



## Effect of Dreall Healthy about Sedentary Life Style for Increasing Motivation to Children with Obesity

### *Pengaruh Dreall Healthy tentang Aktivitas Sedentari dalam Meningkatkan Motivasi untuk Anak dengan Obesitas*

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#### ABSTRACT

The Increasing prevalence of children with obesity was showed in all around the world include in Indonesia. The dominant factor was a sedentary life style and lack of activity. Those habits would be made the energy being unused so the fat will be accumulation become obesity. This Study aimed to know the effect of dreall healthy sedentary lifestyle on obese school-age children. This research was used pre-experimental with one group pre posttest design to analyze the data about motivation. The number of was 60 school-age children with obesity in Palembang city the data collected by using questioner after arranging the puzzle that was a development based on the collected data. The statistic result with Wilcoxon test showed improving motivation with the result  $p=0,001$ . Fun education might become one method for increasing motivation on children to raise their physics activity.

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#### ABSTRAK

Peningkatan pravelensi anak dengan obesitas ditunjukkan pada seluruh dunia termasuk Indonesia. Faktor yang dominan adalah gaya hidup bermalasan dan kurangnya aktivitas. Kebiasaan tersebut akan membuat energi tidak terpakai sehingga lemak akan terakumulasi menjadi obesitas. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh dari dreall healthy tentang sedentary life style pada anak usia sekolah dengan obesitas. Penelitian ini menggunakan pre-eksperimental dengan desain one group pre posttest untuk menganalisis data tentang motivasi. Jumlah responden adalah 60 siswa usia sekolah dengan obesitas di Kota Palembang. Data dikumpulkan menggunakan kuesioner setelah menyusun puzzle yang telah dikembangkan berdasarkan pengumpulan data. Hasil statistik dengan uji Wilcoxon menunjukkan peningkatan motivasi dengan hasil  $p=0.001$ . Edukasi yang menyenangkan bisa menjadi satu metode untuk meningkatkan motivasi anak dalam meningkatkan aktivitas fisiknya.

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## INTRODUCTION

One of the global health problems is obesity in children. The prevalence of obesity is rapidly increasing worldwide, years by years. Almost 200 million school age children worldwide had an overweight, and almost 50 million of them with obese.<sup>1</sup> A number of studies show that overweight and obese on school age children rate continually increases from year to year.<sup>2</sup>

Obesity has a bad impact, either physical or psychic. Children's age is the moment of growth and development. If obesity child's age is not to be overcome, it increases a risk factor of various metabolic diseases such as degenerative diseases, diabetes mellitus, and cardiovascular disease.<sup>3</sup> The combination of binge eating and obesity is particularly problematic with regard to comorbidity and risk. Psychological problems such as poorer body image also can be an effect in people with obesity.<sup>4</sup> There are several factors of influence that directly or indirectly affect the risk of obesity such as genetic predisposition to social, economic, and physical environmental condition.<sup>5</sup> One of the dominant factors is the lack of physical activity (sedentary lifestyle). Children and adolescents do not practice enough physical activity or have too much unbalanced nutrition, and the consequence of these unhealthy and bad habits is overweight that can lead to obesity, impairment of health and, implicitly, the quality of life.<sup>6</sup> Children's activity currently is dominated by the activity with lack movement like playing online games in front of the computer, sat too long to play social media via smartphone or less on walking because laid down by a motor vehicle. It would be made the energy being unused so resulting accumulation of fat.

Based on the data from the health profile of Palembang City, there was an increasing number of obesity accusative, especially on children.<sup>7</sup> For overcoming this occasion, it will need exertion to reduce the rising amount of obesity. Fun education using games was one way which to increase the motivation for children to increase their physical activity and subtract the sedentary lifestyle. In the educational context, games have been integrated little by little into learning processes. The use of games for example *Modified Snakes and Ladders Game* or *Dreall Healthy* in education can increase students' motivation

and knowledge.<sup>8,9</sup> The development of education games that is dreall healthy which a kind of puzzle game that have contain about sedentary life style and physical activity would become a media for reduce the number of obesity step by step starting from increasing the motivation of children to reduce sedentary life style and increasing the physical activity. The study aimed was to know the effect of dreall healthy about sedentary lifestyle on obesity school-age children to improve the motivation of obesity children for reducing their sedentary lifestyle.

## MATERIAL AND METHOD

This research used action research, the researcher exploring the experience and information from respondents about sedentary life style first as a based data to develop the dreall healthy. Pre-experiment with one group pre-posttest design was used to analyze the data about children's motivation in reducing sedentary lifestyles. Population was an elementary school student in Palembang city. Sample election used purposive sampling. They selected by inclusion criteria that was have an obesity nutritional status. The number of respondents was 60 school-age children with obesity. Respondents aged from 8-13 years old were students from two elementary schools at Palembang City in 2019. Respondents select with obesity using measurement of height and weight with Z-Score indicator  $>2$  SD. The variable of this research was the motivation value of children for increasing physical activity and reducing sedentary lifestyle. The respondent arranged the puzzle (dreall healthy), which had developed before based on the collected data in the first phase.

Data collected by using questioner. For the first step, the questioner was using to collect the sedentary lifestyle data of the respondent as a based data to develop the content on the puzzle of dreall healthy. The second step, questioner was using pre-test and post-test after arranging the puzzle (dreall healthy) that were developed based on the collected data. For the univariate analysis, descriptive computation of data from the children about characteristics was reporting on gender (boy/girl), level of class, age of the student, and how the children go to school. The bivariate analysis is using for a quasi-experiment with one group pre-posttest design. It was used

to analyze the data about the motivation of children in a sedentary life style. The research protocol for the study was approved by the Regional Ethics Committee for research with human subjects at Health research review committee, Faculty of Medicine, Sriwijaya University, Indonesia with number 256/ kepkrsmhfkunsri/2019. Before the discussion and intervention, the student and teacher were provided with written information about the purpose of the intervention and the discussion. The student also could ask their parent first before decided to join as a respondent. They were asked to inform about the study and thereafter for written consent on their behalf if they decided to participate. The students were also informed that their participation was voluntary and the possibility of withdrawing at any time.

## RESULTS

The characteristics of the respondent are presented in Table 1. The majority of the included in this study population (60%) is a boy. The majority of the respondents are in the fifth grade of elementary school (56.7%), and the aged are ten years old (33.3%). Most of the respondent was using public transportation (*ojek*) and motor vehicle with their parents (81.7%) and only 18.3% respondent walking on foot.

**Table 1. Characteristic of Respondent**

Characteristic	n=60	%
<b>Gender</b>		
Boy	36	60
Girl	24	40
<b>Class</b>		
IV	11	18.3
V	34	56.7
VI	15	25
<b>Age (Years)</b>		
8	2	3.3
9	17	28.3
10	20	33.3
11	10	16.7
12	10	16.7
13	1	1.7
<b>How go to School</b>		
By Motor Vehicle with Parents	37	61.7
By Motorcycle Public Transport	12	20
On foot	11	18.3

Source: Primary Data, 2019

The motivation mean value of the respondent is presented in Table 2. Analysis data was using the Wilcoxon Test. The table showed the mean number of motivation after the intervention was increasing from 5.70 become 7.43. The *p*-value number is 0.001, which showed value differences after conducting the intervention while playing the dreall healthy. There was also 51 respondent who have the raising motivation value.

## DISCUSSION

The Characteristics of the respondent are presented in table 1. The majority of the children in this study is a boy (60%). This data is similar to the research in which is some articles showed that the highest prevalence of obesity in school-age children is in the boy than a girl.<sup>10</sup> A number of studies also analyze the possibility of the relationship between activity based on playing games in smartphone and computer that the boys are more like to do this activity such as playing online games, computer, and others compared with girls.<sup>6</sup> Not only that on school age children, boy was tended to consume energy, carbohydrates, protein, and fat than girls, which can directly contribute to obesity.<sup>11</sup>

In this research, the majority age of the respondent is ten years old, about 20 respondents (33.3%). Almost of all respondent was in the fifth grade elementary school. At the age of this, children have been given the freedom by parents to obtain their own mobile. Based on the discussion of the respondent, the hobby of child was playing games on the cellphone with the duration time about over 4 hours a day. Children and adolescents aged 5-18 must be physically active for at least 60 minutes a day, with intense physical exercise being associated with the majority of authors with a better physical condition and well-being.<sup>6</sup>

In addition, based on the data in this research, "how the student goes to school" was given that the majority of children to be taken use of vehicles both when they went and come from school. The other respondent used public transportation (*ojek online*) and only 12 children (20%) who walked to school. The result of this research is similar to the other research on the relation-

ship of sedentary life style with the case of obesity. High sedentary behavior more risk 4,8 times experienced over nutrition or obesity.<sup>12</sup>

Based on the pretest results, the majority of students did not know that the lack of movement could cause obesity. Children will choose to spend a holiday playing games the smartphone or watch television. Based on questioner the children also feel lazy if their playmate called out of the house to exercise play the traditional games.

The condition above showed that an obesity student less conducted physical activity. Activities at schools that tend monotonous are being only sit while studying has not balanced with the physical activities when their spare time. It became a risk factor to increase the weight of child till becoming obesity. There are relationships between physical activity and obesity related to an expenditure of energy where there is accumulation of fat in the body. This is affected directly by intake the energy and the expenditure of total energy, which not balance.

According to Manore *et al*, the intensity of conduct physical activity is an important role in expenditure energy because energy would be issued by doing physical activity. A lack of physical activity would cause surplus energy and will be deposited in the form of fat tissue.<sup>13</sup>

The hobby which selected by children at the research also were not supported for reducing obesity. The majority of children choose to play a game or viewed social media on their smartphone to spend a spare time, moreover until more than 3-4 hours a day. Physical activity affects only 1/3 of to expenditure energy of a person with normal weight. Still, for those who have weight more like obese and overweight, physical activity will play an important role in the expenditure the energy.

**Table 2. The Motivation of Children Before and After Intervention**

Variable	Mean	Min	Max	Ties	Positive Rank	p
<b>Motivation</b>						
Pre-Test	5.70	3	9			
Post-Test	7.43	6	10	9	51	0.001

Source: Primary Data, 2019

The person with obesity when their exercising the sport, calories will be burned. The more doing the physical activity, calories will be lost to metabolize the body and expenditure of energy. But a person who spends time sitting all day will decrease metabolism of the body. Lack of physical activity will indirectly affect the basal metabolism in the body.<sup>14</sup> One example of sedentary behavior is watching television that contributes to in the development of obesity through an expenditure of energy and surplus intake energy due to feeding for time watching television and the influence of an advertisement.<sup>15</sup>

Children with obesity spent more time conducting behavior lack of movement (sedentary lifestyle) such as reading books, using a computer, playing, games, and using passive transportation to school is like motorcycle, car, and bus. The duration of a time regarding mobile screen devices encourages a significantly higher risk of obesity.<sup>16</sup>

Dreall Healthy is a form of puzzle game designed with a background that specifically contains content about health. Dreall healthy games can motivate and stimulate children's thinking in applying health values in the game background. This game was innovated in the form of health education needed by school-aged children.<sup>14</sup> In addition, puzzles are called educational games because in puzzle games there are educational elements which can train and improve children's memory, introduce children with various images, colors, and character's forms children love. A study also shows that dreall healthy more effective in improving the knowledge of health information than video education because that can stimulate children's brains.<sup>17</sup>

Dreall healthy could enhance the children's motivation about physical activity and subtract sedentarily. Health education with dreall healthy could be an option for the game which can be played by students and give the advantage to enhance student motivation. It was expected that parents, health provider staffs, and counselors in schools to provide fun health education to the children such as dreall healthy. For further researchers, it is expected that researchers could create more interesting and pleasing media for children.

Based on the research results, after conducting educational intervention using dreall healthy, the value of motivating children to decrease sedentary lifestyle and increase physical activity was increasing. Almost of respondents have an increasing motivation value of 51 respondents and there are only of nine respondents in the equal number. The posttest showed students understand that less physical activity can cause overweight to that they will increase physical activity such as doing exercise and sport. Respondents also showed increasing motivation value to reduce the activity such as playing smartphone because it can make less to do physical activity. Playing and exercising the game outhouse becomes an option to children when answered a post-test questionnaire. This result associated with research that showed difference in children self-protection knowledge from sexual abuse before and after sexual education with dreall healthy and animated video with p value 0.000 ( $\alpha \leq 0.05$ ) and there was difference in children self-protection knowledge from sexual abuse between dreall healthy and animated video with p value 0.014 ( $\alpha \leq 0.05$ ).<sup>8</sup>

Human behavior is generally characterized by its striving for efficacy and organized into phases of goal engagement and disengagement. People's motivation to pursue a particular goal depends on situational incentives and personal preferences as well as interactions between these two factors. Ideally, the motivational and volitional regulations of behavior take turns during different behavioral phases and are separated from each other in a clear way. They both ensure in their own way the functional optimization of goal selection, goal striving, and goal realization.<sup>18</sup> According to Sukamadinata, motivation is very important to start doing an activity, because it can have a strong effect on the activity. Besides motivation, the motivation was also influenced by the purpose. The higher purpose, the bigger motivation is more powerful to implement the activity.<sup>18</sup> This is evident during the discussion that children with obesity wanted to have an ideal weight, after play dreall healthy they just known that increasing physical activity was able to help lose weight by reducing playing one of smartphone in a long time. This makes children are encouraged to undertake activities in order to diaphoretic more.

However, this study still has some shortage that can become a consideration for the next researcher to continue for the other research. For next, improving the topic of dreall health not only about sedentary life style but also about other health topic.

## CONCLUSION AND RECOMMENDATION

There was an increasing number of children's motivation to increase their activity and reduce sedentary lifestyle after playing the dreall healthy. Fun education might become one method for increasing motivation on children to raise their physics activity.

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