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THE RELAXED EDUCATION FOR GAINING HEALTHY BEHAVIOURS AMONG PRESCHOOL CHILDREN

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Abstract

Obesity in children is likely to persist into adulthood and predisposes children to have diabetes, sleep apnoea and cardiovascular disease. Hence, this specific program namely, 'Prevention of Obesity Program, (Henceforth; MyPObes-PaF)' was developed to identify the effectiveness in preventing obesity among young children. In this quasi-experimental study, two workplace kindergartens were randomized into intervention and control group. MyPObes-PaF program was implemented as relaxed education approach in the intervention group, which consisted of dietary and physical activity module while for the control group, they followed the kindergarten's daily routine without this program being introduced. Pre and post-test using questionnaire of the Dietary Recall and Physical Activity Diary were conducted for over 3 months' period. The study findings showed that children had been an increased in the health knowledge during the post-test through improvements on dietary ($p<0.05$) and physical activity ($p<0.05$) patterns that reflects healthy practice, which children preferred eating healthy and balanced diet as well as active and organized in doing physical activity in experiment group compared to control group. As conclusion, the relaxed education approach is proven as a driver for gaining health knowledge and healthy behaviors practice among preschool children. Indirectly it is evidence of the effectiveness of the implementation of MyPObes-PaF program to educate health to children. Therefore it is recommended to be implemented in kindergarten's syllabus module as it is effective in providing health knowledge and practice on healthy behavior as well as the relaxed education approach is the best suit to teach young children on health.

Keywords: Children obesity, diet, physical activity.

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1. Introduction

Healthy lifestyle is important in human being including children. Child health is a state of physical, mental, intellectual, social and emotional well-being and not merely the absence of disease or infirmity. Healthy children live in families, environments, and communities that provide them with the opportunity to reach developmental potential. However, nowadays childhood obesity has been a rising health issue whereby the National Health Morbidity Survey 2015 stated that more than 7% of children in Malaysia with age less than 5 years old had been identified overweight. Fact proved that overweight and obesity have a relation with the increasing risk of cardiovascular disease, orthopaedic problems and also psychosocial problems (Lembaga Promosi Kesihatan Malaysia, 2013), as caused of short life expectancy and reduce work productivity in future (Whitaker, Wright, Pepe, Seidel, & Dietz, 2007; Zulkifli, 2011). Obese children are usually inactive and suffer from a disease (Chee, Ismail, & Ng, 2008; Ismail Noor, 2010), whom at risk of being obesity in adult stages with multi-risk of chronic diseases such as hypertension, heart disease, gout, cancer, diabetes and osteoporosis (Buletin Kesihatan, 2010).

The issue of childhood obesity and the increasing risk of getting multiple chronic diseases are influenced by the factor that children are highly exposed to variety of fast food that are easy to buy in shops surrounding their area. Children prefer to eat sweetened food like chocolate or sweets and they choose to drink carbonated drinks such as coke instead of drinking plain water, eating less fruit and vegetables, and not taking breakfast (Siti Zarinah, 2013). Baranowski, Cullen, Nicklas, Thompson, & Baranowski (2003) stated that children take fewer amounts of fruits and vegetables and if they take it, the quantity was not enough for them. American Dietetic Association showed, there is significant negative relation between consuming fruits and vegetables with adipose tissues. This showed that the quantity of eating fruits and vegetables was related with childhood obesity. The queries arise, is this behavioral practice good for children's health? This practice is not a healthy behavior because it contributes to obesity in children which requires concern in general citizen and immediate suggestion for action in form of nurturing that can be guided, practiced and implementation of healthy lifestyle especially for young children (Dennison, Russo, Burdick, & Jenkins, 2014; Fitzgibbon, Stolley, Schiffer, Horn, & Kaufer Christoffel, 2005; Gortmaker et al., 2010).

Not only in the aspect of dietary intake, children are highly exposed to a variety of unhealthy activities such as computer games, remote car control, Play Station, Gameboy or brick games. Nowadays, the most popular gadget that attracts children the most is smartphones, tablet and iPad. The issues arise on physical inactivity whereby this correlates with previous study that stated many children in pre-school who are obese were among children who do not do physical activities such as being physically inactive, spending long hours of watching television or computer, playing video games, and consuming unhealthy food. Besides, several studies found that there is significant difference on amount of time watching television (Maziah & Saemah, 2014; Taveras et al., 2006; Lumeng, Rahnama, Appugliese, Kaciroti, & Bradley, 2006), and taking healthy food and balanced meals (Prelip, Slusser, Thai, Kinsler, & Erausquin, 2011; Klepp et al., 2005) with children's BMI between before and after the intervention of health program. Thus, this shows the importance of early exposure of health education towards children which can create awareness to them on salient and good health practices since young that at the same time, able to curb them from obesity in present and in future.

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Health Education for Children

In critically review of the previous studies, there were a few modules for obesity prevention done among children. However, there was no specific health module have been developed in Malaysia. Most of the modules found were conducted in overseas. For example: one of the modules is Mind, Exercise, Nutrition, Do it (called as MEND) program. The programme developed by Sacher et al. (2010) state that MEND program is a multicomponent community-based on childhood obesity intervention program in which it is comprised of educational aspect, physical and lifestyle. This program requires parents to participate actively with their children. Sacher et al. (2010) also stated in their study that the participation in MEND program was found in reduction of BMI and waist circumference, improvement in blood pressure, recovery heart rate, physical activity level, global self-esteem and sedentary activities after 6 months. This has proven that a module comprised of more than one aspect is an effective intervention to overcome childhood obesity.

In the context of providing an appropriate learning environment for children, the most important aspect that needs attention is to understand and make sense of the world around them so that a friendly-communicative setting can be established, and they can learn without any coercion. Reviews of literature showed that preparation towards a 'child-friendly' environment is one of the strategies in learning processes that is considered to meet the nature and emotions of the children. 'Child-friendly' is defined as situations, places, or events that have special features those children love, and appropriate to them (Jo, Penny, & Allison, 2007). According to Broberg, Kytta, & Fagerholm (2013), ‘child-friendly' is characterized by special facilities that can meet the needs of the children, and the facilities will encourage and facilitate the learning process. It corresponds with the need to provide an attractive environment for the children which acts as a stimulus in keeping them active and healthy without obesity. This concept of 'child-friendly' environment may also important to reflect our effort to develop stimulating strategies in promoting and delivering health knowledge as well as an effort to prevent obesity among children. Previous studies have found that 'the concept of child-friendly' setting has a positive impact on the world and the surrounding environment of the children. These children show a good reaction when they are in an environment that meets their senses and desires, for instance, having exposure to exciting and fun features of using children's cartoon illustration, animated images, programming language, children's play-based activities, physical space (playroom), which is not complex and secured, and has attractive facilities to be used for them (Jo et al., 2007; Broberg et al., 2013).

As a result, MyPObes-PaF has been developed for Malaysian context to curb the rising issue of childhood obesity as well as creating awareness and motivation among children towards healthy behavior practice. MyPObes-PaF is a health educational program which is newly developed based on context and culture of children in Malaysia to prevent obesity. This programme contains of physical activity and diet component using “relaxed education” concept which is similar and inspired by the child-friendly concept as in literature reviews, which was expected the approach assisting in delivering knowledge on prevention of obesity through creating self-motivation among children to learn about health, then able to practice healthy behavior in their routines life, as well as maintaining the level of BMI which may be less than 85 percentile (Maziah & Saemah, 2017).

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Besides, expectation of outcome is the assessment of knowledge and behavior in which the researchers expected those children who follow MyPObes-PaF programme will show an increase in their health knowledge and motivation towards healthy behavioral practice. However, there are still doubts on the effectiveness of this programme in curbing obesity that can give positive impact towards the health of the children in Malaysia. The question arises on how far this programme is able to stimulate the interest of learning about health and prevent obesity among children in Malaysia? How can it give positive impact on compliance of healthy behavior practice among children in Malaysia? This situation showed the importance of conducting quasi experimental study on several workplace kindergartens which aims to investigate the effectiveness of this program on preventing obesity in childhood population in Malaysia, focusing on the age of 4 to 6 years old.

2. Methods

This study is a quasi-experimental that uses pre-and post-test. The independent variable is the approach of teaching and learning given to children in experiment group while the dependent variable is health education which is measured using the frequent of health behavior practiced and the amount of health knowledge gained that is based on two main components i.e. diet and physical activity.

2.1. Sample

The study sample involves of children at the age of 4 to 6 years at two workplaces kindergartens in Kuala Lumpur and Selangor. A total of 63 children were participated in this study. They were selected using purpose random sampling and were divided two groups, i.e. 33 in the experiment group and 30 in the control group. Children in the experiment group were given health education while the control group did not receive any health education or intervention.

2.2. The Intervention

Children in the experiment group underwent one hour's programme before morning class within three times a week which was conducted for three months. The MyPObes-PaF programme comprises of two main components as module which teach and nurture children's ability to practice healthy behavior on its own with higher knowledge on health. The programme emphasized by the researchers is:

- Free session: drinking milk and eat fruits
- Stretching session (2 minutes)
- Aerobic/ game session (45 minutes)
- Stretching session (2 minutes)
- Drinking plain water session (5 minutes)
- Health education session (5 minutes) regarding:
    - Diet component: Introduction to Healthy Diet, Balanced Diet according to Food Pyramid, Diet Pattern from Morning to Night and Important of Healthy and Balance Diet
    - Physical Activity component: Introduction to Active Activity, Organized Physical Activity, Physical Activity Pyramid, Physical Activity Pattern from Morning to Evening and Important of Active and Organized Physical Activity.

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- Quiz session (1 minutes)
- Relaxing Homework

During MyPObes-PaF implemented, relaxed education approach i.e colourful PowerPoint, colourful picture cards, food models, nursery rhymes, animated aerobic videos, healthy "dam ular" and stories telling is uses for each sessions in the programme.

Pre-tests were administered to both groups before the programme was began while post-tests were administered to both groups to measure frequency of health behavior that children were able to practice as well as to measure amounts of ideas on health knowledge that children were able to produce through build positive attitudes towards health, as evaluated based on parents' report regarding diet and physical activity patterns of children in their daily routine.

2.3. Research Instruments

The instrument used in this study is the Dietary Recall Diary and Physical Activity Diary. The instruments are used to measure children health behavior practice which dietary patterns of children for Dietary Recall Diary while physical activity patterns of children for Physical Activity Diary as reported by parents. Parents in both experiment and control group samples completed the Diaries as a pre-test and as a post-test. The instruments have been modified so that it 'friendly user'. Internal consistency for both Diaries was satisfactory indicated by high Cronbach alphas, which was more than 0.8 which is 0.89 for Dietary Recall Diary and 0.9 for Physical Activity Diary. The collected data were analyzed and categorized into healthy and unhealthy group.

3. Research Findings

The objective of this study was to assess the effectiveness of MyPObes-PaF programme in preventing obesity among children. The effectiveness in preventing obesity was measured based on the frequency of children's health behavior practiced and amount of ideas on health knowledge to build positive attitudes towards health. In order to identify the effectiveness of the intervention, a Chi-square test was conducted on the pre-test and post-test for both experiment and control groups. Table 1 illustrates the frequency analysis results of the diet component for the experiment and control groups in terms of pre- and post-test.

According to Table 1, the Chi-square test analysis of the pre-test indicated that there was significant difference on dietary patterns between the experiment and control group for morning ($\chi2$= 8.65, df = 1, p = 0.03), afternoon ($\chi2$ = 13.54, df = 1, p = 0.000), and evening ($\chi2$ = 5.05, df = 1, p = 0.824). However, the result showed that most of the children were frequently within unhealthy behavior practice for morning (control: n = 22 vs experiment: n = 12), afternoon (control: n = 23 vs experiment: n = 10), and evening (control: n = 19 vs experiment: n = 20). Whereas after intervention, there was significantly difference on dietary patterns between the experiment and control group for morning ($\chi2$= 11.92, df = 1, p = 0.01), afternoon ($\chi2$ = 27.10, df = 1, p = 0.000), and evening ($\chi2$ = 18.44, df = 1, p = 0.000). The finding indicated that majority of children were frequently within healthy behavior practice for morning (control: n = 13 vs experiment: n = 28), afternoon (control: n = 8 vs experiment: n = 30), and evening (control: n = 4 vs experiment: n = 22). These analysis results supported the hypotheses that the MyPObes-PaF programme

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impacted on children's ability to practice healthy behavior on its own which indirectly increasing health knowledge on dietary patterns to be healthier and balanced for each meals.

Table 01. Chi-square test for the pre- and post-test of the children's dietary patterns of the control & experiment group

Children's Dietary Patterns		**Pre-intervention**		**Sig.**	**Post-intervention**		**Sig.**
		Control	**Experiment**		**Control**	**Experiment**	
		n	**n**		**n**	**n**	
		30	**33**		**30**	**33**	
Morning	Healthy	8	21	0.03	13	28	0.001
	Unhealthy	22	12		17	5	
		χ^2=8.65, df=1			χ^2= 11.92, df = 1		
Afternoon	Healthy	7	23	0.000	8	30	0.000
	Unhealthy	23	10		22	3	
		χ^2=13.54, df=1			χ^2 = 27.10, df = 1		
Evening	Healthy	11	13	0.824	4	22	0.000
	Unhealthy	19	20		26	11	
		χ^2=5.05, df = 1			χ^2 = 18.44, df = 1		

According to Table 2, the Chi-square test analysis of the pre-test indicated that there was significant difference on physical activity patterns between the experiment and control group for morning (χ2= 4.95, df = 1, p = 0.026), afternoon (χ2 = 3.88, df = 1, p = 0.049), and evening (χ2 = 5.29, df = 1, p = 0.021). However, the result showed that most of children were frequently within unhealthy behavior practice for morning (control: n = 27 vs experiment: n = 22), afternoon (control: n = 30 vs experiment: n = 29), and evening (control: n = 23 vs experiment: n = 16). Whereas after intervention, the Chi-square test analysis of the post-test showed there was significantly difference on physical activity patterns between the experiment and control group for morning (χ2= 25.25, df = 1, p = 0.000), afternoon (χ2 = 18.33, df = 1, p = 0.000), and evening (χ2 = 19.26, df = 1, p = 0.000). The finding also indicated that majority of the children were frequently within healthy behavior practice for morning (control: n = 3 vs experiment: n = 24), afternoon (control: n = 2 vs experiment: n = 19), and evening (control: n = 8 vs experiment: n = 27). These analysis results supported the hypotheses that the MyPObes-PaF programme impacted on children's ability to practice healthy behavior on its own which indirectly increasing health knowledge on physical activity patterns to be more active and organized for each day.

Table 02. Chi-square test for the pre- and post-test of the children's physical activity patterns of the control & experiment group

Children's Physical Activity Patterns		**Pre-intervention**		**Sig.**	**Post-intervention**		**Sig.**
		Control	**Experiment**		**Control**	**Experiment**	
		n	**n**		**n**	**n**	
		30	**33**		**30**	**33**	
Morning	Healthy	3	11	0.026	3	24	0.000
	Unhealthy	27	22		27	9	
		χ^2= 4.95, df = 1			χ^2= 25.25, df = 1		
Afternoon	Healthy	0	4	0.049	2	19	0.000
	Unhealthy	30	29		28	14	

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		χ^2 = 3.88, df = 1			χ^2 = 18.33, df = 1		
Evening	Healthy	7	17	0.021	8	27	0.000
	Unhealthy	23	16		22	6	
		χ^2 = 5.29, df = 1			χ^2 = 19.26, df = 1		

4. Discussion

This study shows that MyPObes-PaF programme affects children's healthy behavior components i.e. dietary patterns and physical activity patterns. This finding supports the use of special health module with multicomponent as guidance to teach and nurture children's ability to practice healthy behavior on its own. The development of health education is expected to deliver health knowledge easily as well as effectively which children then practice it in their daily routines. This is also indicates the importance of early exposure of health education towards children which can create awareness to them on salient and good health practices since young that at the same time, able to curb them from obesity in present and in future. This is in line with Dennison et al. (2014) study on health education for children using diet and physical activity module, which reported that an immediate action in form of nurturing health behavior is required that can be guided, practiced and implementation of healthy daily living especially for young children. Sacher et al. (2010) stated that awareness to practice health behavior began when children are introduced to health module which comprised of more than one aspect to young children. This method is an effective intervention to overcome childhood obesity as an initiative to develop healthy behavior routine of the children in the present and in the future. In practicing healthy behavior, this can assist in reduction of BMI and waist circumference, improvement in blood pressure and recovery heart rate.

Besides that, the MyPObes-PaF programme also delivered the health knowledge on dietary and physical activity patterns in enhancing knowledge about health that can help them produce ideas to chose and take preferred foods which is healthy and balanced diet for each meal. Children can also having ideas to chose and expose self to an active and organized physical activity for each days. The health education sessions affected children by increasing the amount of ideas on health which can change the children's dietary and physical activity patterns that they were able to follow the programme even they at home. This findings support previous research by Siti Zarinah (2013) which cited children prefer to eat sweetened food like chocolate or sweets and they choose to drink carbonated drinks such as coke instead of drinking plain water, eating less fruit and vegetables, and not taking breakfast, while gadget i.e. smartphones, tablet and iPad, spending long hours of watching television or playing computer games, remote car control, Gameboy or brick games are the activities that most children love (Prelip et al., 2011). These showed children's practices without appropriate knowledge because they felt the foods are too delicious while unhealthy activities are attract their interest to remain physical inactivity. Besides that, children did not have any ideas or reason on how to choose healthy and balanced meals, as well as implementing active and organized physical activity. These findings supported study done by Prelip et al. (2011) and Maziah & Saemah (2014) who also reported that health education programme helps in gaining the critical thinking abilities of the participants on health. This finding is also in line with that of Sacher et al. (2010) who reported that the implementation of health education programme can increase children knowledge towards healthy and balanced diet as well as active and organized physical activity which the health knowledge can create

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awareness to them in informing the health behavior practice that indirectly prevent them from obesity in present and in future.

The approaches used in the MyPObes-PaF programme which focuses on relaxed education are expected to have influenced the subsequent effects. The development of features of the relaxed education approach i.e using children's cartoon illustration, animated images, colourful PowerPoint, colourful picture cards, food models, nursery rhymes, animated aerobic videos, healthy "dam ular" and stories telling which build positive environment that enhances children's motivation to nurture positive behavior towards health practices that everyone can be health (Maziah & Saemah, 2017). This proves by children showed an increase in the health behavior during the post-test. They were able to practice frequently about their ideas on health to change their behavior to be healthier. This finding is similar with the study by Gortmarker et al. (2010) which reported that the implementation health education school-based led to positive changes in children, especially in their thinking and motivation about how healthy behavior can be enhanced. This positive change increases children confidence to remain active and healthy without obesity. The relaxed education approaches as same as 'children friendly' study by Broberg et al. (2013) stated that in educating the young children is required special characteristics as an approach to stimulus interest and motivate children to learn which can enhance their knowledge and good reaction towards health practices. The stimulating strategies i.e children's play-based activities should be meets children senses and desires to produce positive impact on the world and the surrounding environment of the children (Maziah & Saemah, 2017).

This study also found that parents' perception towards the programme was positive as many respondents reported agree by rate 'healthy' of their children on post-test as this indicates to the positive effects in delivering health education effectively in changing of the children's mind competency to be health. The development of positive attitudes towards the importance of health knowledge as well as the practices needed is expected to have directly contributed to the effectiveness of the module in the MyPObes-PaF programme used in this study.

5. Conclusion

The nurturing and development of children health knowledge and healthy behavior practice through the approach of relaxed education in MyPObes-PaF programme, directly affects children's cognitive stimulation. This is because knowledge can be enhanced through awareness that beginning with high motivation to become positive attitude using education programs that affect brain cognitive stimulation. An individual's tendency to practices will not come without knowledge, motivation and awareness. Therefore, the effectiveness of the implementation of MyPObes-PaF programme will provide education and stimulate cognitive exposure which helps to elevate their health knowledge and behavior. The cognitive stimulation received by children play an important role in helping them practice health effectively. This study shows clearly that the implementation of a programme which focuses on the health and the use of relaxed education strategies that make children enhances their health knowledge and health behavior practices. In the context of this study, children were also found to actively use healthy knowledge by establishing healthy behavior in their daily routines.

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