THE EFFECTS OF THE PARENT TRAINING PROGRAM FOR OBESITY REDUCTION ON CHILD HEALTH BEHAVIORS OF PRE-SCHOOL CHILDREN

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Abstract- This Research aims to study the effects of the Parent Training Program for Obesity Reduction (PTPOR) on child health behaviors of pre-school children at the Samut-Songkhram kindergarten school, Samut-Songkhram province, Thailand. The objective of this research is to evaluate the effectiveness of the PTPOR on child health behaviors of the pre-school children. The conceptual framework of this study is developed on the basis of the Ecological Systems Theory (EST). This research is a quasi-experimental study. Participants were pre-school overweight and obese children and their parents. Forty one parent-child dyads were recruited into the program. Parents participated in two sessions including an educational session and a group discussion session. Research methodology uses Paired-Samples t-test to determine the difference between groups in the mean scores of the outcome variables of the children and parents. The research results show that there was no significant difference between child exercise health behaviors mean score at the baseline and finishing the program at the .05 level; however, mean score of the child exercise behavior was increase after finishing the program. Meanwhile, there was significant difference between child dietary health behavior mean score at the baseline and finishing the program at the .01 level ($p = .001$), mean score of the child dietary was increase after finishing the program.

Keywords- PTPOR, Child Exercise Behavior, Child Dietary Behavior, Pre-School Children.

I. INTRODUCTION

The prevalence of obesity in children has been increasing throughout the world. According in Thailand, obesity in Thai children has doubled in the past two decades. There have been several surveys and studies on overweight and obese children in Thailand. Data from two consecutive National Health Examination Surveys (NHES) have shown an increase, from 5.8% in 1997 to 7.9% in 2001, for overweight and obesity in pre-school children. There were increasing 36% within five years using the reference of the Thai growth grid of child weight for the height norms for each gender [1].The results of the 5th National Nutrition Survey also indicated that 15% of children in Bangkok were overweight or obese [23].

There are many causes of obesity n children. Literature reviews have shown that childhood obesity is strongly related to risk factors for cardiovascular disease, hypertension, diabetes, orthopedic problems, and mental disorders [13], [25], [26]. Furthermore, obesity is related to many consequences [5], [9].Obesity in children results from an energy imbalance, which involves eating an excess of calories and not getting enough physical activity. There are many risk factors that contribute to obesity such as genetic and behavioral factors [16], [17], [20]. The genetic risk factor is individual child affect obesity; however, an inappropriate behavior is the main factor in the development of overweight and obesity in children. Studies have shown the causes that influence obesity in children, including increased sedentary behavior, time spent watching television, eating unhealthy food, and lack of appropriate physical activity [3], [5], [7]. In Thailand, studies found that Thai obese children watched television more than three hours per day [21].Moreover, the eating patterns of Thai children that live in urban areas have changed with an increase in consumption of sugar, protein, and fast food, and fewer vegetables and fruits [4], [5]. Mostly unhealthy child behaviors arise from the unsuitable child rearing practices of their parents, such as preparing child food, feeding strategies, and role modeling behaviors [5], [14]. Interestingly, data from survey research found that there was significant relationship between food consumption behavior and nutritional status of children in Samut-songkhram province [24].

From review of research studies though the past ten years, parental involvement was play major role in the management of child obesity [11], [12], [18],[22]. Therefore, the author conducted a parent training program for obesity reduction of pre-school children at the Samut-Songkhram kindergarten school. The conceptual framework of this study is developed on the basis of the Ecological Systems Theory (EST) to obesity [6]. Not only the individual factors associated with child weight status, but also other factors such as family characteristics and parenting styles. Beside, this program was developed by using an Evidence-Based Practice (EBP) technique for overweight and obese children appropriate in the Thai context. Components of this program consisted of enhancing parental knowledge and group discussion to improve their child-rearing and changing parents' behavior. The outcome of this study was health behaviors of pre-school children including exercise and dietary behaviors. .

II. DETAILS EXPERIMENTAL

This study used a quasi-experimental design was used to examine the effect of the Parent Training Program for Obesity Reduction (PTPOR) on pre-school child exercise and dietary behaviors. Research methodology uses Paired-Samples t-test to determine the difference between groups in the mean scores of the outcome variables of the children. The participants of this study were the overweight and obese school-age children between the ages of 5 and 6 and their parents at the Samut-Songkhram kindergarten school in Samut-Songkhram province (sub-urban area) who met the inclusion criteria according to a Thai growth grid of child weight for the height norms for each gender [2]. Forty one parent-child dyads participated in the program. Parents participated in two sessions including an educational session and a group discussion session.

The instruments of the study was child instrument including the child health behavior questionnaire (CHBQ) measured the physical activity behavior and dietary behavior of children. It was developed by the researcher as well as parental instruments composed of behavior modification handbook, child obese pamphlet, and demographic questionnaire.

2.1 The Parental Training Program for Obesity Reduction (PTPOR)

2.1.1 Parental educational session

During the first week of the program, parents were participated in a 60-minute educational session given by the lecturer who expert in nutrition. Parents were taught about the causes and effects of obesity in children, the food guide pyramid, healthy diets, reading food labels when shopping, and healthy eating. Moreover, parents were advised about physical activity, sedentary habits, and the advantages of increasing physical activity and decreasing sedentary behavior.

2.1.2 Health management group discussion

During the second week of the program, parents discussed the goals for reducing their child's weight for 60 minutes. A group discussion addressed parenting styles, barrier identification, problem solving, and positive reinforcement techniques for meeting parents' goals. During these sessions, parents were provided with two work sheets. The first was a self-care experience sheet for parents to record details about the positive effects, barriers, and problems they experienced in implementing changes in diet and activities with their children. The second was a health modification sheet that had details about setting goals and a time table of their child's weight reduction.

2.2 Measurement Validity and Reliability

The Child Health Behavior Questionnaire (CHBQ) was developed by the researcher based on the literature review. The CHBQ was composed of two parts: exercise behaviors and dietary behaviors. The exercise behavior questions assessed the physical activity and sedentary behaviors of children. An 8-point Likert-scale and a 9-item questionnaire yielded scores ranging from 9 to 72. The Scale-Level Content Validity Index (S-CVI) of this questionnaire was 1.0 and the Item-Level Content Validity (I-CVI) for each scale was 1.0. The Cronbach's alpha was calculated to test internal consistency and the total scale was .54. Meanwhile, the dietary behavior questionnaires assessed the consumption patterns of the children. An 8-point Likert-scale and a 7-item questionnaire yielded scores ranging from 7 to 56. The Scale-Level Content Validity Index (S-CVI) of this questionnaire was 1.0 and the Item-Level Content Validity (I-CVI) for each scale was 1.0. The Cronbach's alpha was calculated to test internal consistency and the total scale was .64.

2.3 Data Collection and Protection of Human Participants

Before conducting the program, each parent received documents, including a behavior modification handbook and a child obesity pamphlet. The researcher discussed the details and the objectives of the program with the participants by inviting mails. Furthermore, all documents were sent through the teachers. At the first week, parents completed the questionnaires; the parents completed the demographic and the child health behavior questionnaire (CHBQ). Meanwhile their children were assessed for anthropometric outcome data by measuring height, weight, and waist circumference. At the 6th week after finishing the program, parents completed the questionnaires and sent the questionnaires with their children through their teacher. Meanwhile, the children were assessed for anthropometric measures by two research assistants.

Eligible parents were invited to participate in the study and the researcher contacted them in writing and by telephone. The researcher explained the purpose and processes of this study and then the participants were asked to sign an informed consent from. The children also were asked to provide assent. The parents received a brief written copy of this study. All data of the participants were kept confidential, and there were no financial incentives.

2.4 Data Analysis

The data were analyzed using the SPSS/PC for Windows program. Descriptive statistics (percentage, mean, and standard deviation) were used to describe the parents' and children's demographic variables, and the health behavior of the children. Paired-Samples t-test was used to determine the difference between groups in the mean scores of the outcome

variables of the health behaviors (exercise and dietary behaviors).

III. RESULTS AND DISCUSSION

3.1 Results

The research results were presented in 3 sections comprises of the characteristics of the participants, the child exercise behavior, and child dietary behaviors respectively.

3.1.1 Characteristics of the participants

There were 41 parent-child dyads joined in the program. The majority of parents were mothers (80.5%), more than half of parents were in the 36 to 45 year-old age range (53.7%). Father and mother in this group lived with together more than 70 percent. The majority of parents completed a bachelor degree (31.7%) and they were the employees of private companies, merchant, and house keeper (24.4%). About half of parents reported they earned income between 10,001 and 20,000 baht (29.3%). Nearly sixty percent of children in the study were male (n = 24). The majority of child age was 6 years and more than half of them were the first child of their families (65.8%).

3.1.2 Child exercise behaviors

Data were analyzed using a Paired-Sample t-test to determine the difference between groups in the mean scores of the outcome variables of the children were reported as follow:

Table1: t-test Result Comparing Pre and Post Program on Exercise Behavior of Pre-School Children

Exercise behavior	N	Mean	S.D.	t	Sig.
Baseline	41	26.73	10.09	-1.31	.198
Finishing the program	41	29.12	9.35		

P>.05

As reported in Table 1, there was no significant difference between child exercise health behavior mean score at the baseline and finishing the program at the .05 level; however, mean score of the child exercise behavior was increase after finishing the program.

3.1.3 Child dietary behavior

Table2: t-test Result Comparing Pre and Post Program on Dietary Behavior of Pre-School Children

Dietary behavior	N	Mean	S.D.	t	Sig.
Baseline	41	27.07	10.33	-3.62**	.001
Finishing the program	41	31.54	8.07		

**p< .01

As reported in Table 2, there was significant difference between child dietary health behavior mean score at the baseline and finishing the program at the .01 level (p = .001), mean score of the child dietary was increase after finishing the program.

3.2 Discussion

The effectiveness of the PTPOR in the child outcome variables after finishing the PTPOR, it were found that mean scores of the child exercise and dietary behaviors at baseline were increase after finishing the program. Moreover, mean scores of the child waist circumference at baseline was decrease after finishing the program. These positive findings may be due to several possible explanations. First, in the educational session, parent received knowledge about the causes and effects of obesity in children, the food guide pyramid, healthy diets, reading food labels when shopping, and healthy eating. Furthermore, parents were advised about the advantages of increasing physical activity and decreasing sedentary behavior. Second, in the group discussion session, parents who have the same problem joined together. They discussed about their child problems together and shared their experience. Some parents got the new ideas after the meeting for reducing their child's weight. Parents may be role models in practicing physical activities such as jogging, aerobic exercise, and swimming 3 to 5 times per week. Parents may be role models in healthy eating behavior [23]. Parents might directly influence their children's eating styles with regard to the types of food consumed, how, where, and at what speed it is eaten. These reasons probably influenced child attitude towards physical activity which may lead to an increase in physical activity as well as may influence child attitude towards healthy eating behavior which may lead to an increase in healthy eating behavior. These findings were consistent with the previous studies [10], [12], [19].

The suggestions of this study included the program issue and the instrument weak. First, the dose of the program may be important for achieving a positive outcome [27]. The researcher conducted the 2-week PTPOR that incorporated 2 activities for the program, including 60-minute parental education session and 60-minute health management group discussion. Many researchers implemented 20 or more contacts or sessions for their interventions and the results were positive for both parents and child outcomes [10], [12], [15]. However, many activities or does of the intervention may consume the high costs such as the training and transportation. Recommendations for further studies are to investigate the effect per hour of the intervention and to add more group sessions to introduce new content or to reinforce content appropriately. Second, the researcher developed the new questionnaires to evaluate the child health behaviors, the child health behavior questionnaire

(CHBQ). The questionnaires were piloted with 30 families and revised the questionnaire. The items of these questionnaires had about 7 and 9 items. The reliabilities of these instruments were medium to good level (alphas = .65 and .75) that based on the Cronbach's alpha accepted rule of thumb [14]. Since a few items of the questionnaires that may affect the reliability of each questionnaire. For future studies, this may require the other standard tools that have high levels of validity and reliability or modify previous instruments to reach higher alphas.

ACKNOWLEDGMENTS

The author thanks the SuanSunandhaRatjabhat University, who supported the scholarship to present an oral presentation.

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