

Breakfast consumption as a test anxiety predictor among paramedical students

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Abstract

Context: Having breakfast is an important part of healthy eating behaviors. Based on evidence, it is effective in improving cognitive and psychological performance of individuals.

Aims: The purpose of this study is the examination of having breakfast association with test anxiety of paramedical students.

Settings and Design: This cross-sectional study was conducted in Qom University of Medical Sciences (QUMS), Qom, Iran.

Materials and Methods: Two hundred and twenty-three university students were selected from paramedical faculty of QUMS through random sampling. A self-administered questionnaire (demographic information and test anxiety inventory) was used for data gathering.

Statistical Analysis Used: Data were analyzed using logistic regression to examine the association between breakfast consumption and test anxiety.

Results: The prevalence of skipping breakfast was 40.1%. In the multivariate logistic regression model, it was found that being male (odds ratio [OR]: 0.53, 95% confidence interval [CI]: 0.30–0.94) and breakfast consumption (OR: 0.54, 95% CI: 0.30–0.95) had a significant relationship with lower test anxiety.

Conclusion: It was found that the considerable number of students skip breakfast. Therefore, based on the significant relationship between breakfast skipping and higher level of test anxiety, it is important to identify the causes of breakfast skipping.

Keywords: Anxiety, Breakfast, Student, Universities

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Received: 14 July 2019; **Accepted:** 14 September 2019; **Published:** 27 December 2019.

INTRODUCTION

Having breakfast is often considered as one of the important health-related behaviors; the first meal of a day

which is the main part of nutrition.^[1,2] Having breakfast an important dietary factor for the improvement of energy regulation and skippers of breakfast had the

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Quick Response Code:	Website: www.jnmsjournal.org
	DOI: 10.4103/JNMS.JNMS_37_19

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How to cite this article: Akbari V, Asayesh H, Sharififard F, Qorbani M, Elahi A, Heidarpour A. Breakfast consumption as a test anxiety predictor among paramedical students. *J Nurs Midwifery Sci* 2020;7:47-51.

significantly worse health-related quality of life.^[3] On the other hand, several studies showed a significant relationship between skipping breakfast with poor cognitive functioning (including memory), lower educational performance, school attendance, psychosocial functioning, and depression among children and young people.^[2-5] In a recently published systematic review, it suggested that eating breakfast has positive effects on human cognitive performance in comparison with breakfast skipping. This effect seems to be pervasive in both short-term studies and long-term breakfast program.^[6] Recent studies have examined the associations between the consumption of cereal and subjective health in young adults.^[7,8] All studies provide the evidence about that regular consumption of cereal is related to lower stress score and better physical and mental health.^[5,7,8] In the longitudinal study, increased participation in school breakfast program is associated with greater academic improvements in math grades, school attendance, and punctuality among students.^[9,10] Furthermore, it has been shown, eating breakfast among children is accompanied by the improvement of depression and anxiety levels.^[11,12] Furthermore, previous study showed that breakfast skipping or inadequate nutritious food for breakfast is prevalent among medical college students and may increase the risk of low academic performance.^[13] Breakfast skipping is a common behavior increasing from childhood to adulthood; and hence that one-third of people skip breakfast.^[5] In recent years, the proportion of persons-consuming breakfast has been decreased worldwide.^[14] Test anxiety is an undesirable feeling that reveals in examination situation.^[15] This kind of anxiety causes psychological distress in students and it has negative effect on academic performance.^[16] Furthermore, in a recent systematic review, the prevalence of test anxiety is reported in 30% of nursing students and its effect on academic performance and success has been confirmed.^[17] Based on mentioned evidence, it is important test anxiety control among university students and considering dietary behaviors can be helpful. The aim of the study is examination of eating breakfast relation with test anxiety of undergraduate students in a paramedical faculty.

MATERIALS AND METHODS

This cross-sectional study was conducted among paramedical students at Qom University of Medical Sciences (QUMS), Qom city, Iran. A total of 233 undergraduate students were selected using random sampling. We only surveyed those students who passed 1–3 years of education. A list of students was provided and eligible students were selected using random sampling method. After explaining of the study purpose and obtain verbal consent to participate in the

study, the self-administered questionnaire was completed by selected students. The questionnaire was completed in a separate environment from the examinations hall. All students who took part in this study only had an end of semester examination in specific field courses in the morning. Not having psychiatric disorders history was necessary for including to the study. If the questionnaire was incomplete, the samples were excluded.

The questionnaire has two parts. The first contained basic demographic data (age, sex, marital status, residency, and semester) and breakfast consumption, whereas the second contained test anxiety inventory (TAI). We defined breakfast consumption as such, any food, or beverage consumption between awakening and up to the start of the examination.^[18] Participants who did not eat breakfast on one of 2 days or neither day (before participation) were considered as breakfast-skippers, while those who eat breakfast on both days were considered as breakfast eaters.^[18] Test anxiety was measured, using the short form of the TAI. This 5-item questionnaire includes items from both the worry and emotionality subscales of the TAI. Sample items are “During examinations I get so nervous that I forget many facts I really know” and “During tests I feel very tense.” Participants rated how often they felt this way “just before the final examination in an important course” (1 = almost never, 4 = almost always).^[17] Test anxiety scores were computed by summing the five items, with total scores ranging from 5 to 18 ($\alpha = 0.83$).^[19] In the present study, Cronbach’s alpha was calculated as 86.

The study questionnaire contained a cover letter that informed participants of the following: study purpose, voluntary participation in the study, and confidentiality of data. We did not collect a signed consent form but instead obtained implied consent. Ethical approval of the study was obtained from the Ethical Committee of QUMS. This research ethic code is IR.MUQ.REC.1394.159.

The prevalence of skipping breakfast was determined from one survey item. Multivariate logistic regression analysis was used to the determination of factors associated with test anxiety. In multiple logistic regression analysis, test anxiety was considered as the dependent variable, and the following as independent variables: having breakfast, age, gender, marital status, class years of education, and residency (single-gender dormitory, out of the campus without parents and out of the campus with parents). We calculated crude odds ratios (ORs) to evaluate the risk of independent variables and associated 95% confidence intervals. We then used multivariate logistic regression models to adjust for the possible confounding influences

between the independent variables on the dependent in the model. All statistical analyses were performed, using the SPSS for Windows Version 20.0, with a statistical significance level of $P < 0.05$.

RESULTS

Eleven students did not answer the question about having breakfast; therefore, data for 223 students were available for the analysis. The response rate was 99.5%. The mean age of the participants was 21.83 years (standard deviation = 4.27). Ninety-five of them were male (42.8%) and 127 were female (57.2%). Most of the students were single (80.2%). About 22.1% of participants lived in single-gender dormitory, and 67.1% lived with their parents (67.1).

The prevalence of skipping breakfast was 40.1%. Skipping breakfast prevalence among male and female students was 39.8% and 40.5%, respectively. Skipping breakfast had not a significant association with age, gender, marital status, type of residency, the field of study, and year of study.

Results of univariate logistic regression showed that male students were significantly less anxious than girls in, and breakfast consumption was also 44% effective in test anxiety reduction [Table 1]. After entering the variables into the multivariate logistic regression model, it was found that being male and having breakfast had a significant relationship with lower test anxiety [Table 2].

DISCUSSION

Findings of the current study showed breakfast in relation to the test anxiety has a protective effect and hence that the test anxiety among those students who consumed breakfast in the morning was lower than others. Several studies showed having breakfast has been approved with better cognitive function, especially among children.^[20-22] Some studies that evaluated the implementation of the breakfast program at school showed that having breakfast significantly promotes the students' attention, accuracy, and scores; on the other hand, their behavioral problems have decreased.^[6,23,24] A significant percentage of students who participated in this study did not consume breakfast, which is lower than the study of Salimi *et al.* among university students in Hamedan.^[25] In that study, only 24% of students reported having breakfast in their diet. Ahadi *et al.* in a national study showed the rate of nonconsumption of breakfast among Iranian children and adolescents was 18.9%; also, 13.2% were semi-skipper. It was also found the level of psychosocial distress, and aggressive behaviors

Table 1: Association of demographic characteristics and breakfast consumption with test anxiety (univariate logistic regression model)

Characteristics	Crude OR	95% CI	P
Age	1.01	0.94-1.07	0.76
Gender			
Male	0.56	0.32-0.98	0.04
Female	1	-	-
Marital status			
Single	1.07	0.56-2.10	0.84
Married	1	-	-
Semesters	1.15	0.98-1.35	0.07
Type of residency			
Single-gender dormitory	1.66	0.59-4.69	0.33
Out of the camp with parents	1.62	0.65-4.03	0.29
Out of the camp without parents	1	-	-
Breakfast consumption			
Yes	0.56	0.32-0.97	0.04
No	1	-	-

OR: Odds ratio, CI: Confidence interval

Table 2: Association of demographic characteristics and breakfast consumption with test anxiety (multivariate logistic regression model)

Characteristics	Adjusted OR	95% CI	P
Gender			
Male	0.53	0.30-0.94	0.03
Female	1	-	-
Semesters	1.18	0.99-1.40	0.05
Breakfast consumption			
Yes	0.54	0.30-0.95	0.03
No	1	-	-

OR: Odds ratio, CI: Confidence interval

among those who had breakfast were lower than others.^[26] Taha *et al.*'s study showed regular consumption of breakfast has a significant relationship with a better educational performance of adolescents.^[27] Many studies examined the relationship between breakfast and psychological disorders such as anxiety and depression among different population groups; they showed breakfast can be effective in preventing these disorders.^[28,29] However, studies that specifically address the relationship between breakfast and test anxiety are very limited. For example, in a study among students who had studying in health fields, it was found that having breakfast and the use of sweet nutrition are associated with test anxiety reduction.^[30] According to some researches, the level of anxiety among medical and paramedical students is more than other groups of students.^[31] On the other hand, controlling test anxiety among students is very important and can affect their academic progress.^[32,33] Therefore, paying attention to the variables that affect this problem can affect students' academic status and progress. Considering the causes of nonconsumption of breakfast can also play a role in identifying this problem and planning to improve the nutritional status of the students; breakfast in addition to its effect on reducing the test anxiety also affects the general physical and mental health of the students.

The study also had several limitations. Because of the limited participants to one university, the sample size was not truly representative of the general university students' population, thus, the authors suggest that further research with comprehensive sample size in medical and nonmedical universities. This study is based on self-reports which might affect the correct frequencies of the breakfast intake and test anxiety. It is possible a few of the participants in this investigation did not report breakfast skipping; therefore, the interpretations of this variable may have inaccuracies. Most of the limitations that mentioned in observational studies is inevitable.

CONCLUSION

Findings of this study showed the prevalence of breakfast skipping among students is significant. Considering the significant relationship between breakfast and the reduction of the test anxiety level, it emphasizes to identify the causes of not having breakfast; hence, with increasing the consumption of breakfast, increase students' health and academic progress.

Conflicts of interest

There are no conflicts of interest.

Authors' contributions

SMM and VA participated in study design and revised the paper. HA and MQ participated in study design and statistical analysis and drafted the manuscript. AH contributed in study design and drafted the manuscript. FS contributed to the data acquisition and drafted the manuscript.

Financial support and sponsorship

Qom University of Medical Sciences, supported study.

Acknowledgements

Authors forward their sincere thanks to the team working with this project.

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