

Personal, Environmental and Lifestyle Factors Affecting Learning among Medical Students: A Cross Sectional Study

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ABSTRACT

Published on 23rd March 2020

Background: Medical education is perceived as a stressful experience. Personal, environmental and lifestyle factors can affect learning among medical students. The main objective of this study was to identify the personal, environmental and lifestyle factors among medical students in a medical school in Northern Malaysia.

Methods: This cross sectional study involved 177 medical students from Year 1 and Year 2 who gave their consent.

Results: Among the participants; 66 (31.3%) were males, 111 (68.7%) were females. 99 (55.9%) belonged to Year 1 and 78 (44.1%) to Year 2. Almost 88.7% of students expressed as to having good personal factors while 80.2% of students expressed to have good environmental factors. About 19.2% of participants were under high dietary risk. Physical activity of students studied, showed that 67.8% were inactive. A significantly higher proportion of female students from year 1, expressed as to having good personal and environmental factors which can affect learning. Regarding the dietary risk factor, a significantly higher proportion of males and those from year 2 were in the high risk group. Physical activity was significantly higher among males compared to females. However, there was no significant difference between year of study and physical activity.

Conclusion: Despite a high proportion of students shown to have good personal and environmental factors, they still need to sustain their personal level of motivation in the clinical years.

Keywords: Factors Affecting Learning, Personal Factors, Environment Factors, Lifestyle Factors, Dietary Risk, Physical Activity

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INTRODUCTION

Personal and environmental factors affect a student's confidence level and determination in spirit in a school environment. Those factors can subsequently affect a student's learning behavior and therefore, their performance in schools.¹ This research notes that it is normal for humans to develop good personal factors instead of bad personal factors unless they come from a poor background. This poor background often entails dramatic or traumatic experiences which can leave severe emotional marks on a person. A good background surrounded in comfort and security brings about a higher level of self-confidence which then leads to a person having good personal factors in their learning. These good personal factors were defined as great ambition to succeed, pleasure in learning, confidence in following one's dream and being able to act confidently in one's environment.¹ In the article

"How Does the Environment Affect the Person" by Mark Birkhard (2001), the author remarked that from a healthy environment comes a healthy personality of an individual. In this article, it is noted that students in a developing country tend to have good environmental factors instead of poor environmental factors. Better information technology (IT) facilities make it easier for students to access information and use them for their studies.²

Modern medical education curricula are based on the assumption that students have an inherent ambition, desire and motivation to become doctors and are motivated by internal rather than external factors.³ We assume that as adult learners, medical students pursue medicine because it is inherently interesting and enjoyable, rather than for obtaining a separable outcome such as monetary reward or status.⁴

Cite this article as: Sugathan S, Singh DSB, Bakar AS bin, Azizan MH bin, Nasarudin MF bin. Personal, Environmental and Lifestyle Factors Affecting Learning among Medical Students: A Cross Sectional Study. IMA Kerala Medical Journal. 2020 Mar 23;13(1):8–12.

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According to Susan B. Racette on “Weight Changes, Exercise and Dietary Patterns during Freshman and Sophomore Years of College” (2010), during sophomore years (i.e. 19 to 21 years of age); students generally tend to care much more for their health, therefore they usually eat much better and healthier foods. This healthy diet results in their ability to focus much more in their studies and spend less time dealing with illnesses. Next, the article also sheds light on the stipulation that freshmen and sophomores were more active in their co-curricular activities. This may be tied to the fact that during the first and second years of college, students were generally less busy and can take part in extracurricular activities including sports and physical exercises. The students also have the chance to exercise on a regular basis, which can benefit their health, and consequently can contribute positively on their learning.⁵ There is a complex interrelationship of many factors and classes of variables that affect classroom learning.⁶ The objective of the study is to identify the personal, environmental and lifestyle (dietary risk and physical activity) factors affecting the learning behavior among medical students in a medical school in Northern Malaysia.

MATERIALS AND METHODS

This study is cross sectional descriptive study, carried out in a medical school in Perak State, Malaysia. Self-administered structured questionnaires were distributed among Year 1 and Year 2 medical students and were collected back on completion. A total of 177 students, from the selected medical school who come from different socio economic background and from different states in Malaysia were included in this study. Minimum sample size was calculated by assuming that 50% of students will be having good personal, environmental and lifestyle factors with an allowable error of 6, for 95% confidence limits as 174. This research was carried out from 3 November 2014 to 27 November 2014.

Demographic factors such as age, gender, year of study; personal factors; environmental factors; dietary factors and physical activity were studied. There were 15 personal factors each of which were assessed using a Likert scale from 1 to 5. Students who scored above 3 were considered as having good personal factor for that individual factor. Those who scored a composite score of 45 or above in personal factors was categorized as with good personal factor. There were 14 environmental factors each of which were assessed using a Likert scale from 1 to 5. Students who scored above 3 were

considered as having good environmental factor for that individual factor. Those who scored a composite score of 42 or above in environmental factors were categorized as having good environmental factor.

Six dietary risk factors were assessed. Those who scored a median diet risk score or above were considered as having dietary risk. Physical activity was assessed based on 6 activities (jogging, brisk walking, swimming, weight lifting, cycling and sports). Those who were doing any of these activities alone or in combination for more than 100 minutes per week were considered as physically active. The students in Year 1 and Year 2 of the School of Medicine, who had agreed to be a part of the research project by signing the consent form provided to them before the start of the project, were included. Students from other years and those who were not willing to participate were excluded.

Prior to participating in the research, the subjects were given an informed consent form to provide their consent to participate. Confidentiality regarding the participants and the institution were strictly maintained. The data that were collected from the questionnaires were entered in SPSS version 17. Data were analysed using descriptive statistics and chi square test.

RESULTS

This study was carried out among students from a Medical school in Ipoh, Malaysia. Mean age of the study subjects was 20.0 years (SD 1.11). Majority of the participants were females (68.7%) and were from year 1 (55.9%) (**Table 1**).

Personal factors affecting learning and environmental factors affecting learning were good among most of the students (88.7% and 80.2% respectively). Majority of the participants (80.8%) were having low dietary risk according to the six dietary risk factors such as intake of red meat, fish / chicken, fruits, vegetables, carbon-

Table 1. Distribution of study participants according to demographic factors and year of study

Age	
Mean	20.0 years
Standard deviation	1.113
Gender	
Male	66 (31.3%)
Female	111 (68.7%)
Total	177 (100%)
Year of Study	
Year 1	99 (55.9%)
Year 2	78 (44.1%)
Total	177 (100%)

Table 2. Distribution of medical students according to factors affecting learning

Factors	No. (%)
Personal Factors	
Good	157 (88.7%)
Poor	20 (11.3%)
Total	177 (100%)
Environmental Factors	
Good	142 (80.2%)
Poor	35 (19.8%)
Total	177 (100%)
Dietary Risk Factors	
Low Risk	143 (80.8%)
High Risk	34 (19.2%)
Total	177 (100%)
Physical activity	
Physically Active	57 (32.2%)
Physically Inactive	120 (67.8%)
Total	177 (100%)

ated soft drinks and fast food. Physical inactivity was high among the study participants (67.8%) (Table 2).

A significantly higher proportion of females were having good personal factors, good environmental factors and low dietary risk factors as compared to males. A significantly higher proportion of males were physically active compared to females (Table 3).

In the present research, a significantly higher proportion of year 1 students were having good personal and environmental factors as compared to year 2 students. Dietary risk factors were significantly lower among year 1 students (Table 4).

Table 3. Association between factors affecting learning and gender

Gender	Personal factors			P value	
	Good	Poor	Total		
Male	51 (77.3%)	15 (22.7%)	66 (100%)	<0.001	
Female	106 (95.5%)	5 (4.5%)	111 (100%)		
Total	157 (88.7%)	20 (11.3%)	177 (100%)		
Environmental factors					
				P value	
		Good	Poor	Total	
Male	42 (63.6%)	24 (36.4%)	66 (100%)	<0.001	
Female	100 (90.1%)	11 (9.9%)	111 (100%)		
Total	142 (80.2%)	35 (19.8%)	177 (100%)		
Dietary factors					
				P value	
		Low Risk	High Risk	Total	
Male	41 (62.1%)	25 (37.9%)	66 (100%)	<0.001	
Female	102 (91.9%)	9 (8.1%)	111 (100%)		
Total	143 (80.8%)	34 (19.2%)	177 (100%)		
Physical activity					
				P value	
		Active	Inactive	Total	
Male	32 (48.5%)	34 (51.5%)	66 (100%)	<0.001	
Female	25 (22.5%)	86 (77.5%)	111 (100%)		
Total	57 (32.2%)	120 (67.8%)	177 (100%)		

Table 4. Association between factors affecting learning and year of study

Year	Personal factors			P value	
	Good	Poor	Total		
Year 1	95 (96%)	4 (4%)	99 (100%)	<0.001	
Year 2	62 (79.5%)	16 (20.5%)	78 (100%)		
Total	157 (88.7%)	20 (11.3%)	177 (100%)		
Environmental factors					
				P value	
		Good	Poor	Total	
Year 1	90 (90.9%)	9 (9.1%)	99 (100%)	<0.001	
Year 2	52 (66.7%)	26 (33.3%)	78 (100%)		
Total	142 (80.2%)	35 (19.8%)	177 (100%)		
Dietary factors					
				P value	
		Low Risk	High Risk	Total	
Year 1	87 (87.9%)	12 (12.1%)	99 (100%)	<0.001	
Year 2	56 (71.8%)	22 (28.2%)	78 (100%)		
Total	143 (80.8%)	34 (19.2%)	177 (100%)		
Physical activity					
				P value	
		Active	Inactive	Total	
Year 1	31 (31.3%)	68 (68.7%)	99 (100%)	>0.05	
Year 2	26 (33.3%)	52 (66.7%)	78 (100%)		
Total	57 (32.2%)	120 (67.8%)	177 (100%)		

Occurrence of each individual factors affecting learning were as shown in Table 5. Participation in various sports was the most common physical activity (35.6%), followed by brisk walking (28.8%). Intake of fruits and vegetables was less among the study subjects.

DISCUSSION

This cross sectional study on students’ perspective on personal, environmental, dietary and physical activity factors which affect learning among medical students was conducted among 177 medical students from a medical school in Northern Malaysia. Out of the study subjects, 66 (31.3%) were males, 111 (68.7%) were females, 99 (55.9%) were from Year 1 and 78 (44.1%) from Year 2. Almost 88.7% of students expressed as having good personal factors while 80.2% of students expressed to have good environmental factors. About 19.2% of participants were having high dietary risk. The research revealed that 67.8% were inactive.

Motivation should be a measure of the quality of medical education. If we truly value the student who is engaged, who participates, who learns deeply, we value a student who is highly motivated. What is the development of a “life-long-learner” if not a student who is intrinsically motivated? Surely the success of an educational program could be evaluated not only based on knowledge briefly retained or student satisfaction, but on the ongoing desire to understand and learn more.⁷

Table 5. Various personal, environmental, dietary and physical activity factors among the study participants

Personal Factors	Yes	No
1. Enjoy studying Medicine	134 (75.7%)	43 (24.3%)
2. Study more than 4 hours a day	85 (48%)	92 (52%)
3. Have ambition to be a good doctor	132 (74.6%)	45 (25.4%)
4. Ambition is influenced by family	37 (20.9%)	140 (79.1%)
5. Attend classes on time	146 (82.5%)	31 (17.5%)
6. Study the topics regularly	52 (29.4%)	125 (70.6%)
7. Focus and understand in class	86 (48.6%)	91 (51.4%)
8. Finish all assignments in time	108 (61%)	69 (39%)
9. Active in group study	129 (72.9%)	48 (27.1%)
10. Group study more helpful	128 (72.3%)	49 (27.7%)
11. Utilize library resources	60 (33.9%)	177 (66.1%)
12. Environment in library good for revision	88 (49.7%)	89 (50.3%)
13. Utilize internet resources for study	141 (79.7%)	36 (20.3)
14. Utilize e-learning facilities	122 (68.9%)	55 (31.1%)
15. Postpone study base on distractions	19 (10.7%)	158 (89.3%)
Environmental Factors	Yes	No
1. Transportation is a problem	98 (55.4%)	79 (44.6%)
2. Accommodation / housing is a problem	85 (48%)	92 (52%)
3. Difficulty to arrange financial support	57 (32.2%)	120 (67.8%)
4. Comfortable to the personal budget	75 (42.4%)	102 (57.6)
5. Family, relatives and friends support learn medicine	153 (86.4%)	24 (13.6%)
6. Feel confident to finish this course in time	141 (79.7%)	36 (20.3)
7. Comfortable with the people around	149 (84.2%)	28 (15.8%)
8. Problems on lectures in English	117 (66.1%)	60 (33.9%)
9. Satisfied with internet service in campus	25 (14.1%)	152 (85.9%)
10. Satisfied with e-learning service	100 (56.5%)	77 (43.5%)
11. Support and clarification of doubts from lecturers	132 (74.6%)	45 (25.4%)
12. Have learning difficulty which needs counseling	79 (44.6%)	98 (55.4%)
13. Easily distracted by games.	43 (24.3%)	134 (75.7%)
14. Easily distracted by social media.	34 (19.2%)	143 (80.8%)
Dietary Risk Factors	Low risk	High risk
1. Red Meat (>3 times a week)	129 (72.9%)	48 (27.1%)
2. Fish or Chicken (>3 times a week)	110 (62.1%)	67 (37.9%)
3. Vegetables (>3 times a week)	70 (39.5%)	107 (60.5%)
4. Fruits (>3 times a week)	18 (10.2%)	159 (89.8%)
5. Soft drinks (>3 times a week)	134 (75.7%)	43 (24.3%)
6. Fast food (>3 times a week)	145 (81.9%)	32 (18.1%)
Physical Activity	Active (>100 minutes per week)	Inactive (<100 minutes per week)
1. Jogging	33 (18.6%)	144 (81.45)
2. Brisk walking	51 (28.8%)	126 (71.2%)
3. Swimming	7 (4%)	170 (96%)
4. Weight lifting	7 (4%)	170 (96%)
5. Cycling	7 (4%)	170 (96%)
6. Sports	63 (35.6%)	114 (64.4%)

A study on weight changes, exercise, and dietary patterns during freshman and sophomore years of college demonstrated a potentially significant weight

gain in 70% of the students during the first 2 years of college and also highlight the inactivity and unhealthy dietary behaviors that characterize many students during their early college years. Only a few studies had reported changes in weight during the college years. Regardless of the predisposing factors, diet and lifestyle have a great influence on morbidity and mortality in life. Due to the cumulative effect of adverse factors throughout life of an individual, it is particularly important to adopt a healthy diet and lifestyle practice.⁵

A study conducted in Karachi, assessed the dietary habits and life style of medical students, who represent a significant community of future health practitioners. Improvement in life style if made in early years and during medical schooling would produce physicians practicing and promoting healthy diet and active life style. That study found that there is no difference between male and female students' dietary habits (8). That finding is different from our research which showed that dietary risk factors were significantly lower among female students and the physical activity was significantly higher among male medical students. A few studies have reported that females were more conscious of their diet and found underweight as compared to male students.^{9,11,12}

A cross sectional study conducted among 512 medical students came out with a recommendation that medical schools should identify health issues and assess preventive health perceptions among students in order to facilitate the adoption of preventive practices by future physicians.¹⁰

In the current research, intake of fruits and vegetables more than 3 times a week were less (10.2% and 39.5% respectively) in contrast to the findings of a study done among Chinese university students which revealed that more than 80% of participants were taking fruits and vegetables more than 2 times a day.¹³

CONCLUSIONS

A significantly higher proportion of female students and those in year 1 expressed as to having good personal and environmental factors which can affect learning. Regarding the dietary risk factor, a significantly higher proportion of males and those in year 2 were in the high risk group. Physical activity was significantly higher among males compared to females. There was no significant difference between year of study and physical activity. Despite a high proportion of students shown to have good personal and environmental factors, they still need to sustain their personal level of motivation in the clinical years.

END NOTE

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Conflict of Interest: None declared

Acknowledgement: The researchers express their sincere gratitude to the Dean and students of the medical school.

REFERENCES

1. Su-Jeong Kim, A Study of Personal and Environmental Factors Influencing Bullying München, September 2006
2. Mark H. Bickhard, How Does the Environment Affect the Person? 2001
3. Mann KV. Motivation in medical education: How theory can inform our practice. *Academic Medicine* 1999 Mar;74(3):237-239.
4. Ryan RM, Frederick CM, Lepes D, Rubio N, Sheldon KM. Intrinsic motivation and exercise adherence. *International Journal of Sport Psychology* 1997 Oct-Dec;28(4):335-354.
5. Susan B. Racette; Susan S. Deusinger; Michael J. Strube; Gabrielle R. Highstein; Robert H. Deusinger; Weight Changes, Exercise, and Dietary Patterns During Freshman and Sophomore Years of College; *Journal of American College Health*, vol. 53, no. 6, may / june 2005
6. Richard E Ripple, Affective Factors Influencing Class Room Learning, *Educational Leadership*, April 1965.
7. Brissette A, Howes D. Motivation In Medical Education: A Systematic Review; *Webmed Central Medical Education* 2010;1(12):WMC001261
8. Nisar N, Qadri MH, Fatima K, Perveen S Dietary habits and life style among the students of a private medical university Karachi. *The Journal of the Pakistan Medical Association* 2008, 58(12):687-690
9. Aslam F, Mahmud H, Waheed A. Cardiovascular health behaviour of medical students in Karachi. *J Pak Med Assoc* 2004; 54:492-5.
10. Delnevo CD, Abatemarco DJ, Gotsch AR. Health behaviors and health promotion/disease prevention perceptions of medical students. *Am J Prev Med* 1996; 12:38-43.
11. Smith BL, Handley P, Eldredge DA. Sex differences in exercise motivation and body- image satisfaction among college students. *Percept Mot Skills* 1998; 86:723-32.
12. Cash TF, Brown TA. Body image in anorexia nervosa and bulimia nervosa. A review of the literature. *Behav Modif* 1987; 11:487-521.
13. Sakamaki R, Toyama K, Amamoto R, Liu CJ, Shinfuku N. Nutritional knowledge, food habits and health attitude of Chinese university students - a cross sectional study. *Nutr J* 2005; 4:4.