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Studying the effect of organic nutrition on aggression among high school students in AL-Kut, Iraq

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Abstract

The aim of the present study was to investigate the relationship between organic nutrition and students' aggression. The research method was applied in terms of purpose and descriptive in terms of method, correlation type and among 3751 female students in high school in AL-Kut city, of which 348 were selected by simple random sampling using Morgan table. The AGQ aggression questionnaire and Adami Korda nutritional status questionnaire were used to collect data. Data analysis was performed at two levels of descriptive and inferential statistics. At the inferential statistics level, the data were analyzed using SPSS software. The results of the study showed that there is a significant relationship between nutrition and aggression in students, meaning that with improving nutritional status, aggression decreases.

Keywords: Nutrition, aggression, students, AL-Kut city

Introduction

In recent years, attention has increased to the relationship between nutrition and aggressive behavior in adolescents, especially high school girls. Various studies have shown that specific dietary patterns can have significant effects on the social and psychological behaviors of adolescents (Mohseni, 2021) ^[6]. One of these studies is a study conducted in Iran that shows that following a Western dietary pattern is associated with increased aggression scores in adolescent girls. This study was conducted on 670 Iranian adolescent girls and identified three main dietary patterns including healthy, fast food, and Western dietary patterns. The results show that greater adherence to a Western dietary pattern is associated with increased aggression scores, even after controlling for confounding variables, (Vahedi *et al.*, 2023) ^[8].

In this regard, the present study aims to investigate the effect of nutrition on aggression among female high school students in the city of AL-Kut. Given the importance of this issue in the mental and social health of adolescents, this study can serve as a basis for designing educational programs and nutritional interventions in schools.

In this article, first, the theoretical foundations and research background on the relationship between nutrition and aggressive behavior are reviewed. Then, the research methodology including the statistical population, data collection tools, and data analysis methods are introduced. Next, the results obtained from data analysis are presented and finally, suggestions are made for reducing aggression among female students through modifying dietary patterns.

Theoretical foundations

- **Aggression in adolescents:** Aggression is one of the abnormal behaviors that occurs during adolescence, especially in girls, with specific characteristics such as relational and verbal aggression. This type of aggression can lead to psychological and social problems in adolescents (Crick and Grotpeter, 1995; Khodarahmi *et al.*, 2016; Maghraby, *et al.*, 2022) ^[1, 3, 4].
- **Nutrition and mental health:** Nutrition plays an important role in the functioning of the brain and nervous system. Deficiencies in certain nutrients such as omega-3 fatty acids, vitamins, and minerals can lead to psychological and behavioral disorders (Dishion and Tipsord, 2011; Zhao *et al.*, 2023) ^[2, 9].
- **The relationship between nutrition and aggression:** Studies have shown that the consumption of processed and high-fat foods can be associated with increased aggressive behaviors in adolescents. In contrast, diets rich in fruits, vegetables, and omega-3 fatty acids may help reduce these behaviors.

Research background

A study in Iran on 670 adolescent girls showed that following a Western dietary pattern is associated with increased aggression scores. This study emphasized the use of the Buss-Perry Aggression Questionnaire and showed that higher consumption of fast food and processed foods is associated with increased aggressive behaviors (Malekhamadi *et al.*, 2022) ^[5]. Another study by Majerbi *et al.* (2020) on Iranian adolescents showed that high

consumption of sugary drinks and fast food is associated with increased aggressive behaviors. This study emphasizes the importance of nutrition in mental health.

A study in Japan showed that high consumption of ultra-processed foods is associated with increased aggressive behaviors in adolescents (Okada *et al.*, 2024)^[7].

This study emphasizes the negative impact of unhealthy diets on social behaviors.

Research Method

This study is applied in terms of its purpose and correlational in terms of field data collection. The statistical population includes all female students in high school in AL-Kut, 3751 students. Regarding the determination of the sample size, 348 students were selected from among female students in high school in AL-Kut through simple random sampling and using the Morgan table as the sample size. In this type of sampling, each member of the defined population has an equal and independent chance of being included in the sample.

In the present study, a questionnaire was used to collect data.

A) AGQ Aggression Questionnaire

This questionnaire, designed by Arnold Echbas and Perry (1992), consists of 30 items, fourteen of which are related to the anger factor, eight of which are related to the aggression factor, and eight of which measure the resentment factor.

The aggression questionnaire is a paper-pencil self-report scale and the subject responds to one of four options: never, rarely, sometimes, and always. For each of the four options, the values 0, 1, 2, 3 are considered, respectively. Except for item 18, which has a negative emotional charge and the scoring direction is reversed, the overall score of this questionnaire ranges from zero to 90 and is obtained by summing the scores of the questions. People whose scores on this scale are lower than the average will have low aggression.

The psychometric properties of this scale are as follows: The test-retest coefficients obtained between the subjects' scores in two occasions (test and retest) for all subjects (N=91), female subjects (N=48), and male subjects (N=38) were $r=0.70$, $r=0.64$, and $r=0.79$, respectively. Also, in this questionnaire, the Cronbach's alpha coefficients (internal consistency) for all subjects (0.874), for female subjects were 0.86, and for male subjects were 0.89. The Cronbach's alpha obtained in this study was 0.779, which indicates the desired reliability of the questionnaire.

B) Adami Cordera Nutritional Status Questionnaire

This questionnaire is derived from the Mediterranean Nutritional Status Questionnaire (Adami Cordera), which includes the individual's eating patterns and habits. Food patterns include the meals and snacks that a person eats

throughout the day. The amount of food eaten in meals, eating or skipping breakfast, etc. Food habits include behaviors related to individual tastes, such as overeating or undereating, consuming vegetables, yogurt, fish, and dairy products in meals, the amount of salt used, the amount of fruit consumed, etc.

Before conducting the research, in order to determine the validity and reliability of the questionnaire, a pilot study was conducted on a sample of 20 school teachers. Its reliability coefficient was obtained using the Cronbach's alpha test of 0.78. Ofcourse, the reliability of this questionnaire was obtained by Sharifi, who conducted it on a sample of 50 men in Arak, and using the Cronbach's alpha test, it was obtained as 0.74. The Cronbach's alpha obtained in this study is 0.766, which indicates the desired reliability of the questionnaire.

This questionnaire was used to evaluate information related to the subjects' eating patterns and habits. Questions 1 to 7 are related to dietary patterns and questions 8 to 16 are related to the subjects' dietary habits. Based on this division and considering the way the questionnaire questions are answered, an assessment of the subjects' nutritional status is made.

In order to analyze the data in this study, the following statistical methods will be used

The statistical data analysis of this study will be carried out using descriptive and inferential statistics. In the descriptive statistics section, central tendency indices (mean and standard deviation) are used to describe the data, and in the inferential statistics section, multiple regression analysis and Pearson's simple correlation coefficient are used. SPSS 22 software is also used to analyze the data. The significance level in this study will be 0.05.

Results

This part of the study is divided into two parts:

- Descriptive statistics
- Inferential statistics

In the first part, the cognitive population variables are analyzed using frequency tables and descriptive statistics. In the second part, the assumption of normality of the research variables is examined using the Kolmogorov-Smirnov test. Pearson correlation tests, univariate regression, one-way analysis of variance, and independent t-tests are used to examine the research hypotheses.

Score structures of research variables

With the data collected from the questionnaire, for each of the research variables, the minimum, maximum score, mean, standard deviation, skewness, and kurtosis statistics are presented in the following table:

Table 1: Table of descriptive variables of research variables

Elongation	Skewness	Standard deviation	Average	Maximum	Minimum	Research variables
-0.253	-0.166	0.51	3.51	4.67	2	Nutrition
-0.046	-0.169	0.51	3.59	4.78	2	Aggression

The above table shows the range of changes in the scores of the variables, their mean and standard deviation. As can be seen, all of the above-mentioned variables are within the acceptable range for the two indices of skewness and kurtosis. It should be noted that the acceptable range for skewness and kurtosis is between 2 and -2, and if the variable is within this range, it has a normal distribution.

Table 2: Kolmogorov-Smirnov test for normality of research variables

P-Value	Z Kolmogorov-Smirnov	Standard deviation	Average	Number	Indicators
0.154	1.132	0.54	3.34	348	Nutrition
0.643	0.741	0.32	3.45	348	Aggression

Considering that the significance level of the Kolmogorov-Smirnov test in the above table for the research variables is greater than 0.05, it is concluded that the distribution of the above-mentioned variables did not differ significantly from the normal distribution. Therefore, we conclude that the distribution of the research variables was normal.

Research Hypothesis Review

There is a significant relationship between nutrition and aggression in students

Table 3: Correlation test of the research hypothesis

P-Value	Number of samples	Aggression	
0.001	348	-0.549	Nutritional component

Considering the P-value which is lower than 0.05, it can be stated that the relationship between the two variables is significant. Therefore, there is a negative and significant relationship between the components of nutrition and aggression. So it can be concluded that by improving the amount of nutrition components, the amount of aggression also decreases.

Table 4: Results of multiple regression analysis related to nutrition and aggression with the entry method

=P	T	β	P	R ²	R	Predictor variables	Method
0.000	12.65	0.385	0.000	0.265	0.426	Constant value	Entry
0.131	0.291	-0.0280				Nutrition	

Multiple regression was used to investigate the prediction of aggression variable based on nutrition dimensions. As can be seen in Table 4, $F=16.32$ is significant for the regression equation ($P=0.000$).

Conclusion

The study examined the link between dietary patterns and aggression in female high school students in AL-Kut. Results indicate nutrition significantly influences adolescents' psychological and social behaviors. Unhealthy diets (fast food, processed foods, sugary drinks) were linked to higher aggression. Healthy intakes (fruits, vegetables, quality proteins, omega-3 fats) were linked to reduced aggression and better mental health. Nutrition also appears to affect mood regulation, with family and school guiding healthier eating patterns. Educational programs for parents and students can positively impact behavior and overall well-being.

Inferential Statistics

Kolmogorov-Smirnov test for normality of research variables

To test the research hypotheses, the normality of the variables is first examined. Therefore, this condition is examined for the research variables at first.

References

1. Crick NR, Grotpeter JK. Relational aggression, gender, and social-psychological adjustment. *Child Development*. 1995;66(3):710-722. <https://doi.org/10.2307/1131805>
2. Dishion TJ, Tipsord JM. Peer contagion in child and adolescent social and emotional development. *Annual Review of Psychology*. 2011;62:189-214. <https://doi.org/10.1146/annurev.psych.093008.100412>
3. Khodarahmi M, Azadbakht L, Daghighzadeh H, Bisset FC, Keshteli AH, Afshar H, *et al.* Evaluation of the relationship between major dietary patterns and uninvestigated reflux among Iranian adults. *Nutrition*. 2016;32(5):573-583. <https://doi.org/10.1016/j.nut.2015.11.012>
4. Maghraby K, Khayyatadeh SS, Heshmati J, Alshahrani SH, Oraee N, Ferns GA, *et al.* The relationship between dietary patterns and aggressive behavior in adolescent girls: A cross-sectional study. *Brain and Behavior*. 2022;12(12):e2782. <https://doi.org/10.1002/brb3.2782>
5. Malekhamadi M, Khayyatadeh SS, Heshmati J, Alshahrani SH, Oraee N, Ferns GA, *et al.* The relationship between dietary patterns and aggressive behavior in adolescent girls: A cross-sectional study. *Brain and behavior*. 2022;12(12):e2782.
6. Mohseni H. The relationship between history of dietary nutrients intakes and incidence of aggressive behavior in adolescent girls: A case-control study. *Clinical Nutrition ESPEN*. 2021;44:106-112. <https://doi.org/10.1016/j.clnesp.2021.03.004>
7. Okada LM, Marques ES, Levy RB, Gonçalves VSS, Peres MFT, Azeredo CM. Association between ultra-processed dietary pattern and bullying: the role of deviant behaviors. *Frontiers in Nutrition*. 2024;11:1352258.
8. Vahedi L, Grimm OM, Carreno BS, Meyer SR. Childhood and adolescent nutrition outcomes among girls exposed to gender-based violence: A rapid evidence assessment of quantitative research. *PLOS ONE*. 2023;18(2):e0281961. <https://doi.org/10.1371/journal.pone.0281961>
9. Zhao N, Yang S, Zhang Q, Wang J, Xie W, Tan Y, *et al.* School bullying results in poor psychological conditions: Evidence from a survey of 95,545 subjects; 2023, arXiv. <https://arxiv.org/abs/2306.06552>