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IMPACT OF NUTRITION EDUCATION ON KNOWLEDGE, ATTITUDE, AND PRACTICES (KAP) OF SCHOOL-AGE FEMALE ADOLESCENTS REGARDING PHYSICAL ACTIVITY

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ABSTRACT

Adolescents are not fond of outdoor activities or exercises, which becomes the issue of various health-related problems. Proper education regarding physical activity arranged for them is necessary to keep them healthy and active. A quasi-experimental study was conducted to educate school-going female adolescents about the importance and benefits of physical activity. Female adolescents from 10-15 years of age were selected by using a cluster-sampling technique. The sample size was 108 individuals. The study was conducted in two schools of Lahore, a government, and a private school. The study duration was six weeks. Data collection was done by self-structured questionnaire. The study had 3 phases, first pre-testing, and then interventional phase in which nutrition education was given to students, and after a one-week gap post-testing was done through the same questionnaire. A paired sample t-test was used to analyze data. There was a significant association (p=0.001) showed in results between pre- and post-knowledge, attitude, and practice (KAP) among school-age female adolescents. This study concluded that nutrition intervention has a positive impact on students. Schools should have a proper setup for teaching their students regarding the importance of physical activity and its sound effects on health for the betterment of the community.

KEYWORDS: Knowledge, Attitude, Practices, KAP, Nutrition Education, Physical Activity.

1. INTRODUCTION

Our skeletal muscles require energy to move, and they help our body in movements. For our daily activities and tasks, we need an active and healthy entity, a physically weak person, cannot work correctly and actively. A healthy body plays a vital role in brain efficiency in daily routine[1]. Adopting an active lifestyle can help to live a healthy life and prevents the risk of some major diseases such as cancers, heart diseases, diabetes mellitus, depression, and premature death[2].

Physical activity (PA) is not limited to some specific ages; it benefits people of all ages. It has been proved that physical activity improves the quality of life[3]. (Sun F,.et al, 2013)

According to the WHO guidelines and some countries have recommended that daily 60 minutes of moderate to vigorous activity and bone and muscle-strengthening exercises at least three times a week necessary for children[4]. Guidelines for primary school children include that a child's whole day should consist of 9 to 11 hours of sleep, 60 minutes for moderate to vigorous physical activity, 2 hours of screen time only, and very little time for sitting[5]. Quality of life increases and the chances of early death decreased for children who stay active regularly. PA not only affects physical health but also makes children psychologically healthy, reducing stress and depression in them[6]. There has been a positive relation shown between regular physical activity and cognition and the brain's function and neutral association with the school performance of children[7]. School is the place where children are all gathered together to learn and perform; some researchers have suggested that school is the most appropriate place for children to develop healthy habits along with their friends and classmates. In a school setting, children are regular and they are in large numbers; practices at a constant level are easy to adopt. Interventions developed in schools that involve PA practices bring out remarkable changes in children's health[8]. Now-a-days, children are more attracted to watching TV and playing online games. Neglecting physical activities from their daily routine, they are living an inactive lifestyle. Growing age needs exercise and activities for proper growth and development.

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CODEN: IJESS7

In times when they are inactive, the importance of studies that shows the positive influence of PA on physical and mental health is important[9]. Physical activity practices are not usual between girls and adolescents in Europe[10]. Khan K et al., conducted a study in Karachi, Pakistan, to carry out a relative study which included the school going adolescents of private and public schools of Karachi, Pakistan, to evaluate the nutritional status, faulty or healthy dietary practices and the physical activity including athletics in children. Anthropometric measurements of 100 girls and 101 boys were taken. These adolescent boys and girls were questioned and interviewed regarding their demographic status, levels of physical activity, frequency of physical activity (PA), and their nutritional conventions. The results showed that the waist and hip circumference ratio of adolescents in private schools was higher than the adolescents of public schools. Additionally, all the meals of private school-going adolescents were nutritionally healthy, dense, and affluent. Furthermore, skipping breakfast was a more frequent practice among adolescent girls than boys. Moreover, the parents of private school students were more educated with high socioeconomic status. There was a variety of types of physical activities for a private school student. They were better in terms of nutrition, way of living, and quality of food and were more physically active. Nonetheless, according to the national and international dietary guidelines of endorsed food servings, the students of private and public schools failed to meet these requirements[11].

2. MATERIALS AND METHODS

Subjects

The study included the subjects consisted of 108 female adolescents. Two schools were selected; one private school and one public school from Lahore, Pakistan. 54 girls were from the private school, and the rest of the sample size was taken from a government school by a cluster sampling technique. The age of the students from these schools were 10-15 years of age. All the female students participated in pre-assessment, post-assessment and other activities, lectures, and quizzes conducted to promote the importance of physical activity given by the nutrition educators.

Instruments

Questionnaire and Anthropometric measurements

Data collection was initiated by taking consent from the students by giving them consent forms along with permission from the school principals to conduct the research study. The questionnaire consisted of the socio-demographic data of the students including grade, age, gender, father's occupation, socio-economic status, residential status, the geographical region of the school, and anthropometric measurements as height, weight, age and BMI. The data was taken through standard instruments (weight machine, BMI calculator and measuring tape for height).

The other part of the questionnaire was the questions related to physical activity. The purpose was to assess the knowledge about the physical activity of the students. It consisted of 9 items based on their knowledge, attitude, practice regarding physical activity; including their knowledge about the importance of physical activity, preference of indoor games over outdoor games, intention to do exercise/workout daily, doing walk after eating a meal, walk in the evening, walk in the morning, likeness about sports, preference of doing exercise.

Activities, lectures, and brochures

After the questionnaire, to deliver the education of physical activity, lessons were formed. Lesson formation included the lessons that were made for the students and were delivered under the guidance of expert dietitians and with the suggestions of a supervisor. All the lectures were based on the importance of physical activity, the type of physical activity students should do, the time to do exercise. Three lectures were delivered weekly for four weeks. The duration of each lecture was an estimated 45 minutes. Lectures were delivered on PowerPoint, along with activities, and students were also given brochures at the end of every lecture.

3. RESULTS AND DISCUSSION

In **table no 1**, results showed that 35(32.4%) students knew the importance of physical activity before nutrition education, while 108(100%) students knew the importance of physical activity after the nutrition education was delivered.

ISSN: 2277-9655
Impact Factor: 5.164
CODEN: IJESS7

In **table no 2**, results showed that 74(68.5%) students preferred indoor games over outdoor games before nutrition education, and after nutrition education, 33(30.6%) students preferred indoor games. 54 (50%) students intended to exercise/workout daily before nutrition education was delivered; however, 83(76.9%) students intended to exercise/workout daily after nutrition education. Moreover, 49(45.4%) students intended to perform physical activity before nutrition education was delivered while after the delivery of nutrition education program, 94(87.0%) students intended to perform physical activity.

In **table no 3**, results showed that before nutrition education program, 17(15.7%) students were always going for a walk after eating, 52(48.1%) students were sometimes going for a walk after eating, and 39(36.1%) students never went for a walk after eating; whereas, after nutrition education, 48(44.4%) students were always going for a walk after eating, 53(49.1%) students were sometimes going for a walk after eating and 7(6.5%) students never went for a walk after eating. Furthermore, 11(10.2%) students were always going for an evening walk, 55(50.9%) students were sometimes going for an evening walk, and 42(38.9%) students never went for an evening walk before nutrition education; however, 38 (35.2%) students were always going for an evening walk, 61 (56.5%) were sometimes going for an evening walk, and 9 (8.3%) students never went for an evening walk after nutrition education program. Moreover, 16(14.9%) students were always going for a morning walk, 46(4.6%) students were sometimes going for a morning walk, and 46(42.6%) students never went for a morning walk before nutrition education; however, 24(22.2%) students were always going for a morning walk, 45(41.7%) were sometimes going for a morning walk and 39(36.1%) students never went for a morning walk after nutrition education program. Additionally, 13(12%) students were always doing exercise, 54(50%) students were sometimes doing exercise and 41(38%) students never did exercise before nutrition education program. In contrast, 26(24.1%) students started always doing exercise, 76(70.4%) students sometimes started to do exercise and 6(5.6%) students never did exercise after the nutrition education program. Likewise, 24(22.2%) students were always taking part in sports, 52(48.1%) students were sometimes taking part in sports and 32(29.6%) students never took part in sports before nutrition education, whereas 77(71.3%) students were always taking part in the sports, 26(24.1%) students were sometimes taking part in sports and 5(4.6%) students never took part in the sports after nutrition education.

In **table no 4**, results showed that there was a highly significant association (p=0.001) between pre and post-knowledge, pre and post-attitude (p=0.016) and pre and post-practices (p=0.001) of school-going students.

Likewise, Xu Fei determined a similar finding in 2016 regarding knowledge and physical activity improvement in 7th-grade students. According to the KAP (knowledge, attitude and practice) model, being aware of knowledge can help change related attitudes and lead to behavior change.[12] Another similar finding was done by Murang Z.R, in which 93% were aware of the importance and health benefits of physical activity and 46% of students although reported to have performed required physical activity but did not meet the recommended amount of physical activity. So, education about physical activity is essential for the sake of better performance of children.[13] Another study by Katzmarzyk (2017) revealed that the overall prevalence of meeting current physical activity was low in all age groups and genders. Nearly 27% of high school students met 60 minutes of moderate-to-vigorous activity on a regular basis .[14]

Moreover, a study in 2019 conducted for promoting physical activity on adolescents for health promotion. Physical education (PE) in schools is an essential factor in which participation in physical activity promoted to the students. A cluster-randomized control study was designed. Students received 12 weeks of training and physical education in which a 12-hour training program comprising necessary information about the importance of the physical activity. Physical education teachers from eleven schools applied the intervention program to students for one month in classes. Physical education was useful for all the students interested in promoting physical activity.[15] Another study conducted in 2016 concerning the practice of physical activity (PA), 98 percent considered it positive and favorable to maintain a healthy weight and 96% considered that being overweight affects health. 29% performed 30 minutes of physical activity thrice a week. It is vital to make efforts to encourage and promote the practice of physical activity in schools. Educational strategies focused on building knowledge and attitudes prevalent in the school population in order to make sure the success of educational interventions.[16] Current societies are affecting childhood experiences. In children time for outdoor play diminished and contribution towards more sedentary lifestyles increased. It is necessary to recognize the importance of outdoor play for better health growth of young children. A study conducted in 2017, a project was designed for exploration

ISSN: 2277-9655
Impact Factor: 5.164
CODEN: IJESS7

of the outdoor activities in young children of Portugal. The main aim was to transform indoor activities to an outdoor environment by educational strategies.[17] A cross sectional study was conducted in 2012 using a randomized sampling technique to collect data. The majority of children commuted actively to school and contributed on average 35.5 minuites.[18] Another parameter related to physical activity was seen by the study conducted in 2017. It revealed that low physical activity has been associated with childhood obesity. By comparing BMI and physical activity level it was concluded that to promote active lifestyle among children, it is important to focus not only on high level of physical activity but also reduction in sedentary behaviors.[19]

Tables

Table 1: Frequency distribution of knowledge about physical activity

Sr. No.	Question	Pre		Post	
		Yes	No	Yes	No
1.	Do you know about the importance of physical activity?	35 (32.4%)	73 (67.6%)	108 (100%)	0 (0%)
2.	Do you know about the importance of physical activity?	35 (32.4%)	73 (67.6%)	108 (100%)	0 (0%)

Table 2: Frequency distribution of attitude-based questions toward physical activity

Sr no.	Questions	Pre		Post	
		Yes	no	Yes	no
1.	Do you prefer indoor games over outdoor games?	74 (68.5%)	34 (31.5%)	33 (30.6%)	75 (69.4%)
2.	Do you intend to exercise/workout daily?	54 (50.0%)	54 (50.0%)	83 (76.9%)	25 (23.1%)
3.	Do you intend to do physical activity daily?	49 (45.4%)	59 (54.6%)	94 (87.0%)	14 (13.0%)

Table 3: Frequency distribution of practice-based questions about physical activity

Sr no.	Questions	Pre-test n(%)			Post-test n(%)		
		Always	Sometimes	Never	Always	Sometimes	Never
1.	Do you go for a walk after eating meal?	17 (15.7%)	52 (48.1%)	39 (36.1%)	48 (44.4%)	53 (49.1%)	7 (6.5%)
2.	Do you go for a walk in the evening?	11 (10.2%)	55 (50.9%)	42 (38.9%)	38 (35.2%)	61 (56.5%)	9 (8.3%)
3.	Do you go for a walk in the morning?	16 (14.9%)	46 (42.6%)	46 (42.6%)	24 (22.2%)	45 (41.7%)	39 (36.1%)
4.	Do you exercise?	13 (12.0%)	54 (50.0%)	41 (38.0%)	26 (24.1%)	76 (70.4%)	6 (5.6%)
5.	Do you like sports?	24 (22.2%)	52 (48.1%)	32 (29.6%)	77 (71.3%)	26 (24.1%)	5 (4.6%)

ISSN: 2277-9655
Impact Factor: 5.164
CODEN: IJESS7

Table 4: Results of pre and post knowledge, attitude and practices of physical activity

Paired sample *t*-test						
Sr no.	**Variables**	**N**	**Mean value**	**Standard deviation**	**t**	**Sig. P-value**
1.	**Knowledge**					
	Pre knowledge	108	.3241	.47021	-14.939	0.001
	Post knowledge	108	1.0000	.00000		
2.	**Attitude**					
	Pre attitude	108	1.6389	1.15571	-2.442	0.016
	Post attitude	108	1.9444	.75916		
3.	**Practice**					
	Pre practice	108	10.0278	2.14196	5.653	0.001
	Post practice	108	8.6389	1.76391		

Paired sample T-test						
Sr no.	**Variables**	**N**	**Mean**	**Standard deviation**	**t**	**Sig. P-value**
1.	**Pre-test**	108	15.7870	2.98611	-3.700	0.000
	Post-test	108	17.0000	2.69648		

4. CONCLUSION

The study concluded that physical activity plays an important role on health of adolescents but lack of knowledge about physical activity was the major reason behind unhealthy and sedentary lifestyle. Education regarding physical activity improved the lifestyle of school-going adolescents. Knowledge, attitude and practices regarding physical activity has a significant association with education. Hence, it is proved that modification regarding physical activity had a positive impact on the school-going adolescents.

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ISSN: 2277-9655
Impact Factor: 5.164
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