STUDY HABITS, LEARNING APPROACHES AND COPING STRATEGIES OF MEDICAL STUDENTS

ASHRAF S. AND MUSHTAQ S.

Department of Pediatrics, Wah Medical College, Wah Cantt., Pakistan

ABSTRACT

Background and Objectives: To perform better in exams, students use different learning approaches based on their previous experiences.[3] Learning approach has been classified into deep, surface and strategic types. It has been proven that students with deep and strategic learning approaches consistently perform better in exams as compared toones with surface approach.[5] To explore study habits, learning approaches and exam stress coping strategies of medical students used for annual exams and to find out association with their academic achievements.

Methodology: This descriptive study was done from August 2016 to October 2016 at Wah medical college by the department of Pediatrics. Questionare was distributed among 300 medical students of 3rd, 4th and 5th year M.B.B.S. of the college.

Results: 275 completely filled proformas were selected for the study. A large number of them were females (70.2%) and students of 5th year (42.9%). Studing alone and in their rooms was the preferred way of studying with textbook being the main resource of preparation. Majority of the students used tea and coffee to increase concentration during study. Deep learning approach and multiple resources for study were predominantly used by the distinction holders.

Conclusion: This study shows that different students have different ways of preparing for exams which are co-related with their performance in exams also. Similarly the ways of relaxation to cope with the stress of exams were different among male and female students and students of different years.

Key Words: Study habits, Learning approach, exam stress, coping strategies.

INTRODUCTION

Medical students of this era are facing challenge of not only retaining ever expanding knowledge but also to acquire skills to become a competent doctor. To achieve this difficult task, the students need to plan and have appropriate study skills and habits otherwise there will be wastage of student's time and energy and may result in poor performance in their exams.[1] It is a well-known fact that assessment is one of the major factors affecting students approach to learning.[2] To perform better in exams, students use different learning approaches based on their previous experiences.[3] Learning approach has been classified into deep, surface and strategic types. Surface approach is influenced by a concern to pass the examinations and results in rote learning whereas in deep approach, emphasis is placed on understanding concepts and relating ideas resulting in life-long learning. Strategic approach includes using surface and deep approach in combinaton and causes fragmented learning of the topic.[4] It has been proven that students with deep and strategic learning approaches consistently perform better in exams as compared toones with surface approach.[5] High level

of stress has been found in medical students and exams have been the most common factor causing it.[6] Although stress enhances learning but a high level may cause negative effect on learning and life of the students.[7] In order to cope with this stress students use various strategies like TV viewing, going out with friends and using internet.[8] Current study was planned to determine and compare the study habits, learning approaches and exam coping strategies of students of different classes and to find their relationship to the results as no such study has been done in our institute. An in-depth understanding of different approaches would not only be beneficial for teachers to improve their delivery of learning materials but will also help students to enhance their learning.

PARTICIPANTS AND METHODS

This descritive study (N = 300) was carried out at the Wah Medical College, Wah Cantt. By using non-probability convenience sampling, study included all the 3rd, 4th and 5th year medical students of batch-2016 of the institute. An informed consent was taken after reassuring the students about the confidentiality of the data.

Corresponding Author: Dr. Sohail Ashraf, M.B.B.S., CMT, M.C.P.S., F.C.P.S.
Assistant Professor Pediatrics, Wah Medical College, WahCantt.
Cell No: 03332180883. Email: sohailaa2000@yahoo.com sohailaa2000@gmail.com

They were explained about the format of the questionnaire and the queries raised were clarified. The participants were asked to mention their gender, class roll numbers and last held university exam roll numbers on the questionnaire as the academic scores were to be compared with the study habits and learning approaches. Questionnaire contained various items with multiple options and students were asked to tick either one or more than one option. They were also allowed to add an option if not present in the list. Students were asked to respond to questions like site of preparation, method of study, substances used to increase concentration during exams, resources used for studying and relaxation techniques used. Various statements were used to identify the learning approaches like for superficial approach "During preparation I try to memorize the topic only without understanding the content". For the deep approach "During preparation I try to understand the content and clear the concept before memorizing it" and for strategic approach "sometimes I try to understand the topic and sometimes only do rote learning" were used. The data was entered and analyzed by SPSS version 19 and frequency and percentages were calculated for categorical variables. Chi square cross-tabulation was done to find out the association between study habits and learning approaches of students of different classes and their results at a 5% level of significance. Results of first professional examination (part 2) of 3rd year students, second professional examination of 4th year students and third professional university examination of 5th year medical students conducted by University of Health Sciences Lahore, were collected from the examination branch of the college after approval. On the basis of results they were categorized as pass, fail and distinction holders.

Operational Definition
Pass: Who had obtained 50% or more marks in each subject in last university exam.
Fail: Who scored less than 50% marks in one or more subjects in last university exam.
Distinction Holder: Who had obtained 85% or more marks in one or more subjects in last university exam.

RESULTS
300 proformas were distributed among students of 3 classes out of which 275 fully completed were included in the study. Majority of the students were females 193 (70.2%) whereas males were only 82 (29.8%). Class-wise majority of students were from 5th year 118 (42.9 %) followed by 4th year students 89 (32.4%) and 3rd year students 68 (24.7%). On the basis of their university results 203 (73.8%) were labeled as Pass, 58 (21.1%) as Fail and 14 (5.1%) as Distinction holders.

Majority of the students preferred to study in their rooms and alone for the preparation of exams and consumed tea and coffee to increase the concentration

Table 1: *Frequency of Study Habits and Learning Approaches.*

Variable	Frequency n (%)
• *Site of Preparation:*	
Room	197 (71.6)
Room & Library	49 (17.8)
Any other	17 (6.2)
Only library	12 (4.4)
• *Method of Study:*	
Alone	212 (77.1)
Another colleague	44 (16)
Group study	16 (6.8)
Any other	3 (1.1)
• *To Increase Concentration:*	
Tea/Coffee	184 (66.9)
Energy Drinks	15 (5.5)
Cigarettes	7 (2.9)
Cold Drinks	15 (5.5)
Medicine	6 (2.2)
Pan/Supari	6 (2.2)
None	33 (12)
Misc	9 (3.3)
• *Resource of Study:*	
Textbook	120 (43.6)
Multiple Resources	104 (37.8)
Textbook and past papers	51 (18.5)
• *Relaxation Techniques:*	
Socializing with friends	95 (34.5)
TV viewing	88 (32)
Listening to music	72 (26.2)
Social website use	60 (21.8)
Exercise	14 (5)
Misc (offering prayers, chatting with family, sleeping)	56 (20.4)
• *Learning Approach*	
Deep approach	158 (57.5)
Superficial approach	61 (22.2)
Strategic approach	55 (20)

as shown in Table 1.

Majority of the 3rd year students preferred to study alone and used multiple resources for the preparation of their final exams. Cigarette smoking was more common among 5th year students whereas use of cold drinks, energy drinks and medicine was high among students of 3rd and 4th year (Table 2).

Female students preferred to study in their rooms and used multiple resources for their preparation more as compared to male students. The ratio of concentration enhancing drugs was also high in females (Table 3).

All the distinction holders studied alone and used multiple resources for exam preparation. They tried to understand the concept thus applying deep learning approach (Table 4).

Table 2: *Co-Relation of Study Habits and Learning Approaches with Students of Different Years.*

Variable	3rd Year n-68	4th Year n-89	5th Year n-118	P value
Preparation:				
• Room	46 (67.6%)	64 (71.9%)	87 (73.7%)	
• Library	2 (2.9%)	4 (4.4%)	6 (5%)	0.17
• Both	14 (20.5%)	12 (13.4%)	23 (19.4%)	
• Other	6 (8.8%)	9 (10.1%)	2 (1.6%)	
Method of Study:				
• Alone	55 (80.8%)	70 (78.6%)	87 (73.7%)	
• Another colleague	8 (11.7%)	14 (15.7%)	22 (18.6%)	0.77
• Group study	5 (7.7%)	4 (4.4%)	7 (5.9%)	
• Any other	0	1(1.12%)	2 (1.6%)	
Resource of Study:				
• Text Book Alone	23 (33.8%)	37 (41.5%)	60 (50.8%)	
• Multiple Resources	33 (48.5%)	41 (46%)	30 (25.4%)	0.005
• Text book & Past papers	12 (17.6%)	11 (12.3%)	28 (23.7%)	
Increase Concentration During Study:				
• Tea/Coffee	44 (64.7%)	62 (69.6%)	78 (66.1%)	
• Cigarettes	1 (1.4%)	1 (1.1%)	5 (4.2%)	
• Energy drinks	2 (2.9%)	8 (8.9%)	5 (4.2%)	
• Pan/supari	1 (1.4%)	2 (2.2%)	3 (2.5%)	0.34
• None	11 (16.1%)	10 (11.2%)	12 (10.1%)	
• Medicine	3 (4.4%)	2 (2.2%)	1 (0.8%)	
• Cold drinks	5 (7.3%)	3 (3.3%)	7 (0.8%)	
• Misc	1 (1.4%)	1 (1.1%)	7 (5.9%)	
Learning Approach:				
• Superficial	11 (16.1%)	20 (22.4%)	31 (26.2%)	
• Deep	41 (60.2%)	53 (59.5%)	64 (54.2%)	0.5
• Strategic	16 (23.5%)	16 (17.9%)	23 (19.4%)	

DISCUSSION

In this study, we explored the study habits and approaches among medical students of various classes so that if required their strategies of learning could be changed in an appropriate manner for future. In our study, majority of the students specially females preferred to study alone in their rooms (p-0.02) due to ea-sy access to washrooms and lesser disturbance as compared to library which is also seen by a Pakistani study.[9] For some students, group study helps to enha-nce their understanding of the subject resulting in high gra-des[10] but this association was not seen in our study which

Table 3: *Gender Wise Comparison of Study Habits and Learning Approaches.*

Variable	Male (n-82)	Female (193)	P value
Preparation:			
• Room	53 (64.6%)	144 (74.6%)	
• Library	6 (7.3%)	6 (3.1%)	0.02
• Both	21 (25.6%)	28 (14.5%)	
• Other	2 (2.4%)	15 (7.7%)	
Method of Study:			
• Alone	62 (75.6%)	150 (77.7%)	
• Another colleague	11 (13.4%)	33 (17%)	0.26
• Group study	7 (8.5%)	9 (4.6%)	
• Any other	2 (2.4%)	1 (0.5%)	
Resource of Study:			
• Text Book Alone	42 (51.2%)	78 (40.4%)	
• Multiple Resources	26 (31.7%)	78 (40.4%)	.2
• Text book & Past papers	14 (17%)	37 (19.1%)	
Increase Concentration During Study:			
• Tea / Coffee	52 (63.4%)	132 (68.3%)	
• Cigarettes	7 (8.5%)	0	
• Energy drinks	5 (6%)	10 (5.1%)	
• Pan/supari	2 (2.4%)	4 (2%)	.009
• None	7 (8.5%)	26 (13.4%)	
• Medicine	1 (1.2%)	5 (2.5%)	

is consistent with another study.[11] This finding could be due to a impression that group study may lead to discussion of irrelevant topics resulting in loss of precious time during exam. It has been

• Cold drinks	5 (6%)	10 (5.1%)	
• Misc	3 (3.6%)	6 (3.1%)	
Learning Approach:			
• Superficial	19 (23.1%)	43 (22.2%)	0.5
• Deep	50 (60.9%)	108 (55.9%)	
• Strategic	13 (15.8%)	42 (21.7%)	

Table 4: *Corelation of Study Habits and Learning Approaches with Students Exam Performance.*

Variable	Fail (58)	Pass (203)	Dist (14)	P Value
Preparation:				
• Room	36 (62%)	152 (74.8%)	9 (64.2%)	
• Library	6 (10.3%)	5 (2.4%)	1 (7.1%)	0.01
• Both	11 (18.9%)	37 (18.2%)	1 (7.1%)	
• other	5 (8.6%)	9 (4.4%)	3 (21.4%)	
Method of Study:				
• Alone	42 (72.4%)	156 (76.8%)	14 (100%)	
• Another colleague	12 (20.6%)	32 (15.7%)	0	0.4
• Group study	3 (5.17%)	13 (6.4%)	0	
• Any other	1 (1.7%)	2 (0.9%)	0	
Resource of Study:				
• Text Book Alone	21 (36.2%)	95 (46.7%)	4 (28.5%)	
• Multiple Resources	21 (36.2)	75 (36.9%)	8 (57.1%)	0.15
• Text book & Past papers	16 (27.5%)	33 (16.2%)	2 (14.2%)	
Increase Concentration During Study:				
• Tea/Coffee	33 (56.8%)	142 (69.9%)	9 (64.2%)	
• Cigarettes	5 (8.6%)	2 (0.9%)	0	
• Energy drinks	6 (10.3%)	9 (4.4%)	0	
• Pan/supari	2 (3.4%)	4 (1.9%)	0	0.01
• None	6 (10.3%)	25 (12.3%)	2 (14.2%)	
• Medicine	3 (5.1%)	2 (0.9%)	1 (7.1%)	
• Cold drinks	2 (3.4%)	13 (6.4%)	0	
• Misc	1 (1.7%)	6 (2.9%)	2 (14.2%)	
Learning Approach:				
• Superficial	16 (27.5%)	45 (22.1%)	1 (7.1%)	
• Deep	29 (50%)	120 (59.1%)	9 (64.2%)	0.43
• Strategic	13 (22.4%)	38 (18.7%)	4 (28.5%)	

observed that students use different resources to prepare for their university exams depending upon their previous experience and peer advice.[12] Although majority of the students used textbooks as the only resource of preparation for the exam but 3rd and 4th year students (p value 0.005) were more inclined to use multiple resources like MCQ books, past papers, lecture handout etc. as also seen in a Syrian study.[13] Previous studies have confirmed that use of practice questions leads not only to better retention of the subject[14] but also results in higher marks[15,16] which was also present in our study as majority of the distinction holders used MCQ books and past papers along with the textbook for their preparation which helped them in better understanding of the topic. Keeping this result in mind, libraries of the colleges may be urged to arrange more review books for their students.

A high level of exam related anxiety resulting in negative effect on results has been reported in the literature.[17] In order to cope with this stress, students all around the world use various relaxation strategies like spending time with friends and listening to music,[18] by praying[17] and exercise[19] which were also used by our students. Internet has been a big resource of learning for the students around the globe[20] but on other hand its increased use during exams has also been associated with poor performance.[21] In our study although students used internet for preparation before exam but only a few students used it for relaxing technique during the exams. In order to increase alertness during exam and to enhance concentration, a lot of students had been found to use energy drinks,[22] smoke cigarettes and use illegal drugs[23] in various studies. Although a high percentage of our students also used caffeine but it was in form of tea, coffee and cold drinks few consumed energy drinks which is consistent with other studies.[24,25] High use of tea and coffe in our students may be due to the traditional life style.

It is a human nature to use multiple modalities and also to adopt newer approaches in order to succeed. Various authors have concluded that adaptation of a learning approach not only depends upon the sex of the students[3] but also on the level of clinical year of medical students.[26] Although a relationship between a specific learning approach and success in exam have been shown in a study[27] but others found no such association.[28] Some authors have shown a tendency of superficial approach by majority of the students[29] but in our study majority of students used deep approach for exams with slight predominance of distinction holders which may be due to the learning strategies used in our institute.

It is ***concluded*** that this study shows different study habits, stress coping strategies and various learning approaches used by undergraduate medical students of different clinical years. We recommend doing more local studies in order to identify learning approaches of high achievers which may be of help for the students who under perform in exams.

Authors' Contribution
SA: Conception and design, Analysis and interpretation of the data, Critical revision of the article, Literature search, Proof reading. SM: Conception, Collection and assembly of data, Drafting of the article, Literature search, Proof reading.

ACKNOWLEDGEMENTS

Conflict of Interest: None.

REFERENCES
1. Credé M, Kuncel NR. Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. Perspectives on psychological science, 2008; 3 (6): 425-53.
2. Biggs J. Assessment and classroom learning: a role for summative assessment?. Assessment in Education: Principles, Policy & Practice, 1998; 5 (1): 103-10.
3. Mirghani HM, Ezimokhai M, Shaban S, van Berkel HJM**.** Superficial and Deep Learning approaches among medical students in an interdisciplinary integrated curriculum. Edu Health, 2014; 27 (1): 10.
4. Leite WL, Svinicki M, Shi Y: Attempted Validation of the Scores of the VARK: Learning styles inventory with multitrait–multimethod confirmatory factor analysis models. Educ& Psycho measure, 2010; 70 (2): 323–39.
5. Feeley AM, Biggerstaff DL. Exam success at undergraduate and graduate-entry medical schools: is learning style or learning approach more important? A Critical review exploring links between academic success, learning styles, and learning approaches among school-leaver entry ("Traditional") and graduate-entry ("Nontraditional") medical students. Teaching and learning in
6. Abdulghani HM, Al Kanhal AA, Mahmoud ES, Ponnamperuma GG, Alfaris EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. J Health, Pop & Nut. 2011; 29 (5): 516-22.
7. Hoe DC, Wah CK, Rian CA, Eliza Au E, Goud BK, Kamath U. Stress manifestations of medical students and its relation with gender and life style changes. Int Med J Stud Res. 2012; 2: 37-45.
8. Sohail N. Stress and Academic Performance Among Medical Students. J Coll Phys Surg Pak. 2013; 23 (1): 67-71.
9. Naqvi Z, Ahmed R .Learning approaches and academic performance of undergraduate medical students in Pakistan. JPak Med Assoc. 2000 Jan; 50 (1): 20-5.
10. Sokolove P, Marbach-Ad G. The benefits of out-of-class group study for improving student performance on exams: A comparison of outcomes in active learning and traditional college biology classes. J Exce Coll Teach. 1999; 10 (3): 49–67.
11. Al Shawwa L, Abulaban AA, Abulaban AA, Merdad A, Baghlaf S, Algethami A,Abu-shanab J, Balkhoyor A. Factors potentially influencing academic performance among medical students. Adva Medi Edu and Pract. 2015; 6: 65–75.
12. Datta SS, Boratne AV, Patti R. How medical undergraduates prepare for university examination: Lessons from a teaching institution in South India. JInd Comm Healt. 2012; 24 (4): 352-55.
13. Idris A, Al Saadi T, Edris B, Sawaf B, Zakaria MI, Alkhatib M, Turk T. Self-reported study habits for enhancing medical students' performance in the National Medical Unified Examination. JAvicemedi. 2016; 6 (2): 39–46.
14. Roediger HL, Karpicke JD. Test-enhanced learning: Taking memory tests improves long-term retention. Psychl Sci. 2006; 17 (3): 249–55.
15. Chang D, Kenel-Pierre S, Basa J, Schwartzman A, Dresner L, Alfonso AE, Sugiyama G. Study habits centered on completing review questions result in quantitatively higher American Board of Surgery In-Training Exam scores. J Surgi Edu. 2014; 71 (6): 127-31.
16. Kumar AD, Shah MK, Maley JH, Evron J, Gyftopoulos A, Miller C. Preparing to take the USMLE Step 1: a survey on medical students' self-reported study habits. Postgraduate Med Journal, 2015; 91 (1075): 257-61.
17. Afzal H, Afzal S, Siddique SA, Naqvi SAA. Measures used by medical students to reduce test anxiety. J Pak Med Assoc. 2012 Sep; 62 (9): 982-6.
18. Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan NA, Khan S. Students, Stress and Coping Strategies: A Case ofPakistani Medical School. Education for Health-Abingdon-Carfax Publishing Limited, 2004; 17: 346-353.
19. Malathi A, Damodaran A. Stress due to exams in medical students-role of yoga. Indian Journal of Physiology and Pharmacology, 1999; 43: 218-24.
20. Jia R. Computer playfulness, Internet dependency and their relationships with online activity types and student academic performance. J Behav Addict. 2012 Jun. 1; 1 (2): 74-7.
21. Khan MA, Alvi AA, Shabbir F, Rajput TA. Effect of Internet Addiction on Academic Performance of Medical Stu-

dents. J Islam Int Medi Col. 2016; 11 (2): 48-51.

22. Ibrahim NKR, Iftikhar R, Murad M, Fida H, Abalkhaeil B, AlAhmadi J.Energy drinks consumption amongst medical students and interns from three colleges in Jeddah, Saudi Arabia. J Food & Nut Res. 2014; 2 (4): 174-179.

23. Melaku L, Mossie A,Negash A. Stress among Medical Students and Its Association with Substance Use and Academic Performance. J Biomed Edu. 2015: 2015.

24. Tannous M, Al Kalash Y. Prevalence of Caffeinated-beverage Consumption by University Students in North Lebanon. Pub Healt Res. 2014; 4 (5): 173-8.

25. Alsharif Mohammed H, Bardisi Mahmoud M, Baz Ahmad A, Eid Mamoud A, Kinsara Abdulrahman F, Almadani Mahmood Z, Alserifi Malik M, Tawakkul Qusai A. Caffeine Consumption among Medical Interns and Association with GPA in Makkah Region. Health Sciences, 2016; 5 (12): 23-25.

26. Samarakoon L, Fernando T, Rodrigo C, Rajapakse S. Learning styles and approaches to learning among medical undergraduates and postgraduates. BMC Medical Education, 2013 Dec; 13 (1): 42.

27. Ferguson E, James D, Madeley L. Factors associated with success in medical school: systematic review of the literature. Bmj 2002 Apr. 20; 324 (7343): 952−7.

28. Naqvi Z, Ahmed R. Learning approaches and academic performance of undergraduate medical students in Pakistan. J Pak Med Assoc. 2000 Jan; 50 (1): 20−5.

29. Al Kadri HM, Al-Moamary MS, Magzoub ME, Roberts C, van der Vleuten C. Students' perceptions of the impact of assessment on approaches to learning: a comparison between two medical schools with similar Curricula. J Intmediedu. 2011; 2: 44.