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Impact of Parental Support During Health Behavior Classes on Primary School Students' Awareness of Obesity

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Abstract

Introduction: One of the most common disorders worldwide among school-age children is obesity. This paper aims to examine the impact of parent support during health behavior classes on the awareness level of obesity among Primary School students.

Methods: A pretest-posttest quasi-experimental design was conducted among 90 obese students. Students were divided into two groups with 45 students in each based on their BMI. A pretest was conducted on both groups by distributing the SPAN scale to both groups. After that, nursing interventions for three months included health behavior classes for both groups (group one with parent support & group two without parent support).

Results: The results indicated that there were statistically significant differences between the two groups in mean scores of, posttest and delayed posttest, (t (88) = 6.428, t (88) = 4.127, t (88) = 4.317, p = .001), respectively. The first group achieved a mean score of pre-test, post-test, and delayed post-test of 45.66 (6.618); 51.45 (7.514); and 43.78 (5.678), respectively. The 2nd group achieved a mean score of pre-test, post-test, and delayed post-test 44.78.14 (6.515); 85.45 (8.54); and 86.44 (8.65), respectively.

Conclusion: Parent support during health behavior classes is effective in increasing awareness among obese students.

Keywords: Jordan; Obesity; Health behavior; Students; Awareness; Parent; Support.

1. Introduction

Obesity among school-aged children is one of the most predominant disorders globally (Park et al., 2018). Obesity is a major risk factor for Coronary Heart Disease (CHD), Diabetes Mellites (DM), Stroke, insulin resistance, kidney and liver disease, reproductive disease, dyslipidemia, metabolic syndrome, osteoarthritis, skin problems such as poor wound healing (Catalano & Shankar, 2017), psychosocial problems such as stress, sleep disturbance, violence, low self-esteem, depression and anxiety (Sagar & Gupta, 2018), decreased academic and professional performance, and low overall quality of life (Kawafha, 2018; Maghaireh & Fayiz, 2019).

The major problem with obesity is that it has been progressively increasing worldwide (Ali, Hamad, Hussein, & Malash, 2016). For example, the prevalence of overweight and obesity among children and adolescents aged 5-19 has risen dramatically from 4% in 1975 to over 18% in 2016 then over 22% in 2019 (WHO, 2021). In 2019, 22% of girls and 23% of boys were overweight, a trend that affected both genders, while only 4% of kids and teenagers aged 5 to 19 were fat in 1975. Additionally, 8% of women and 9% of men who were children and adolescents in 2019 were obese (Hamad, Abu-Hassouneh, Ibrahim, Al-Islam, & Faris, 2016).

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The major contributing factors to the increasing prevalence of overweight and obesity are supposed to be increasing the globalization and urbanization of food shops, profusion of foods, decline in physical activity, consumption of foods high in sugars and saturated fats, influence of mass media and improvements in standard of living (Baker, Al-Ali, & Al-Ajlouni, 2018). Jordan ranked as the fifth among the top "fattest" countries in the world in 2016 with 34.3% of the society considered overweight (Hamad et al., 2016). According to data from the Jordanian Ministry of Health, more than 50% of children and 40% of adults in Jordan are overweight (Nahhas, 2017).

Childhood obesity has been explored by many researchers, which has been interlinked with physical activity and gender (Safaei, Sundararajan, Driss, Boulila, & Shapi'i, 2021), dietary patterns (Jagadesan et al., 2014), birth rates, and parent's occupation (Orban, Edberg, Thorngren-Jerneck, Önnerfält, & Erlandsson, 2014). Considering the prevalence of obesity globally, there is a lack of studies related to the association of obesity and the major factors of obesity in Jordan.

Students' food habits and physical exercise behaviors are greatly influenced by their home, school, and parental environments (Williams et al., 2018). Because 80% of adolescents with two fat parents will go on to develop obesity, parent engagement in health behavior workshops on awareness levels of obesity is crucial (FRSPH, 2020). Therefore, parents have a tremendous opportunity to encourage school children in ways that set the stage for great health for the rest of their lives when it comes to preventing obesity (Ahmad, Zulaily, Shahril, Syed Abdullah, & Ahmed, 2018). In the new era, children live in a time that encourages sedentary activities more than physical activities and encourages unhealthy eating more than healthy food (Ha & Kim, 2016). At various years of a child's development, parenting has a variety of effects on how overweight and obesity develop.

2. Objectives

This study aims to (1) assess the level of awareness about obesity among school-going children in Jordan and (2) examine the impact of parent support during health behavior classes on the awareness level of obesity among primary School students.

3. Methods

Design

A pretest–posttest quasi-experimental design was used.

Settings and Sampling

The study was conducted in a primary school located in the north of the capital city of Jordan. The total number of students in this school is 117 students; the total number of teachers in the school is 33. The target population of this study was Jordanian school students at primary school and their parents in the northern regions of Jordan. The accessible population was all Jordanian school students and their parents of convenience selection of one of public primary school students. Raosoft software was used to calculate the sample size for this study, with a margin of error of 5% and a confidence level of 95%. Based on the unpublished data, the population size of obese students in the school is 117. With a response distribution of 50%, the sample size for this study is 90. Every child was recruited with either one parent or guardian. The inclusion criteria are students who are (a) Jordanian, (b) understand and read the Arabic Language, (c) age between 6 and 12 years, (d) attend school regularly, (e) free from physical and mental disabilities, (f) parents are willing and give consent to participate in the study, (g) Obese based on WHO Anthro + tool (> 95th percentile based on body mass index (BMI).

Ethical Considerations

This study was approved by the Directorate of Education to be conducted in the school. Moreover, approval was obtained from the school managers to conduct the study in the school. The researchers used codes rather than students' and parents' names to ensure the privacy and confidentiality of participants. A verbal consent was taken from children; however, a consent form was signed by the parents.

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Instrument

Using a medical scale with a digital stadiometer to assess BMI for data collection. Parental demographic surveys, student demographic information, and the School Physical Activity and Nutrition (SPAN) Questionnaire were all self-administered. A medical Scale with a digital stadiometer is an instrument to measure height and weight for children that is used to measure BMI. Parent Demographic Data Questionnaire was developed by researchers based on a literature review to collect information about gender, age, financial status, educational level, and some questions about eating and activity habits (Kawafha, 2018). Student Demographic Data Questionnaire was developed by researchers based on a literature review to collect information about gender, age, mental disabilities, physical disabilities, distance from their home to school, and some questions about daily eating and activity habits. School Physical Activity and Nutrition (SPAN) Questionnaire was developed by Dwyer, Hardy, Peat, and Baur (2011). SPAN questionnaire is a four-item self-reporting screening tool that consists of questions about food choices and physical activities of school-aged children. It is commonly used to measure awareness about obesity. Students are required to rate items on a five-point Likert scale that ranges from 0 = Not at all distressing to 4 =Extremely distressing to reveal how distressing each of the symptoms of the questionnaire has been during the last week. The SPANS questionnaire provides information, including trend data on physical activity, weight status, cardiovascular fitness, school travel, sedentary behaviors, basic movement skills, dietary habits, and patterns of school-aged children. The scale's internal consistency and reliability were tested and found to be acceptable in the English version, with α coefficients of 0>.70. The internal consistency for the entire scale was 0.81. The scale was also translated into an Arabic version, then tested and found acceptable, with α coefficients of > 0.70. The internal consistency for the entire Arabic version scale was 0.83.

Data Collection Procedure

Demographic data on the students and their parents was gathered. All eligible students were met to measure their height and weight using a medical scale with a digital stadiometer. Body mass index (BMI) was assessed using the WHO Anthro Plus program. All obese students with a BMI > 95th percentile were included in the study, and. To make sure that the two groups were comparable and homogenous, the students were divided into two groups with 45 students in each. The purpose, significance, risks, and benefits were explained to the parents to get their signed informed consent. A pretest using the School Physical Activity and Nutrition (SPAN) Questionnaire for both groups was done. For both groups—group one with parents and group two without—the researcher held health behavior classes. The intervention's major goal was to raise awareness of healthy eating habits and lifestyles among students and their parents. The intervention took place in the school for three months. The researcher used the SPAN scale to conduct an instant post-test for both groups after three months. After six months after the intervention, the delayed post-test utilizing the same scale was administered to both groups to assess knowledge recall.

After that, the researcher conducted health behavior classes for both groups. The main purpose of the intervention was to develop awareness about healthy lifestyles and diet plans among the children and their parents. The intervention was held for three months in the school. After three months the researcher did an immediate posttest for both groups using the SPAN scale. The delayed posttest using the same scale was conducted on both groups six months after the intervention to examine the recall of knowledge (Figure 1).
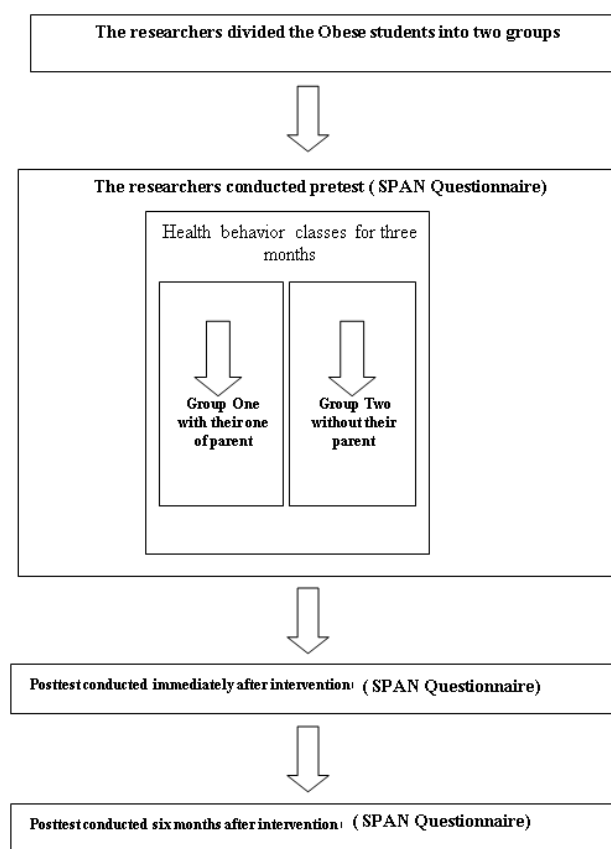
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Figure 1. Flowchart for the Data Collection Steps

Data Analysis

Statistical Package for Social Sciences (SPSS) was used to analyze the data. Descriptive statistics was used to analyze the characteristics and demographic data of participants. The total scores for SPAN subscales were summed and then compared the mean and standard deviation for each item to assess the level of awareness about obesity among students in school. Inferential statistics was used including an independent sample t-test to examine the mean differences of parent support during health behavior classes on awareness level of obesity among primary School students. In addition, the researcher compared the means of pretest, immediate posttest, and delayed posttest between the two groups.

4. Results

Normality Test for the Data Distribution

A Kolmogorov-Smirnov test (p < 0.5) and a visual inspection of the histograms, normal Q-Q plots, and box plots showed that pretest, immediate, and posttest scores followed a normal distribution with a skewness of 0.262 (SE = 0.351) and kurtosis of 0.581 (SE = 0.716) (Doane & Seward, 2011).

Demographic of participants

Ninety students took part in the study. More than half of the participants were male (n=48, 53.3%), and around half of the participants used public transport while they went to their schools (n=48, 53.3%). About two-thirds of students reported that they eat in front of the TV (n=65, 72.2%). Table 1

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Table 1. Student Demographical Data (N=90)

Variable	Frequency (%)
Student age (Year)	
6	15 (16.7)
7	13 (14.4)
8	13 (14.4)
9	14 (15.6)
10	12 (13.3)
11	14 (15.6)
12	9 (10.0)
Sex	
Male	48 (53.3)
Female	42 (46.7)
Number of Children in the Family	
1	28 (31.1)
2	30 (33.3)
3	25 (27.8)
4	5 (5.60)
>5	2 (2.20)
Transport	
Walk	10 (11.1)
Public transport	48 (53.3)
Own car	32 (35.6)
Eating Junk food per week	
0	4 (4.40)
1	23 (25.6)
2	34 (37.8)
3	15 (16.7)
4	11 (12.2)
≥5	3 (3.30)
Distance from Home to School	
< 3 km	45 (50.0)
3-8 km	40 (44.4)
> 8 km	5 (5.60)
Eating in front TV movies…. etc.	
Yes	65 (72.2)
No	25 (27.8)

For parents, it was revealed that the mother's ages ranged between 27 and 51 years (M = 31.47, SD = 7.676), while the father's ages ranged between 30 and 58 years (M = 38.27, SD = 6.272). About half of the parents had a diploma (n=45, 51.1%). Unfortunately, more than two-thirds of parents reported that they did not play any physical activity with their children (n=87, 96.6%). Table 2

Table 2. Parent's Demographic Data (N=90)

Variable	Mother's information	Father's information
Age Mother	**(Mean ±SD) 31.47 ±7.676**	**38.27 ±6.272**
Financial Status (USD)		
≤ 500		11 (12.2)
501-1000		60 (66.7)
> 1000		19 (21.1)
Education Level		
Secondary	13 (14.8)	04 (4.40)
Diploma	45 (51.1)	36 (40.0)

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Bachelor	24 (27.3)	40 (44.4)
Postgraduate	6 (6.80)	10 (11.2)
Do you buy your children Junk meals?		
Yes	85 (94.4)	89 (98.9)
No	5 (5.60)	01 (1.10)
Are you playing with your child or any physical activity?		
Yes	03 (4.40)	0 (0.00)
No	87 (96.6)	90 (100)

The pre-test results show that most students in the 1st group lacked awareness about healthy lifestyles (M=1.01, SD=0.31) whereas the most of students in the 2nd group had poor Knowledge about the adverse effects of cholesterol (M=1.02, SD=1.02). Furthermore, the pretest results showed the total score of the SPAN for the 1st group and the 2nd group (M=1.02, SD=0.38), and (M=1.29, SD=0.42), respectively. Immediate posttest results for the 2nd group were higher than the 1st group (M=3.66, SD=0.21) and (M=1.63, SD=0.47), respectively. In addition, the immediate post-test results show that the students in the 1st group lacked awareness about physical activities (M= 1.06, SD=0.39) while the students in the 2nd group lacked knowledge about complications of a sedentary lifestyle (M=3.46, SD=1.04). Table 3

Table 3. SPAN questionnaire for evaluating the level of awareness concerning physical activity and dietary knowledge among obese children

Items	1st Group		2nd Group	
	Students without parental support		Students with parental support	
	Pre-Test **M (SD)**	Immediate Post Test **M (SD)**	Pre-Test **M (SD)**	Immediate Post Test **M (SD)**
Knowledge about the significance of physical activity	1.31 (0.37)	1.67 (0.48)	1.21 (0.35)	3.71 (1.12)
Do you like a morning walk	1.53 (0.41)	1.98 (0.54)	1.54 (0.42)	3.64 (1.01)
Knowledge about complications of a sedentary lifestyle	1.04 (0.30)	1.62 (0.47)	1.33 (0.39)	3.46 (1.04)
Knowledge about adverse effects of cholesterol	1.31 (0.38)	2.02 (0.59)	1.02 (0.30)	3.62 (1.07)
Awareness about healthy lifestyles	1.01 (0.31)	1.81 (0.56)	1.51 (0.47)	3.51 (1.11)
Awareness about dietary plans	1.05 (0.57)	1.61 (0.43)	1.23 (0.37)	3.55 (1.62)
Awareness of physical activities	1.11 (0.41)	1.06 (0.39)	1.31(0.49)	3.99 (1.52)
Awareness about stress management	1.25 (0.33)	1.31 (0.35)	1.21 (0.32)	3.78 (1.03)
Total score	**1.20 (0.38)**	**1.63 (0.47)**	**1.29 (0.42)**	**3.657 (1.21)**

Additionally, the comparison of the pretest, immediate post-test, and delayed post-test results between 1st and 2nd groups revealed that there were statistically significant differences between the 1st group and the 2nd group (t (88) = 6.428, t (88) = 4.127, t (88) = 4.317, p = .001), respectively. The 1st group achieved a mean score of the pretest (M=45.66, SD= 6.618), posttest (M=51.45, SD= 7.514), and delayed posttest (M=43.78, SD=5.678). The 2nd

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group achieved a mean score of pretest, posttest, and delayed posttest of (M=44.78, SD= 6.515); (M=85.45, SD= 8.54); and (M=86.44, SD= 8.65), respectively. Table 4

Table 4. Independent t-test to compare differences of Pretest, Posttest, and Delayed Posttest between two groups

Variable	1st group Mean (SD)	2nd group Mean (SD)	t	p-value	95% CI Lower	Upper
Pretest	45.66 (6.62)	44.78 (6.52)	6.428	.001*	3.455	8.450
Immediate Posttest	51.45 (7.51)	85.45 (8.54)	4.127	.001*	4.255	7.457
Delayed posttest	43.78 (5.68)	86.44 (8.65)	4.317	.001*	3.155	7.487

* $p < 0.05$

5. Discussion

The result of this study found that most students in the 1st group and the 2nd group lack knowledge of dietary intake and physical activity. This result was consistent with a study conducted by (Bandyopadhyay, Maiti, Dasgupta, & Paul, 2017) who studied the impact of school-based nutrition awareness on the development of nutritional knowledge of school children in rural areas of West Medinipur district, and found that students lack nutrition awareness with a mean score 0.74. Another recent study conducted by (Kuhfeld et al., 2020) to evaluate the level of knowledge, attitude, and practices toward diet and health among international students in Dublin; found that more than 80% of the students had a lack of awareness regarding knowledge, attitude and practices towards diet and health.

Our study indicated that there were statistically significant differences between the 1st group and the 2nd group in mean scores on the pretest, post-test, and delayed post-test of a higher score in the post-test compared with the pre-test and immediately after the post-test. This finding was consistent with a study performed by (Cradock et al., 2019) who reported that involving parents during the intervention sessions increased awareness among students and parents regarding dietary knowledge, and assisted students to decrease their overweight and obesity. Other studies promoting healthy eating in school students have compared interventions with and without parent participation; interventions that involve parents at home show evidence of raised awareness in parental knowledge, modeling, efficacy, and having more healthy food at home and of positive changes in children's intake of sugar, fat and fiber (Franckle et al., 2015; Jones, Jewell, Saksena, Ramos Salas, & Breda, 2017). These data taken together indicate the need to establish practical means of involving parents in school-based physical activity and dietary programs.

On the other hand, a systematic review of parental engagement in an educational program to increase the awareness of dietary knowledge and physical activity interventions with primary students concluded that it was impossible to determine whether parental participation was effective in terms of further rises in students physical activity levels because of marked heterogeneity in methods (Waters, Lester, & Cross, 2014). The findings of this study could be explained by the fact that parents serve as the primary role models for their students. Additionally, parents encourage their kids to adopt healthy eating and exercise habits throughout childhood, parental influence is present, but it lessens towards puberty (Kipping, Jago, & Lawlor, 2012).

To support nurses in their crucial roles, nursing education should be founded on best practices and case studies supported by research. These findings could aid nurses in educating parents and students about the importance of early treatments in the fight against obesity. The study's findings also raise awareness among educators about the need to restrict access to sugar-sweetened beverages and unhealthy snacks to establish healthier learning environments in classrooms.

To measure normal BMI for all students and demonstrate early treatments for obese children, schools should establish a complete school physical activity program, School Health Guidelines to Promote Healthy Eating and Physical Activity, and a student body mass index screening program. Use schools as a hub to improve community wellness and health in addition to the aforementioned strategies. Students are more likely to learn

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about healthy eating if instructors and parents are encouraged to set an example for it. Additionally, the outcomes might enable the school to implement a better method of informing parents about the school-based intervention. To raise their level of involvement, encourage Jordanian schools to include parents in sports.

Limitations

The researcher encountered various constraints when gathering the data, including the limited sample size and the study's single-school design, which could cause issues with generalization. Additionally, the institution continued to sell unhealthy meals to students.

Conclusion

When it comes to nutritional choices for their children, sedentary habits, and physical activity, parents play a crucial role in raising the awareness level among students in school settings.

Acknowledgment

Conflict of Interest

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