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ORIGINAL ARTICLE

Weight Trend among Middle School Student: The Mediating Role of Food Addiction and Commitment to Physical Activity

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ABSTRACT

Background: Overweight and obesity kill about 2.8 million adults worldwide a year, and contributes to a host of debilitating chronic illnesses, yet obesity is still not typically a focus of medical student training, or continuing education for physicians. The consequences affect an individual physically, financially, and emotionally. The broader society is affected since obesity threatens national security and public safety by reducing the numbers of military and safety officials who are fit for duty and places a huge burden on the healthcare system.

Objective(s): The aim of this study is to determine the mediating role of food addiction and commitment to physical activity.

Methodology: The descriptive correlational design has been considered a subtype of correlational research, with its primary purpose being to examine relationships between and among variables and it is referred to occasionally as simple correlational design. The study included a convenience sample of male and females middle school students who agreed to participate in this study. The study subjects were recruited from eight public middle schools. The sample size was determined using G*Power software based on an effect size of 0.25, alpha error probability of 0.05, a power of 0.95, five groups. Thus, the recommended sample size would be 304. Considering an attrition rate of 20%, additional 61 subjects would be required. As such, the recommended sample size would be 365. The final sample size is 380.

Results: There is a statistically significant difference in commitment to physical activity between gender groups (p-value = 0.005). While there is no statistically significant difference in commitment to physical activity among grade groups.

Conclusion: Male students have greater tendency for food addiction than female students. Male students have greater commitment to physical activity than female students.

Recommendations: There is a need for the community health nurses to collaborate with the officials in the Ministry of Health (School Health), mass media, and directorates of education to raise students and school officials' health awareness of the value of adhering to healthy diet and healthy weight.

Keywords: Physical Activity, Food Addiction, Weight Trend, Middle School Students.

INTRODUCTION

Obesity has been a major source of concern among public health professionals, spawning a plethora of studies in medical, public health, and, more recently, economics. Between 1976 and 1980, the weight distribution in the United States shifted significantly to the right—average adult female weight, for example, increased by 20 pounds, or 13.5 percent (National Health and Nutrition Examination Survey [NHANES] II) and 1999–2000 (NHANES 99)— However, the upper tail has grown disproportionately: for women, the 95th percentile weight climbed 16.7%, from 215 to 251, and the 99th percentile weight increased 18.2%, from 258 to 305 pounds, over the same time period. Food and non-food consumption, as well as how an individual's weight compares to a social weight standard or norm, all influence utility. Extensive research in the domains of social psychology and socio-biology claims that physical appearance standards are significant motivators of human conduct, despite the fact that these disciplines may disagree on the processes that determine the content of such standards.

Overweight and obesity kill about 2.8 million adults worldwide a year (Centers for Disease Control [CDC], 2012a; WHO, 2002), and contributes to a host of debilitating chronic illnesses, yet obesity is still not typically a focus of medical student training, or continuing education for physicians.

The consequences affect an individual physically, financially, and emotionally. The broader society is affected since obesity threatens national security and public safety by reducing the numbers of military and safety officials who are fit for duty, and places a huge burden on the healthcare system (Forbes, 2013).

Obesity in childhood can last into adulthood and is a major risk factor for adult-onset health problems such insulin resistance, atherosclerosis, dyslipidemia, and obstructive sleep apnea (Hutchinson, 2016; Singh et al., 2008). Obesity in children has been linked to a variety of health issues, including metabolic and cardiovascular problems (Ebbeling et al., 2002). In the same line, A greater body mass index (BMI) has been shown to be closely linked to high blood pressure and raised blood pressure (Parker et al., 2016). Another cross-sectional study of 58,899 teenagers from China, America, and five other countries found that a normal BMI was linked to an increased risk of high blood pressure (Wang et al., 2020).

Obesity in children has psychological repercussions as well, including low self-esteem, strained social relationships, and stigmatization (Vander Wal & Mitchell, 2011). Evidence has recently emerged that high adiposity may have a selective impact on cognitive and brain function in preadolescent children, particularly in those with childhood obesity (Kamijo et al., 2012; Raine et al., 2018). As a result, childhood obesity has become a major public health issue, with the prevalence of overweight and obese children increasing globally. Children with obesity were found to be more likely to remain fat in adulthood, leading in a variety of disorders such as hypertension, type II diabetes, and depression, according to Lakshman et al., 2012 and Simmonds et al., (2016).

For the prevention of obesity, the Physical Activity Recommendations for Public Health emphasize that children and adolescents should engage in 60 minutes (one hour) or more of daily moderate to vigorous physical activity (MVPA). To promote and maintain their health, all healthy adults should engage in moderate-intensity aerobic physical activity for at least 30 minutes five days a week or vigorous-intensity aerobic physical activity for at least 20 minutes three days a week, according to the 2007 American Heart Association (AHA) and American College of Sports Medicine (ACSM) recommendations (Oja & Titze, 2011).

Children's diet and activity behaviors are primarily influenced by their parents and the home environment, and school-based weight management treatments are more effective when families are included (Sobol-Goldberg et al., 2013). As a result, determining which child, family, and home-related factors influence student success in weight management interventions in schools serving primarily low-income and minority children will help researchers better understand the extent to which external factors can influence weight change and how to adapt and refine school-based interventions to meet student needs.

METHODOLOGY

Study Design: The descriptive correlational design has been considered a subtype of correlational research, with its primary purpose being to examine relationships between and among variables and it is referred to occasionally as simple correlational design.

The Setting of the Study: The study was carried out at public middle schools for males and females in Baquba City.

Sample and Sampling: The study included a convenience sample of male and females middle school students who agreed to participate in this study. The study subjects were recruited from eight public middle schools. The sample size was determined using G*Power software based on an effect size of 0.25, alpha error probability of 0.05, a power of 0.95, five groups. Thus, the recommended sample size would be 304. Considering an attrition rate of 20%, additional 61 subjects would be required. As such, the recommended sample size would be 365. The final sample size is 380.

Statistical Analyses: Data were analyzed using the statistical package for social science (SPSS) for windows, version 28. The statistical measures of frequency, percent, mean, standard deviation, linear regression, One-way analysis of variance (ANOVA), and independent-sample t-test were used.

Ethical Considerations: After receiving the approval of the College of Nursing, University of Baghdad for the study, the Directorate of Education in Baquba City, the student researcher discussed study details with schools' administrators. The student researcher explained to the participants the general purpose of the study, as well as the method by which they can answer the study instrument, to ensure that they understand that participation is optional and that they can withdraw at any time. The student researcher assured subjects that he will securely safeguard and maintain the confidentiality of their data during and following study participation. The student researcher further assured study participants that he will keep their identities in the presentation, reporting, and/or any eventual publication of the study.

RESULTS OF THE STUDY

Table 1: Difference in commitment to physical activity between gender groups

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Commitment to PA	Equal variances assumed	.082	.774	2.895	378	.004	1.46108	.50465	.46880	2.45336
	Equal variances not assumed			3.051	203.229	.003	1.46108	.47893	.51677	2.40538

There is a statistically significant difference in commitment to physical activity between gender groups (p-value = 0.005).

Table 2: Difference in commitment to physical activity among grade groups

ANOVA					
Food Addiction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	82.395	2	41.197	2.126	.121
Within Groups	7305.805	377	19.379		
Total	7388.200	379			

There is no statistically significant difference in commitment to physical activity among grade groups.

Table 3: Difference in commitment to physical activity among socioeconomic class groups

ANOVA					
Food Addiction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	107.328	4	26.832	1.382	.240
Within Groups	7280.872	375	19.416		
Total	7388.200	379			

There is no statistically significant difference in commitment to physical activity among socioeconomic class groups.

Table 4: Difference in commitment to physical activity among body mass index groups

ANOVA					
Food Addiction					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	81.344	4	20.336	1.044	.384
Within Groups	7306.856	375	19.485		
Total	7388.200	379			

There is no statistically significant difference in commitment to physical activity among body mass index groups.

DISCUSSION

There was a statistically significant difference in commitment to physical activity between gender groups. Further independent-sample t-test group statistics display that male students are more committed to physical activity than female students. A number of factors can explain this finding. Firstly, school environment in Iraq lacks the physical design that appropriately enable students to feasibly, adequately practice physical activity in that the schools lack indoor fields or gym. Secondly, the physical activity class is almost uninvested due to lack of physical education teachers, or investing this class by teachers of other classes to accomplish their curricula. Thirdly, in the light of the social norms in Iraq, it is unacceptable for female to engage in any physical activity outside home. Furthermore, the physical facilities established for females to practice physical activities are very limited. Fourthly, the cities planning in Iraq did not consider specifying spaces or parks in every neighborhood to practice physical activities by the local residents.

This finding is supported by Mirmiran et al., (2006) who concluded that the levels of physical activity were higher in most men in the younger age-groups (10-18 and 19-24 years). On the other hand, they reported that there were low levels of physical activity among most of women in all age-categories.

Study Limitations: The student researcher addressed a number of limitations including the amount of physical activity is self-reported. For more precise results, objective measurement for physical activity which can be measured using foot step count is desired. The study data were collected via a self-reported method which could entail bias.

CONCLUSION

Male students have greater inclination for food addiction than female students. Male students have greater commitment to physical activity than female students.

Recommendations: There is a need for the school administrators to vitalize the physical education class; particularly for female students and the third graders. There is a need for the community health nurses to collaborate with the officials in the Ministry of Health (School Health), mass media, and directorates of education to raise students and school officials' health awareness of the value of adhering to healthy diet and healthy weight.

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