

Qualitative Assessment of Learning Strategies among Medical Students Using Focus Group Discussions and In-depth Interviews

Abstract

Background: Globally, students with top academic performance and high intellectual capacity usually opt to study medicine. However, once students get enrolled, their academic performance varies widely. Such variations appear to be determined by various factors, one of them being types of learning strategies adopted by students. The learning strategies utilized by the students with better academic performance are likely to be more effective learning strategies. **Aims and Objectives:** The objective is to identify effective learning strategies used by medical students. **Methodology:** This study was carried out among the MBBS students of Final Professional Part I. Students were categorized into three groups namely: high, average, and low rankers based on overall academic performance in second Professional University examination. First, a questionnaire consisting of closed- and open-ended questions was administered to students, to find their learning strategies. Subsequently, focus group discussion and in-depth interviews were conducted for high- and low-rankers. Discussions were audio-recorded, transcribed, and analyzed. Key statements were highlighted, collated, and categorized into general themes and sub-themes. **Results:** Evident themes which emerged as effective strategies were hard work in the form of regularity of studies, meticulous preparation of notes, constructive use of time, utilization of e-learning, learning styles and deep learning approach and regular ward visits. Intrinsic motivation, family support, balancing physical activities and studies, guidance by seniors, teachers, dealing with nonacademic issues such as language barriers and stress were also identified as important strategies. **Conclusions:** Disseminating effective learning strategies in a systematic manner may be helpful to students in achieving better academic outcomes. Furthermore, educationists need to modulate their teaching strategies based on students' feedback.

Keywords: Academic performance, high achievers, learning strategies, low achievers

Introduction

Globally, students with top academic performance and high intellectual capacity usually opt to study medicine. However, once they get enrolled in medical schools, their academic performance varies widely.^[1] Such variations appear to be determined by multiple factors, one of them being learning strategies adopted by them. The strategies utilized by the students who have a better academic performance are likely to be the more effective learning strategies. Gaining insight into students' perceptions as to the reasons for a better academic performance can lead to a better understanding of these strategies.

Students are positively affected by good examination results while they are negatively affected by anxiety, boredom, homesickness, and poor academic

performance.^[2] Literature suggests that academic achievement of students is affected by factors, such as motivational beliefs, examination results, physical, and emotional well-being.^[3,4] This study is an endeavor to identify learning strategies among high achievers. The same can be conveyed to medium and low achievers so that they can improve their academic performance.

Methodology

This study was carried out among the MBBS students of Final Professional Part I (4th year of medical school) in a medical college in a rural area of the western region of India. Students were categorized into three groups according to their academic performance in second Professional final University examination marks. Of these, first 30 students categorized were students who scored

How to cite this article: Joshi AS, Ganjiwale JD, Varma J, Singh P, Modi JN, Singh T. Qualitative assessment of learning strategies among medical students using focus group discussions and in-depth interviews. *Int J App Basic Med Res* 2017;7:S33-7.

Anuradha Sujai
Joshi, Jaishree
Deepak Ganjiwale¹,
Jagdish Varma²,
Praveen Singh³,
Jyoti Nath Modi⁴,
Tejinder Singh⁵

Departments of Pharmacology,
¹Central Research Services,
²Psychiatry and ³Anatomy,
Pramukh Swami Medical
College, Charutar Arogya
Mandal, Karamsad, Gujarat,
⁴Department Obstetrics and
Gynaecology, People's College
of Medical Sciences and
Research Centre, Bhopal,
Madhya Pradesh, ⁵Department
of Pediatrics and Medical
Education, Christian Medical
College, Ludhiana, Punjab,
India

Received: 29 April, 2017.

Accepted: 09 October, 2017.

Address for correspondence:

Dr. Anuradha Sujai Joshi,
Department of Pharmacology,
Pramukh Swami Medical
College, Karamsad, Gujarat,
India.

E-mail: anuradhaj@
charutarhealth.org

Access this article online

Website:
www.ijabmr.org

DOI:
10.4103/ijabmr.IJABMR_144_17

Quick Response Code:



This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

high ranks and last 30 students with lowest ranks were categorized in another group. Students were explained properly about the research study, and informed consent was obtained before participation. Initially, a questionnaire consisting of closed- and open-ended questions was administered to all students to find out the various learning strategies being used by them. Subsequently, postcontent analysis, focus group discussions and in-depth interviews (FGD and IDIs) were conducted according to time, convenience, and suitability.

Conducting focus group discussions and in-depth interviews

FGD and IDI were conducted using principles of grounded theory. Before actual conduction of interview, the investigators held meetings, planned, rehearsed the entire sequencing of the FGD as well as the IDI. Focus group discussion interview guide was prepared for a structured interview process. Each FGD consisted of 8 students (i.e., both from high performer group and the low performer groups) and a total of 10 IDI were conducted (5 students from high performer group and 5 from low performer group, respectively). Before taking informed consent, the participants were briefed regarding rules, aims, and objectives of the study, and were also conveyed that FGD's and the IDI's will be audio recorded. Two facilitators facilitated discussion in two FGD's, whereas one facilitator facilitated discussion in 10 in-depth interviews, respectively. Participants were encouraged to speak up freely during discussion and interviews. In addition, during the discussion the facilitators also took written notes. Each focus group discussion was conducted for a time span of 45 min to 1 h 15 min. Each in-depth interview was conducted for about 15-20 min.

Data collection and analysis

Discussions were audio-recorded with prior consent of participants. All audio recordings were transcribed verbatim by each investigator. Handwritten documents containing thick descriptions of FGD and IDI were prepared and compiled (20–25 page papers, single sided, and ruled pages were used for writing descriptions of the discussions). Before this, any personal or identifiable information was removed to maintain confidentiality. Key statements were highlighted, collated, and categorized into general themes and subthemes. Based on findings, a consolidated report of learning strategies used by high rankers was identified and compiled.

Results

A total of 84 students participated in the study of which 39 were female (47.1%). Their age range was 19–22 years. A majority of students (67/84) had passed Class XII examination through the State board, whereas 11 students and 4 students had passed through CBSE and International board, respectively. Eighty students (96.47%) were aware of

their learning styles and learning approaches [Figure 1]. On analysis of their learning styles using VARK questionnaire: 16.47% of the students were visual learners, 35.29% were auditory, 51.76% were read and write, whereas 11.76% were Kinesthetic learners [Figure 2].

Enabling factors as perceived by the students that helped the perform well were as follows: inner motivation (56.47%), good family support (48.23%), constructive time management (29.41%), and motivation by teachers (14.11%) In addition to this, 32.94% students believed in regular revision of topics, 21.17% learnt mainly from communicating with patients, and as an adjuvant approach 14.11% also consulted seniors from guidance [Figure 3]. The disabling factors identified were as follows: stress (61.1%) students, insomnia (27.05%), language barrier (22.35%), poor time management (16.47%), homesickness (12.94%), peer pressure (5.88%), poor family support (2.35%), and absenteeism (2.35%) [Figure 4].

Themes which emerged as effective strategies influencing high academic achievement were hard work in the form of regularity in studies, meticulous preparation of notes, regular revisions, constructive use of time, active utilization of various learning styles and learning

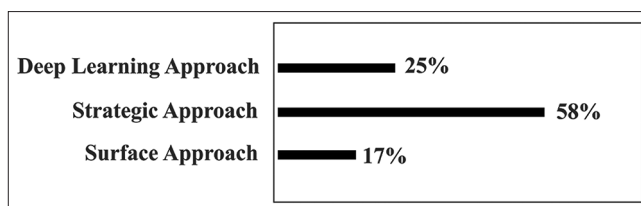


Figure 1: Frequency of different types of learning approaches adopted by students

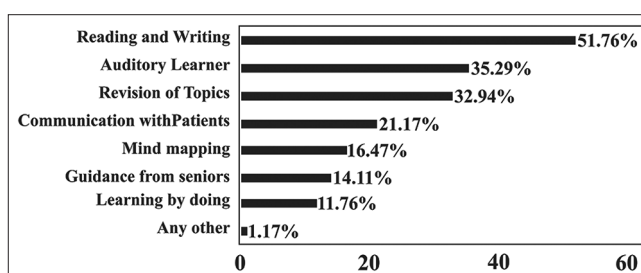


Figure 2: Frequency of different learning styles and strategies used by students

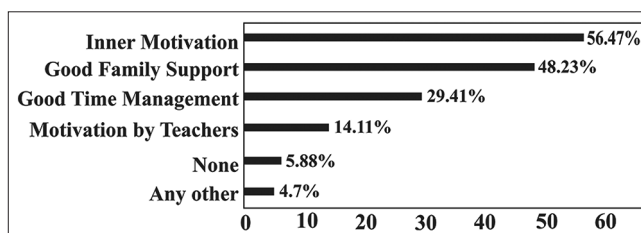


Figure 3: Frequency of various enabling factors affecting students' performance during examinations

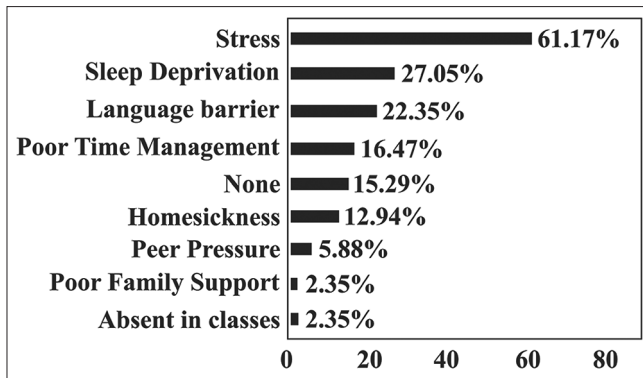


Figure 4: Frequency of various disabling factors affecting students during examinations

approaches, guidance by seniors and regular visit to hospital wards [Table 1]. Other factors identified as important for academic success were intrinsic motivation, family support, guidance by seniors and teachers and dealing with nonacademic issues such as language barriers and stress. Both high and low performers opined that glossy art papers and fancy computer photographs should not be used in textbooks as it hinders highlighting of text and reproducing diagram [Table 2].

Discussion

Learning strategies are behaviors or thoughts that facilitate knowledge, experiences, attitudes, beliefs, and values.^[5] The current study helped us to identify learning strategies adopted by high rankers. Significant themes influencing high academic achievements comprised hard work in the form of regularity in studies, meticulous preparation of notes, constructive use of time, active utilization of e-learning, regular visit to clinical wards, and incorporating individual learning styles, strategic and deep learning approaches while studying. Other factors such as intrinsic motivation, family support, balancing physical activities and studies, guidance by seniors and teachers, dealing with nonacademic issues like language barriers and stress were also identified as important factors for academic success. Coincidentally, these findings reverberate well with existing researches on effective learning strategies.

According to one of the studies, high achievers have better study habits and attitude as compared to low achievers, as the former believe in daily recall and revision^[6] Furthermore success at examination was related to regular attendance to lectures and early revision^[7,8]

We found that active use of learning styles, strategic, and deep approaches basically predict success in exams, whereas surface learning predicts failure. These findings are in line with a study conducted in dental school which stresses that combination of students' motivation, interaction and learning approach determines the quality of learning outcome. A thorough understanding of these concepts has important implications for curriculum designing, teaching

and assessment.^[9] Although in some studies, learning "styles" do not correlate with exam performance, learning "approaches" does correlate with the latter. Students who adopt "strategic" and "deep" approaches perform consistently better in medical examinations.^[10]

High achievers believe that small group learning with peers enhances their academic performance as it helps them to ponder and consider alternatives to learning a topic. Furthermore, the literature states that small group discussion facilitated better understanding and retention of materials.^[11,12]

The current study showed a positive association between physical activity and high academic achievement. This is on similar lines with a study conducted at one of the medical schools, showing that a fine balance of physical activity and academics fosters stress control and academic achievement. Therefore, there is need to establish physical activity education programs.^[13] Academic success is also significantly associated with time management.^[14] Time management skills include advance planning, prioritizing work, and following schedules.^[15]

According to Oskar Frischenschlagerd, intrinsic motivation had a significant influence on academic performance. There is evidence that maturity and intrinsic motivation is linked to superior academic performance.^[16]

Majority of students who did their schooling in vernacular language schools found medical instructions in English a formidable task. While the impact of English language proficiency was not a focus of the current study, it has been observed to be an important correlate in various studies like the one conducted by Kaliyadan *et al.*^[17] for academic performance.

The present study reports, the high prevalence of stress among medical students. Same has been documented in other studies stating stress as one of the disabling factors, which hinders the academic growth of students.^[18] Low performers were reported to be affected more by stress, insomnia, homesickness, poor study habits, and lack of ability to cope up with ever demanding pressures of academic routine. Literature suggests that students having low psychological well-being are less likely to utilize positive coping strategies such as positive reappraisal, support-seeking, and planning^[19] resulting in a myriad of physical and mental repercussion. Sleep disturbances, stress, anxiety, and depression often coexist and holistic management of these factors are important for the overall well-being of students. Efficient counseling services along with stress management programs can be useful for such students. Apart from this, support during examinations,^[20] mindfulness-based stress reduction^[21] and strategies promoting positive reappraisal of their situation, encouraging them to seek support from various stake holders^[19] can be helpful.

Table 1: Major themes and subthemes identified in high performers

Themes	Subthemes	Representative quotes by students
1. Regular Reading	Daily revision of topics Regular recalling Regular and attentive during ward posting	“It is important for me to be regular with topics that are being conducted during lectures” “Regular recall of lecture notes is important”
2. Use of mixed learning styles and strategies while studying	Use of flow charts/diagrams, pictorials, tables, concept maps, mnemonics, sticky notes, highlighters, videos Read through first then make notes SGD Patients are the best books Involve in bedside teaching and tutorials	I use lot of active learning strategies while studying, e.g., flow charts, visuals, videos, diagrams, etc.” “I also like to remember important points with help of mnemonics” “I use sticky notes in my textbook for important concepts” “I prefer to read vertically rather than memorize by reading horizontal text, so I prepare notes accordingly” “I usually study difficult topics in groups” “I especially choose to have a group of 3 students whose learning style matches with that of mine” “Deep learning is useful to me”
3. Practicing deep and strategic learning approaches	Understand concept first, later exam oriented preparation Prioritize their approaches deep learning for must know areas and core topics then nice to know areas SGD, Strategize in making groups	“Initially during start of study, I usually refer standard text books” “I spend more time in wards” “I like to take detailed history of patients from files” “I usually make groups of 3 people from different postings, so that I can learn something new from each”
4. Focus on exam preparation strategies	Understand exam pattern Refer question banks Begin preparation well in advance (2–3 months prior) Intensify preparation as exam approaches “When in doubt always shout” Frequent interaction with seniors, especially on preparation for viva (whether which topics are important from viva point of view)	“I do a lot of research and analysis in decoding examiners mindset, by referring to previous years papers” S 8 “I believe that exam preparation has to be started early” “I start giving more time to prepare for exams usually 4 months prior to exams” “I prioritize my learning into core, nice to know and not so important areas” “I usually try my best to revise three times before finals” “When it comes to clearing any concept, I do not hesitate asking roommates or teacher or colleagues posted in that department”
5. Motivation	Inspiration comes in black and white Getting rank is an incentive Study more when perform below expectation Family and teachers support are the keys to extrinsic motivation All work and no play makes jack a dull boy	“Poor results pushes me to work harder” “More than outer motivation it is inner motivation which keeps me going and helps me succeed in examinations” “Regular playing for an h/Indulging in any physical activity everyday in evenings helps in de-stressing and builds my stamina ” “I keep a balanced approach when it comes to playing and studying”
6. Time management and language barrier	‘Do it now’ Procrastination is the founder of all disasters Time management Language barrier esp. in Gujarati students Find community medicine toughest subject Language in park is tough There should be rapid reviews or handbook of community medicine for revision	“I first segregate topics into boring and interesting then first finish interesting topics ” “Language is a major barrier especially English language used in community medicine text book (park), it appears tough to me” “I often write in local language i.e., Gujarati or Hindi meaning of tough words adjacent to the text, as it helps me understand better” “This is too time consuming, I wish that there was an alternative to park in community medicine “The community medicine textbook is highly voluminous Teachers should think about these problems and provide us some rapid reviews so that it can help in quick revision”

SGD: Small group discussions

Table 2: Themes and subthemes identified in low performers

Themes	Subthemes
1. Unstructured time table	Start reading 1 month before exams Lack of planning No time for revisions
2. Minimal use of mix of learning styles while studying	Partial knowledge of learning styles Mainly read book, underline important points but do not write notes, preferably use only auditory approach Do not believe in small group discussions Believe more in single handed preparation
3. Practicing mainly superficial (surface) Learning approaches	Refer only question bank
4. Active involvement in extracurricular activities	Give more time to sports
5. Other problems	Stress, anxiety Language barrier Find community medicine toughest subject

Conclusions

Since academic performance is a highly prized parameter for academic excellence, we need focused efforts in understanding effective learning strategies that would help in enhancing it. Dissemination of effective learning strategies will in turn benefit average and low performers, while in the long term, this will help in building their self-confidence. At the same time, educationists also need to modulate their teaching strategies based on students' feedbacks.

Acknowledgment

Batch 3rd 1st students for participation and Dr. Deepak Sharma for technical help.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Arulampalam W, Naylor R, Smith J. Factors affecting the probability of first year medical student dropout in the UK. A logistic analysis for the intake cohorts of 1980-92. *Med Teach* 2004;38:492-503.
- Artino AR, La Rochelle JS, Durning SJ. Second-year medical students' motivational beliefs, emotions, and achievement. *Med Educ* 2010;44:1203-12.
- McManus IC, Smithers E, Partridge P, Keeling A, Fleming PR. A levels and intelligence as predictors of medical careers in UK doctors: 20 year prospective study. *BMJ* 2003;327:139-42.
- Kilminster S, Cottrell D, Grant J, Jolly B. AMEE guide no 27: Effective educational and clinical supervision. *Med Teach* 2007;29:2-19.
- Weinstein CE, Ridley DS, Dahl T, Weber ES. Helping students develop effective learning strategies for effective learning. *Educ Leadersh* 1989;46:17-9.
- Sarwar M, Bashir M, Khan MN, Khan MS. Study-orientation of high and low academic achievers at secondary level in Pakistan. *Educ Res Rev* 2009;4:204-7.
- Gupta A, Saks NS. Exploring medical student decisions regarding attending live lectures and using recorded lectures. *Med Teach* 2013;35:767-71.
- Martin SI, Way DP, Verbeck N, Nagel R, Davis JA, Vandre DD, *et al.* The impact of lecture attendance and other variables on how medical students evaluate faculty in a preclinical program. *Acad Med* 2013;88:972-7.
- Mayya SS, Rao AK, Ramnarayan K. Learning approaches and learning difficulties: A comparison of indian and nepali dental science students. *J Dent Educ* 2002;66:1297-302.
- 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. *Teach Learn Med* 2015;27:237-44.
- Davis B. *Tools for Teaching*. San Francisco, CA: Jossey-Bass Publishers; 2009.
- Balasoorya C, Olupeliyawa A, Iqbal M, Lawley C, Cohn A, Ma D, *et al.* A student-led process to enhance the learning and teaching of teamwork skills in medicine. *Educ Health (Abingdon)* 2013;26:78-84.
- Al-Drees A, Abdulghani H, Irshad M, Baqays AA, Al-Zhrani AA, Alshammari SA, *et al.* Physical activity and academic achievement among the medical students: A cross-sectional study. *Med Teach* 2016;38 Suppl 1:S66-72.
- Sangiriy SS, Bhosle M, Sail K. Factors that affect academic performance among pharmacy students. *Am J Pharm Educ* 2006;70:104.
- Kirschenbaum DS, Perri MG. Improving academic competence and adults: A review of recent research. *J Couns Psychol* 1982;29:76-94.
- Frischenschlager O, Haidinger G, Mitterauer L. Factors associated with academic success at vienna medical school: Prospective survey. *Croat Med J* 2005;46:58-65.
- Kaliyadan F, Thalamkandathil N, Parupalli SR, Amin TT, Balaha MH, Al Bu Ali WH, *et al.* English language proficiency and academic performance: A study of a medical preparatory year program in saudi arabia. *Avicenna J Med* 2015;5:140-4.
- Fares J, Al Tabosh H, Saadeddin Z, El Mouhayyar C, Aridi H. Stress, burnout and coping strategies in preclinical medical students. *N Am J Med Sci* 2016;8:75-81.
- Freire C, Ferradás MD, Valle A, Núñez JC, Vallejo G. Profiles of psychological well-being and coping strategies among university students. *Front Psychol* 2016;7:1554.
- Heinen I, Bullinger M, Kocalevent RD. Perceived stress in first year medical students-associations with personal resources and emotional distress. *BMC Med Educ* 2017;17:4.
- Aherne D, Farrant K, Hickey L, Hickey E, McGrath L, McGrath D, *et al.* Mindfulness based stress reduction for medical students: Optimising student satisfaction and engagement. *BMC Med Educ* 2016;16:209.