Are healthy lifestyle behaviors positively associated with the academic achievement of the university students?

FATEMEH BAKOUEI1, PhD; SHABNAM OMIDVAR2, PhD; SEYED JALIL SEYEDI-ANDI2, PhD; SAREH BAKOUEI3, MS

1Infertility and Health Reproductive Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran; 2Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran; 3Department of Midwifery, Faculty of Nursing and Midwifery, Qom University of Medical Sciences, Qom, Iran

Introduction: Universally, the number of students attending the university education is high and increasing. The future of academic graduates is affected by their academic achievement. The purpose of the research was to assess the correlation among academic achievement and healthy lifestyle behaviors in university students.

Methods: This cross-sectional research was conducted on 262 university students studying in the selected faculties of Babol University of Medical Sciences based on multi stage sampling technique. The students were categorized to low and high academic achievement groups according to grade point average (GPA) score at the end of the semesters. The health-promoting lifestyle profile with six domains was applied to determine healthy lifestyle behaviors. To investigate the adjusted correlation among the health promoting lifestyle’s domains and academic achievement, the multi-variable logistic regression was used.

Results: The average age of the university students was 21.36 ± 2.28 years. According to the results, some domains of healthy lifestyle behaviors between the low and the high academic achievement groups were different significantly. The results demonstrated that the spiritual growth (the only domain of healthy lifestyle behaviors) (P=0.002) and living situation (P=0.043) were significant factors affecting academic achievement.

Conclusion: The findings suggest that the public health and education professionals should try to improve the students’ academic achievement through holding periodic training workshops to promote the their spiritual growth and also consider more quotas for native students to the universities.

Keywords: Healthy lifestyle, Behaviors, Academic achievement, Students

Introduction

Universally, the number of students attending the university education is high and increasing. The future of academic graduates (job, income, health) is affected by their academic achievement (1). Academic achievement as an aspect of intellectual achievement is a major concern among university students and their families. It can affect the students personally and professionally (2). The World Health Organization (WHO) has listed academic failure as a risk factor for mental disorder (3).

In each educational system, the level of educational performance is one of the most successful indicators of the scientific activities. The implementation of academic programs
for students requires identifying the variables affecting it and the students’ living conditions (4). An important issue for persons and educational institutions is to recognize the determinants related to higher academic achievement. The factors affecting academic achievement are, for instance, socio-economic status, gender and some healthy behaviors (1).

Healthy lifestyle behaviors involve a set of individual choices in the status of life that influences the health of the individual. Lifestyle is influenced by culture, religion, socio-economic status, beliefs and the individual’s perceptions. Although these behaviors are formed in the early years of life, they are experienced in the academic years (4). Universities are responsible for creating a supportive environment for the health promotion and helping students manage their health (5). The previous studies have shown that there is difference in the student’s health promoting behaviors based on gender, age, dormitory, or academic year (6, 7), as well as race, religion, and financial capital (7).

The World Health Organization has indicated that 60% of health status and quality of life of a person is dependent on his / her behaviors and lifestyle (8). Health promoting behaviors are an important concern for health professionals as well as for communities and can lead to health-related inconsistent consequences such as obesity, diabetes, and the risk of heart disease. Moreover, these behaviors can also be related to the adolescents’ academic achievement, which requires more analysis and further evidence (9).

The World Health Studies has shown that there is a relationship between educational outcomes such as test scores and other measures of academic achievement and some dimensions of healthy lifestyle behaviors (10-12). But a systematic review study reported that more and up-to-date studies are needed (13). On the other hand, in some studies, only some aspects such as nutrition, physical activity, and sleep have been considered and a study considering all dimensions of health promotion behaviors is low (9).

The effects of health behaviors on the university students’ academic achievement are important in terms of the research area. Understanding the potential relationship between the dimensions of healthy lifestyle behaviors and academic achievement may help design effective interventions to enhance the students’ lifestyle (1). The purpose of this research was to assess the correlation between academic achievement and healthy lifestyle behaviors in the university students with this hypothesis that quality of life affects the academic achievement.

Methods
This cross-sectional research was conducted on 262 university students studying in the selected faculties of Babol University of Medical Sciences with multistage sampling. Each selected faculty acted as a cluster and the students participated in the study from all fields of study. The research was conducted in 2016.

The inclusion criteria of research were: lack of diagnosed physical or mental problems, absence of any chronic or incurable disease, and willingness to participate in the research. After we explained the objectives of the study and ensured the confidentiality of their information, the students participated in this research and completed the questionnaires.

The questionnaires in the present research were the following:

The Health Promoting Lifestyle Profile (HPLP II) questionnaire was applied to evaluate the students’ healthy lifestyle behaviors. In the present research, the Persian version translated from English by Morovvati Sharifabad, et al. was used (14). The questionnaire includes six domains consisting of nutrition, health responsibility, stress management, physical activity, interpersonal relationships and spiritual growth. There is a Likert scale for items: 1 “never”, 2 “sometimes”, 3 “often”, and 4 “routinely”. Each domain was calculated separately. The total score of domains is in the range of 52 to 208.

The grade point average (GPA) score reported by the university students at the end of the semesters was used as an indicator of the academic achievement level. The students were categorized with a GPA equal or lower than 16 as low academic achievement and a GPA more than 16 as high academic achievement.

The socio demographic characteristics included gender, age, mother’s educational status, father’s educational status, family size, income and living situation.

The data were analyzed by SPSS software v.16. T-test was applied to assess the correlation among academic achievements (grade point average) and the domains of healthy lifestyle behaviors. Also, the multi-variable logistic regression was used to adjust the effect of the independent variables on academic achievement.

The research was approved by Ethics Committee of Babol University of Medical Sciences (MUBABOL.REC.1394.234).

Results
Totally, 262 the university students with the
mean age of 21.36±2.28 years (18 to 37 years old) were studied. Most of the participants were living in the dormitory (60.8%) and were female (56.9%) (Table 1).

The relationship between the students’ academic achievement and healthy lifestyle behaviors is seen in Table 2. The data show that there is a significant difference in some domains of healthy lifestyle behaviors between the low and the high academic achievement groups.

In the final analysis, after entering the social-demographic variables and domains of healthy lifestyle behaviors in the logistic regression model, the academic achievement was considered as the dependent variable in the model. The code for low academic achievement (Grade point average≤16) was considered zero and that for the high academic achievement (Grade point average>16) was considered one. Having analyzed the data, we found the spiritual growth (the only domain of healthy lifestyle behaviors) and living situation as significant factors in relation to academic achievement (Table 3). Table 3 shows that as the student’s spiritual growth increases by one score, the odds ratio of the academic achievement increases by 8% (P=0.002). Also, the odds ratio of the academic achievement in the university students living at home with their family is at least four times more than the university students living in a rental home (with friends) (P=0.043).

**Discussion**

This study explored the association among some domains of healthy lifestyle behaviors and the academic achievement in the university students. We found a positive association between the academic achievement and interpersonal relations, spiritual growth and stress management. As mentioned in the introduction, the studies aimed to assess all domains of healthy lifestyle behaviors are rare. Most other studies aimed to research the correlation between physical activity and diet with academic achievement had shown that there was a positive correlation between the higher levels of physical activity and the academic achievement (9, 15, 16), although there are inconsistent results (9). Burrows, et al. also pointed to the importance of linking diet with academic achievement in planning by health promotion practitioners (1).

| Parameters | N (%) | Parameters | N (%) |
|------------|-------|------------|-------|
| Age groups |       | Sufficient for expenses |       |
| 18–20 years | 71 (27.5) | Absolutely not | 18 (6.9) |
| 20–22 years | 124 (48.1) | To some extent | 88 (33.6) |
| +22 years | 63 (24.4) | Completely | 156 (59.5) |
| Father’s educational status | Mother’s educational status |
| Illiterate/ 1–5 years | 31 (12.7) | Illiterate/ 1–5 years | 55 (30) |
| 6–8 years | 29 (11.2) | 6–8 years | 36 (13.8) |
| 9–12 years | 84 (32.3) | 9–12 years | 91 (34.9) |
| University | 114 (43.8) | University | 79 (30.3) |
| Living situation | Family size |
| Home stay | 88 (33.8) | Less than four | 32 (12.3) |
| Dormitory | 158 (60.8) | Four | 113 (43.5) |
| Rent (with friends) | 14 (5.4) | Five | 79 (30.4) |
| | More than five | 36 (13.8) |
| Gender | Academic achievement |
| Female | 149 (56.9) | Low (Grade point average ≤16) | 128 (48.9) |
| Male | 113 (43.1) | High (Grade point average >16) | 134 (51.1) |

**Table 2:** Relationship between Respondents’ healthy lifestyle behaviors and academic achievement, using t-test

| Healthy lifestyle behaviors dimensions: Mean±SD | Academic achievement (Grade point average) | Low | High | t-test p.V |
|-----------------------------------------------|---------------------------------------------|-----|------|-----------|
| Nutrition habits | 21.17±4.40 | 21.76±3.84 | 0.245 |
| Physical activity | 16.42±4.12 | 16.41±4.10 | 0.989 |
| Health responsibility | 19.40±3.98 | 20.33±3.83 | 0.057 |
| Spiritual growth | 23.33±5.15 | 25.40±5.06 | 0.001 |
| Interpersonal relations | 23.75±4.44 | 24.93±4.52 | 0.035 |
| Stress management | 18.74±3.57 | 19.62±3.16 | 0.035 |
| Total HPLF-II score | 122.92±19.34 | 128.63±16.74 | 0.012 |
With regard to the main objective of the study, based on the multi-variable logistic regression, of all the healthy lifestyle behaviors domains and social demographic factors, only spiritual growth and living situation showed a significant relationship with the academic achievement. In line with the relationship between spiritual growth and academic achievement, psychiatrists have experienced the impact of spirituality on the emotional and mental health (17, 18). Emotional performance is independently linked to academic achievement (19). Spirituality is an important aspect of human health that leads to harmony among physical, psychological and social dimensions. It is a motive for finding the meaning and purpose in life (20). Researchers believe that spiritual growth helps people deal with daily life’s problems and makes the individual’s worries and anxiety less (21, 22). In other studies, this relationship was not significant (23, 24).

Also, the results showed that the students’ academic achievement had a significant relationship with their living situation. In other words, students living at home with family had better academic achievement. The results of other studies in line with the present research reported that monitoring and involvement of parents are associated with better academic achievement (25, 26). Barrera, et al. also point out that inadequate parents’ monitoring predicts unhealthy behaviors and poor performance (27). In line with cultural values, parental monitoring is consistently related

| Variables | Academic achievement |
|-----------|----------------------|
| OR        | 95% CI  | p      |
| Age groups |    |       |
| 18–20 years | 1.00  | -     | -     |
| 20–22 years | 1.50  | 0.67-3.37 | 0.319 |
| +22 years  | 0.75  | 0.36-1.57 | 0.450 |
| Sufficiency of income for expenses |    |       |
| Absolutely not | 1.00  | -     | -     |
| To some extent | 1.36  | 0.71-2.60 | 0.343 |
| Completely   | 0.50  | 0.15-1.72 | 0.278 |
| Father’s educational status |    |       |
| Illiterate/ 1–5 years | 1.00  | -     | -     |
| 6–8 years | 0.77  | 0.21-2.70 | 0.687 |
| 9–12 years | 1.42  | 0.45-4.43 | 0.543 |
| University | 0.60  | 0.28-1.28 | 0.190 |
| Mother’s educational status |    |       |
| Illiterate/ 1–5 years | 1.00  | -     | -     |
| 6–8 years | 0.97  | 0.31-3.01 | 0.966 |
| 9–12 years | 0.74  | 0.25-2.20 | 0.595 |
| University | 1.77  | 0.77-4.07 | 0.177 |
| Family Size |    |       |
| Less than four | 1.00  | -     | -     |
| Four        | 1.87  | 0.59-5.93 | 0.284 |
| Five        | 2.05  | 0.81-5.22 | 0.128 |
| More than five | 1.70  | 0.66-4.35 | 0.266 |
| Gender |    |       |
| Female | 1.00  | -     | -     |
| Male | 1.98  | 0.26-4.58 | 0.50 |
| Living situation |    |       |
| Rent (with friends) | 1.00  | -     | -     |
| Dormitory | 2.83  | 0.71-4.15 | 0.447 |
| Home stay | 4.37  | 1.14-6.72 | 0.043 |
| Nutrition habits | 1.00  | 0.91-1.09 | 0.995 |
| Physical activity | 0.97  | 0.89-1.05 | 0.524 |
| Health responsibility | 1.05  | 0.95-1.16 | 0.316 |
| Spiritual growth | 1.08  | 1.03-1.14 | 0.002 |
| Interpersonal relations | 0.95  | 0.87-1.04 | 0.310 |
| Stress management | 1.00  | 0.89-1.12 | 0.978 |
| Total HPLP-II score | 1.00  | 0.97-1.02 | 0.985 |
to better academic achievement (26). Family variables such as scholastic guidance, discussion about ideas and events and also the family support can play a role in the school outcomes (28). Thus, the present study provides additional support that spiritual growth and the living situation are the significant associated factors with the academic achievement.

The limitation of the research is the cross-sectional design, in which the data show just association and cannot demonstrate causal effect in either direction.

Conclusion

The main goal of this research was to assess the correlation among healthy lifestyle behaviors and the academic achievement in the university students. The findings of the current study suggest that spiritual growth as a domain of healthy lifestyle behaviors and living situation are the predictors of the academic achievement. It is necessary that the public health and education professionals have a joint effort to make important strides in improving the students’ academic achievement through periodic training workshops to promote the students’ spiritual growth and also consider more quotas for the local students to universities.

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Conflict of Interest: None declared.

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