivated | 146 | 46 | 15.5 | 100 | 38.8 | 38.2 | ≤0.001 |

## DISCUSSION

Defining and measuring the quality of education is not a simple issue and the complexity of this process increases due to the changing values of quality attributes associated with the different stakeholders' view point [4]. In this study, we found that, socio-demographic characters were not affecting student's final grades and this was consistent with *Mandal et al,* who reported that, socioeconomic background was not significant factor affecting performance in an Indian study conducted on medical faculty students [1]. In contradiction with our results *Duke,* 2000; Eamon, 2005 declared that, the achievement of students is negatively correlated with the low socio-economic status (SES) of the parents because it hinders the individual in gaining access to sources and resources of learning [5,6]. Also, Sander, found that, low SES level strongly affects the achievement of students, dragging them down to a lower level [7].

In our study, there are no differences between genders. On the other hand *Chambers & Schreiber,* found a difference between the achievement of boys and girls, for the benefit of girls [8]. Moreover, *Pinyopornpanish et al,* study showed that more male students had low achievement than females in every year [9].

Deprivation of sleep to less than six to seven hours per day can lead to serious impairment of cognitive and psychomotor function (reduces concentration, memory and thinking strategies), daytime dysfunction, increased incidence of sleep-related accidents [10,11], and diminished academic performance, often resulting in poor grades [12]. In *Mandal et al,* study, sleep disorders among many other psychic problems had a significant correlation with poor academic performance [1].

Internet was more significantly consumed by "excellent" students than "non-excellent". This matched with, Wilson, 2002, who reported that using computers and internet improve the likelihood of success for college students. This becomes clearer when noticing that significantly more "excellent" students compared to "non-excellent" reported using the internet as a study source [13].

Impressively, we found only 4.8% of "excellent students" compared to 11.9 % of "non-excellent" studied for more than four hours daily; however,

*McGill et al,* reported a significant relationship between success and the number of studied hours per week [14]

Many scholars investigated the relationship between English language proficiency and academic achievement. In the present study, we declared that English proficiency was significantly reported by more excellent students. *Wille,* studied the relationship between English language proficiency and academic achievement of Hispanic students at the secondary level in the United States. He found that there is a positive relation between these two variables [15]. *Sahragard et al,* conducted a study aimed to find out the relationship between Iranian college students' language proficiency and their academic achievement. They found the existence of a significant positive relationship between language proficiency and academic achievement [16]. Moreover, in an Indian study, a significant association between students who have difficulty in understanding English, and academic performance was reported [1].

In this study, attending to tutorials was significantly more among non excellent students. This is in contrast with Epstein & Sheldon, who declared that attending tutorials and training classes were positively affecting student's degree [17] and with Pinyopornpanish et al, who reported absence from classes in 63.8% of undergraduate medical students with poor academic performance. [9] In addition, *Biswas and Jain,* stated that, there was significant difference in marks with respect to attendance [19]. On the other hand, lack of regular attendance was not linked to academic performance in undergraduate medical students in India [1].

Regarding the study motives, to get post graduate jobs in the university. We detect that it was significantly higher among excellent students. *House,* also found a positive relationship between student motivations, and academic self-concept (a student's personal opinion toward her or his academic skills). Being not motivated at all was significantly higher among non excellent students than excellent students [19] and this was in accordance with *Pinyopornpanish et al* study where 24% of undergraduate medical students with poor academic performance were none motivated [9]. An Indian study showed that, there was a significant number of students among the

poor performers who had not aimed to be doctors. This dissatisfaction with the career choice that may have been forced on them could be a reason for lack of interest, lack of concentration, depression and, ultimately, poor academic performance [1].

However, from the study, we concluded that internet use, sleeping adequacy, English proficiency and motivation are among the most important factors affecting medical student's final year grades. On the other hand, socioeconomic status was not linked to academic performance.

## CONCLUSION AND RECOMMENDATIONS

In this study, using internet, sleeping hours, English proficiency, attending tutorials and study motives are the most related factors to the study performance of medical students. We recommend increasing the availability of computer-based medical programs, adoption of more attractive methods for teaching, provision of English courses presenting medical terms and expressions to medical students prior to study, health education message on the importance of sleeping adequacy and emphasize the importance of motivation or desire to be a doctor. Moreover, further studies should be planned from different medical institutions in order to gain a better insight into the matter.

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