

A Comparative Analysis of Nutrition Education Intervention on Food Choices of Public and Private Preschool Children in Lahore, Pakistan

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ABSTRACT

Introduction: It is a general public health concern that unhealthy food choices among preschool children are contributing to double burden of malnutrition. Nutrition education in schools plays an important role in shaping child's food choices and ultimately health and performance. **Objective:** The objective of the study was to assess and compare the effect of nutrition education on food choices in public and private preschool children. It also aimed at dissemination of information on healthy food choices. **Methods:** A Quasi-experimental research technique was used to collect data from two conveniently selected schools; one private and one public school. A sample of 50 (25 participants each), aged 4-7 years old was selected through convenience sampling. An activity based pretest was designed according to cognition and skills of the age group. Intervention was given on 3 alternate days and consisted of, lectures, visual aids, reinforcement activity, worksheets, take home exercises and pamphlets developed through review of literature. For comparison paired sample t-test was used, at 95% confidence interval and a p-value less than 0.05 was taken as significant. The data was analyzed by using Statistical Package of Social Sciences (SPSS) version 17. **Results:** The mean age of the participants was 5.720 years (± 0.701) and 64% were females. In the pretest the mean score of private school children was 5.800 (± 2.179) which increased to 9.280 (± 1.696) in the posttest ($t = -8.781$, $p = 0.001^*$, $CI = -4.298 - -2.662$). Among the children of public school mean pretest score was 5.080 (± 3.148) which increased to 11.360 (± 1.800) in the posttest ($t = -9.908$, $p = 0.001^*$, $CI = -7.588 - -4.972$). **Conclusion:** It was concluded that nutrition education significantly increases nutritional knowledge of preschool children regarding healthy food choices. Public school children retained more knowledge at posttest. There is an urgent need to target children at early age to improve health of the nation.

Key words: preschool children, food choices, healthy, knowledge.

INTRODUCTION

Many studies have shown that healthy eating habits developed early in life will shape into healthy eating practices as an adult. Making informed food choices is an integral part of a child's normal growth and development. Nutrition education in schools plays an important role in shaping child's food choices and ultimately health and performance¹. The link between diet and chronic disease has long been recognized² and, as a

result, nutrition education has become a necessary and important part of Personal Development, Health and Physical Education³. Nutrition education has been defined as "any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food and nutrition-related behaviors conducive to health and well-being; nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels⁴.

With the help of nutrition education children

can recognize the difference between nutritious foods and unhealthy foods and can be mindful of the importance of eating a well-balanced, nutritious diet through educational activities. This will lead them to live a long and healthy life. Effect of nutrition education on nutrition knowledge has been previously assessed among elementary and middle school children^{5, 6}; yet preschool children have not been subjected to such intervention. Thus the current study was designed with the aim to assess and compare the effect of nutrition education on food choices in public and private preschool children. It also aimed at dissemination of information on healthy food choices.

METHODS

Study Design & Settings

This study was a Quasi-experimental research. A pretest, intervention and posttest technique was employed without a control group. To compare effect of socio demographic variables two schools were purposefully selected; one private sector English medium school and one public sector English medium school. The study was carried out in April 2016.

Sample

All the preschool children in Lahore city constituted the population of the study. The sample was drawn from two schools by conveniently selecting cluster of 25 students each (total 50). The age groups of participants were 4 to 7 years.

Instrument

An activity based pre-test was developed by the researcher according to cognition, understanding and interest level of the students. The students were asked to write their names, age and class on it. It consisted of pictures of 12 food items including healthy and unhealthy food items. The students were asked to circle the healthy food and cross the unhealthy food pictures. Same activity was administered as posttest after intervention.

Interventions

As intervention lecture method was used with interactive techniques. The topics included in

lessons were 5 food groups and foods included in each group, functions of food groups, how to eat a balanced diet, junk foods. Reinforcement worksheets were based on healthy grocery shopping basket and functions of five food groups. Visual aids and flashcards were shown to students and they were asked to separate healthy foods. Take home exercises and pamphlets were distributed among the students.

Data Collection Procedure

The intervention and data collection was completed within fortnight in each school. After pretest, intervention was given on 3 alternate days and posttest at the end.

Ethical Considerations

Ethical approval was obtained from Departmental Review Board of University of South Asia. The objective and methods of intervention was explained to the Principal and written permission was obtained.

Data Analysis

For comparison of scores of private and public school children paired sample t-test was used, at 95% confidence interval. A p values less than 0.05 was taken as significant. The data was analyzed by using statistical package of social sciences (SPSS) version 17.

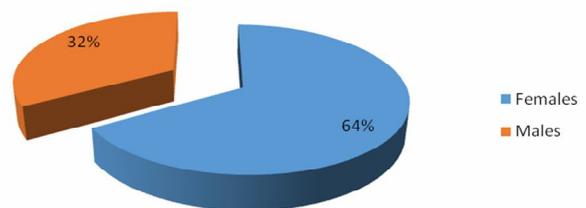


Fig 1 Distribution of Gender

RESULTS

The design of this research was Quasi-experimental which is an empirical study used to estimate the causal impact of an intervention on its target population. Figure 1 illustrates the distribution of gender in the study. There were more

female participants (n=32, 64%) than male participants (n=18, 36%). Table 1 shows that mean age in both schools was same i.e. 5.72 years but SD was higher in public school than private school. Table 2 shows the scores on pre-test & post-test of participants of both schools. Pretest scores were somewhat similar yet public school participants scored relatively higher on posttest (11.360 vs. 9.280). The comparison of mean scores is given in Table 3 which was found to be statistically significant (p-value less than 0.05).

Table 1: Descriptive statistics of age (years).

	MEAN	S.D
Private school	5.72	0.541
Public school	5.72	0.842
Overall	5.72	0.701

Table 2: Scores of pre-test and post-test in private school and public school.

Scores		MEAN	S.D
Pretest	Private school	5.8	2.179
	Public school	5.08	3.148
	Overall	5.44	2.704
Posttest	Private school	9.28	1.696
	Public school	11.36	1.800
	Overall	10.32	2.024

Table 3: Comparison of mean scores in private school and public school.

	t	p-value	95% CI
Private school	-8.781	0.001*	-4.298 -- -2.662
Public school	-9.908	0.001*	-7.588 -- -4.972
Overall	-11.604	0.001*	-5.725 -- -4.034

DISCUSSION

Nutrition education has three components: providing information (through communications strategies e.g. information campaigns, dietary advice in health service settings), providing skills that enable consumers to act on the information provided (e.g. cookery, growing), and providing an enabling food environment (e.g. marketing to children, making different foods available)⁴. In the current

study, only knowledge was imparted through interactive activities; skills and enabling environment could not be provided due to shortage of time and resources. Most of participants in this study were female, whereas ratio of male participants was low (36%); this shows that fewer male children are enrolled in schools. But this result negate the Pakistan Education Statistics, 2014-15 (PES) report released by National Education Management Information System (NEMIS) that female enrolment is lower (44%) compared to male enrolment at 56%⁷.

In general the program was well received by the participants and the teachers. It is evident from the pretest results that the participants from private school fared slightly better than the public school. The main reason for this variance could be that they come from well off families, so they can recognize the food items shown in pretest and also have a slightly better understanding of healthy and junk food.

In a previous study, Nutrition Curriculum delivered by trained professionals resulted in significant positive changes in both nutrition knowledge and behaviors in middle school children⁶. In the current study the educators were post graduate students of nutrition and trained in nutrition education and counseling. It is apparent from the results of the study that most of the participants performed better in the posttest as compared to pretest. This shows that the participants gained more insight into the junk and healthy food and thus they enriched themselves with the knowledge of nutritious food.

In an elementary school in Korea it was found that after nutrition education through discretionary activities by a dietitian, nutritional knowledge of 4th-grade students showed improvement by 24.3points (p<0.001), 5th-grade ones by 18.0 (p<0.001), and 6th-grade ones by 16.7 (p<0.001). It was concluded that nutrition education should be executed from early age. It is necessary to define the goals of systematic nutrition education fit for children's level and to develop various education programs and teaching materials⁵. The participants of public school scored better in post-test as compared to the participants of private school. As they scored less in pretest they made an attempt to

memorize concepts during intervention and the students of public schools are used to rote memory of concepts.

Although young children especially preschoolers cannot be expected to make food choices but the current study increased their nutrition knowledge considerably. Healthy eating habits should be developed in early years when habits are still being formed⁸. Therefore there is an urgent need for nutrition education interventions among preschoolers and primary years for promotion of healthy eating habits. Since most children spend most of their time in school, school-based nutrition education can be employed to engage children in healthy eating programs.

CONCLUSION

It was concluded from this study that nutrition education significantly increases nutritional knowledge of healthy food choices among preschool children. Public school participants retained more knowledge at posttest than private school participants. Nutrition and health education should be made a part of curriculum to improve the dietary habits and health of the nation.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions:

AS, AJ, SSW and SN conceived the study. SN developed the interventions. SSW and SN executed the intervention and collected data. AS, AJ and SSW analyzed the data and drafted the manuscript. AS and AJ reviewed and edited the final manuscript. All authors approved the final draft for submission.

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