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## Original Article

# Study Skills and their Correlation with Academic Satisfaction and Achievement among Medical and Pharmacy Students in Kermanshah University of Medical Sciences (2013)

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(Received: 6 Oct 2014      Accepted: 7 Aug 2015)

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## Abstract

**Introduction:** Study skills and students' satisfaction with their performance positively affect their academic achievement. The current research was carried out to investigate the correlation of study skills with academic achievement among the medical and pharmacy students in 2013.

**Methods:** This descriptive-analytical study was conducted on 148 students of basic medical sciences and pharmacy through convenience sampling. Data were collected by a valid and reliable questionnaire, consisting of two sections: Demographic information and questions about daily study hours, study skills in six domains, and students' satisfaction with study skills. Collected data sets were analyzed by SPSS-16 software.

**Results:** In total, 10.9% of students were reported to have favorable study skills. The minimum score was found for preparation for examination domain. Also, a significantly positive correlation was observed between students' study skills and their Grade Point Average (GPA) of previous term ( $r=0.269$ ,  $P=0.001$ ) and satisfaction with study skills ( $r=0.493$ ,  $P=0.001$ ).

**Conclusion:** The findings indicated that students' study skills need to be improved. Given the significant relationship between study skills and GPA, as an index of academic achievement, and satisfaction, it is necessary to promote the students' study skills. These skills are suggested to be reinforced, with more emphasis on weaker domains.

**Keywords:** Study skills, Academic achievement, Medical students, Pharmacy students

Citation: Shackebaei D, Siami Sh, Firouzabadi H, Memar Eftekhari L, Rezaei M, Hesari M, Afarangan F. Study skills and their correlation with academic satisfaction and achievement among medical and pharmacy students in Kermanshah University of Medical Sciences (2013). *Educ Res Med Sci.* 2015; 4(2): 46-51.

## Introduction

Study skills or strategies include covert and overt thoughts and behaviors that are associated with success in learning. These skills or strategies have also been defined as any cognitive, emotional or behavioral activity that facilitates storage, recalling and use of the learned materials (1, 2). The emotional components of the study process involve four skills of controlling anxiety and avoiding procrastination and negligence, note-taking, highlighting information and reviewing information (1). In fact, study skills are strategies used to encode, store, maintain, recall and use information logically, efficiently and adequately (3).

Study skills include different skills like time management, concentration, note taking, reading and taking exam (3). Further, study skills, as learning tools, help the learner to elaborate on the new information, combine it with previously learned information and store it in long-term memory (4). Study skills are techniques whose mastery improves the study style and increases efficiency (5). More broadly, study skills are methods that increase the ability of an individual for academic achievement and better learning (5). Proper use of study skills or optimal study means complete use of the available time to comprehend the materials. These skills, in fact, help the students to make better use of study hours (5).

Previous studies have shown that study skills have a positive effect on students' academic achievement (1, 2). It has been found that students with good study skills have a better performance than those with poor study skills (6, 7). The students with more academic achievements possess a wider range of study skills than those with fewer study skills (7). The results of a study indicated that problems associated with study skills and unfamiliarity with efficient study skills play a role in students' academic failure (2, 3). Lack of study skills is one of the reasons some students fail to gain a favorable result (2, 3). Studies in the realm of psychology have demonstrated that study skills and strategies facilitate learning and enhance students' academic performance (3). In various parts of the world, the efficacy of employing different study skills and strategies has been emphasized for better learning to occur (3). Moreover, research has shown a relationship between satisfaction with field of study and academic achievement among students (8). According to previous studies, the GPA of students, which is an index of academic achievement, is positively correlated with

academic satisfaction, and students with more academic satisfaction have been shown to acquire a higher GPA (9).

Hence, given the positive role of study skills in students' academic achievement and better learning, assessment of students' study skills and their satisfaction with study skills are of high significance. Owing to scarcity of information in this regard as well as the significance of this topic, this study was an attempt to investigate the relationship of study skills and students' academic achievement. Evidently, the information obtained from this study would be helpful for better educational planning and promotion of students' academic achievement.

## Methods

This descriptive-analytical study was conducted in the second semester of the academic year 2013-2014. The study population comprised of 170 medical and pharmacy students. The instrument for data collection consisted of a two-part questionnaire. The first section included demographic information (age, gender, semester, GPA of previous term, residence, and daily study hours), the second section comprised of 30 items about study skills and the third section involved 8 items on students' satisfaction with their study skills. To measure the students' study skills, the study skills self-assessment questionnaire was used, which comprised of 6 domains of studying the books, note taking, reading style, remembering, preparation for exams and time management (10). The responses in the study skills section were of three choices including: Seldom, sometimes, often with the scores 0, 5, and 10, respectively. The maximum score of each domain was considered to be 50. The scores  $\geq 35$  were considered favorable and those  $< 35$  needed reinforcement (10). The responses in satisfaction section were designed based on five-point Likert scale (very much, much, moderate, low, and very low). The validity of the questionnaire was confirmed by content validity based on consultation with ten expert faculty members of Kermanshah University of Medical Sciences. To evaluate the reliability of the questionnaire, test-retest reliability was applied, i.e. the questionnaire was given to 20 students to complete and then after one month, the questionnaire was given to them again to complete. The obtained results were analyzed for

reliability, which was reported to be 0.707 by Spearman correlation coefficient, indicating an acceptable index.

The questionnaires were distributed among students and collected after they completed them. The data were analyzed by SPSS-16 software. The analysis of questionnaires was performed as follows: First, the data were scored for each item and class of items in different domains; then, classifications were carried out based on the cut-off point and evaluated according to demographic information, study hours and students' satisfaction with study skills. Next, Kolmogorov-Smirnov (KS) test was run for normality of quantitative variables. Based on the results of KS test, parametric tests were applied to normal quantitative variables and non-parametric tests were applied to non-normal variables. To determine the correlation coefficient between variables as well as the test and retest, Spearman correlation coefficient was run. To compare study skills between medical and pharmacy majors, independent T-test and Man-Whitney U test were applied. Moreover, one-way ANOVA, Tukey, and Kruskal-Wallis tests were used to compare the results between groups. In addition, Chi-square test was used to determine the correlation between qualitative variables.  $P < 0.05$  was considered significant.

## Results

From 170 questionnaires given to students, 148 questionnaires (87.1%) were completed. Of all the participants, 95 students were female (64.2%) and 143 were single (96.6%). The mean age of the participants was  $20.3 \pm 1.2$ , with maximum and minimum ages of 27 and 19, respectively. The mean score of study skills section (out of maximum 300) was  $151.2 \pm 44.6$  and that of satisfaction with study skills (out of maximum 40) was  $20.22 \pm 0.06$ . These scores for medical and pharmacy majors were reported to be  $152.4 \pm 42.4$  and  $148.6 \pm 49.7$ , respectively, which showed no significant difference between the two groups. The mean scores (out of maximum 50 for each domain) of the six domains were calculated separately (Table 1). From among the six domains, the maximum scores were reported for domains 1 (studying books) and 3 (reading style),  $27.5 \pm 10.2$  and  $30.1 \pm 9.9$ , respectively. The minimum scores were found for domains 2 (note taking) and 5 (preparation for exams), with mean scores  $20.8 \pm 12.5$  and  $22.9 \pm 10.3$ , respectively.

**Table 1. Scores in each domain of study skills and in total among medical and pharmacy students**

| Study skills domains    | Maximum score | Medicine (N=103) | Pharmacy (N=45) | Total (N=148) | P value |
|-------------------------|---------------|------------------|-----------------|---------------|---------|
| 1 Studying books        | 50            | 28.6±10.1        | 24.9±10.1       | 27.5±10.2     | 0.064   |
| 2 Note taking           | 50            | 21.4±12.1        | 19.4±13.5       | 20.8±12.5     | 0.266   |
| 3 Reading style         | 50            | 31.1±9.5         | 27.8±10.6       | 30.1±9.9      | 0.052   |
| 4 Remembering           | 50            | 26.8±10.4        | 27.2±10.9       | 26.9±10.5     | 0.869   |
| 5 Preparation for exams | 50            | 21.6±9.7         | 25.9±11.2       | 22.9±10.3     | 0.063   |
| 6 Time management       | 50            | 22.9±11.8        | 23.3±11.9       | 23±11.8       | 0.785   |
| <b>Total</b>            | 300           | 152.4±42.4       | 148.6±49.7      | 151.22±44.62  | 0.732   |

Values are shown as Mean±SD.

The number and percentage of the students with favorable study skills ( $\geq 35$  in each domain) and those with poor study skills ( $< 35$  in each domain) were determined in the six domains and in total (Table 2). As indicated, an average of 33.8% of subjects in domain 1 and 43.9% in domain 3 (Reading style) acquired a favorable rank.

However, the poorest results were reported for domains 2 (Note taking) and 5 (Preparation for exams), in which 18.9% and 17.6% of students gained a favorable score, respectively. On the other hand, in domain 2 (note taking), 81.1% of students and in domain 5 (preparation for exams), 82.4% of students acquired a score below the favorable rank.

**Table 2. Scores and percentage of students in each domain of study skills and in total**

| Study skills domains    | Medicine (N=103)<br>N(%) | Pharmacy (N=45)<br>N(%) | Total (N=148)<br>N(%) |
|-------------------------|--------------------------|-------------------------|-----------------------|
| 1 Studying books        | 37(35.9)                 | 13(28.9)                | 50(33.8)              |
| 2 Note taking           | 18(17.5)                 | 10(22.2)                | 28(18.9)              |
| 3 Reading style         | 51(46.5)                 | 14(31.1)                | 65(43.9)              |
| 4 Remembering           | 29(28.2)                 | 15(33.3)                | 44(29.7)              |
| 5 Preparation for exams | 12(11.7)                 | 14(31.1)                | 26(17.6)              |
| 6 Time management       | 24(23.3)                 | 9(20.0)                 | 33(22.3)              |
| <b>Total</b>            | 11(10.7)                 | 5(11.1)                 | 16(10.9)              |

The results of correlation between daily study hours, satisfaction with study skills and GPA of students, and the six domains of study skills were determined separately (Table 3). The mean daily study hours was found to have a significantly positive correlation with all domains of study skills, the maximum correlation being reported for domain 5 (preparation for exams) ( $P=0.001$ ).

Furthermore, there was a significantly positive relationship between satisfaction with study skills and the six domains of study skills. As shown, a significantly positive correlation was observed between GPA and all domains of study skills, except for domain 3, the maximum correlation being found for domain 1 (studying books) ( $P=0.003$ ).

**Table 3. Correlation between daily study hours, satisfaction level and GPA, and scores of each of six study skills domains and total score of study skills**

| Study skills domains    | Daily study hours      | Satisfaction with study skills | GPA of previous term   |
|-------------------------|------------------------|--------------------------------|------------------------|
| 1 Studying books        | $r=0.232$<br>$P=0.004$ | $r=0.218$<br>$P=0.008$         | $r=0.239$<br>$P=0.003$ |
| 2 Note taking           | $r=0.236$<br>$P=0.004$ | $r=0.276$<br>$P=0.001$         | $r=0.226$<br>$P=0.006$ |
| 3 Reading style         | $r=0.221$<br>$P=0.007$ | $r=0.397$<br>$P=0.001$         | $r=0.096$<br>$P=0.247$ |
| 4 Remembering           | $r=0.263$<br>$P=0.001$ | $r=0.251$<br>$P=0.002$         | $r=0.175$<br>$P=0.034$ |
| 5 Preparation for exams | $r=0.387$<br>$P=0.001$ | $r=0.489$<br>$P=0.001$         | $r=0.223$<br>$P=0.006$ |
| 6 Time management       | $r=0.326$<br>$P=0.001$ | $r=0.386$<br>$P=0.001$         | $r=0.211$<br>$P=0.010$ |
| <b>Total</b>            | $r=0.409$<br>$P=0.001$ | $r=0.493$<br>$P=0.001$         | $r=0.269$<br>$P=0.001$ |

## Discussion

The findings of this study showed that a low percentage of students had good study skills. Similar studies at other universities have also indicated that students' study skills need to be improved (1, 3, 4, 6, 11-14). The results of a study showed an average level for students' use of study skills along with their components (11). Another study demonstrated that the majority of students had poor to average study skills and few were reported to have good study skills (12). Also, a study showed a significant difference between successful and unsuccessful students in terms of use of study skills. That is, the successful students made more use of study skills and more efficient methods of studying (3, 15). Further, promotion of study skills has been found to improve academic achievement (1, 11, 15). Moreover, the findings of another study revealed a significantly positive correlation between study skills and GPA (12). Another analysis also showed teaching study skills realistically prepared the students for the first academic year (16).

In the present study, a significantly positive relationship was found between study skills and GPA of previous term, as an indicator of academic achievement. The analyses were indicative of positive correlation between the six domains of study skills and students' GPA of previous semester, which is in line with the results of other studies. It is noteworthy that the maximum correla-

tion with GPA was reported for the study skills domains 1, 2 and 5. Domains 2 and 5 are those in which students obtained the minimum scores. On the other hand, these domains had a significant correlation with GPA and indicated the weakest results in the current assessment.

The results also revealed a significantly positive correlation between daily study hours and all domains of study skills, the maximum correlation being reported for domain 5 (preparation for exam). That is to say, students with more study hours had more study skills.

In addition, a significant relationship was found between students' satisfaction and all domains of study skills. Based on the positive effect of satisfaction on academic achievement (8, 9), it seems evident that promotion of study skills can positively affect students' satisfaction and academic achievement.

An interesting point is that the findings of this study showed that the scores of various domains of study skills were not consistent. The results of a study, similar to those of the current study, indicated that students had different study skills in various domains such as time management, concentration, study speed, note taking, study habits and comprehension (3, 17). The current research showed the maximum level of skills for studying the books and reading style (domains 1 and 3) and the minimum level of skills for note taking and preparation

for exam (domains 2 and 5). The findings of another study revealed that the major problem of students was note taking (14).

Moreover, a study showed a significant correlation between time management, reading and note taking skills and academic achievement (7). Studies have shown that students who take note while learning and review their notes afterwards have a higher academic achievement than those who do not take note (13). Academic counselors believe that note taking significantly contributes to learning (13). Some researchers have also reported improving the note taking skill helps students in comprehension and short-term and long-term recall (13). They also stated that note taking during class lecture affects students' academic achievement, which is closely associated with their note taking ability (13).

Furthermore, although the obtained total score in study skills section showed that these skills need to be promoted, note taking and preparation for exam skills, in particular, are required to be more taken into consideration because they are strongly correlated with academic achievement (GPA). On the other hand, investment on these domains, which had the weakest scores, can remarkably enhance the students' academic achievement. This is an efficient practical strategy for promotion of study skills, which requires more attention by the concerned authorities.

## Conclusion

The results of the present study showed that students' study skills need to be improved. This has to be emphasized because the positive effect of study skills on students' academic achievement and satisfaction is evident. Note taking and preparation for exam were found to be of high importance because they were significantly correlated with academic achievement and poor results were reported for students' study skills. Hence, training workshops and courses are recommended to be held in order to promote the students' study skills.

## Acknowledgments

The authors would like to extend their gratitude to all students who participated in this study as well as the Medical Education Research Center of Kermanshah University of Medical Sciences.

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