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Identifying the causes of excessive weight gain in early childhood

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Abstract*:* The growing health hazards associated with obesity and excess weight, particularly in young children, have made efforts to avoid these issues a top priority. By employing a cross-sectional research design, this study seeks to determine the reasons for weight growth in young children. Fifty children served as research subjects. Multivariate analysis was the method of analysis employed. The study's findings indicated a substantial ($p < 0.05$) correlation between early childhood weight gain and variation factors. According to the study's findings, early childhood weight growth was associated with nutrition, parental genetics, and a lack of physical exercise. The growing health hazards associated with obesity and excess weight, particularly in young children, have made efforts to avoid these issues a top priority. This research was conducted in early childhood education and kindergartens in Kediri, East Java. Purposive sampling was used, meaning the sample was selected based on specific considerations, namely those who were overweight or obese. By employing a cross-sectional research design, this study seeks to determine the reasons for weight growth in young children. Fifty children served as research subjects. Multivariate analysis was the method of analysis employed. The results of the study were that the hereditary factor variable obtained a percentage of 56% with a p value of 0.045 which indicates $p < 0.05$ proving that there is a significant relationship between hereditary factors and weight gain. The dietary pattern variable accounted for the highest percentage, at 62%, with a p-value of 0.023, indicating a $p < 0.05$, demonstrating a significant relationship between dietary patterns and weight gain in early childhood. The final variable was physical activity, accounting for 54%. The p-value was 0.027, indicating a $p < 0.05$, indicating a significant relationship between physical activity and weight gain. The conclusion of this study is that the variables of poor dietary management and lack of daily physical activity are factors that have a higher risk of weight gain.
Keywords: overweight, obesity, early childhood.

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INTRODUCTION

The problem of excess weight is a serious issue faced by the world today. The World Health Organization (WHO) has determined that overweight (overweight and obesity) is an epidemic in the urban era, marked by the increasing prevalence of overweight and obesity in almost all countries, especially in developing nations. The increasing prevalence of overweight and obesity has affected all age groups, including adults, adolescents, and children, as a consequence of rapid urban development and digitalization (Fitriliani et al., 2023). Obesity in children, adolescents, and adults is one of the major public health problems in the 21st century. The prevalence of obesity among children has increased significantly over the past three decades, raising concerns due to the continuous upward trend.

In recent years the prevalence of overweight and obesity in children aged 5 years has increased in almost half the world, which means an increase in the number of children with health risks (Jebeile et al., 2020). The concept of child growth with the term "heavy means healthy, the bigger the better" is widely circulated in society and is considered positive by some parents. This concept is widely accepted by parents who consider weight gain in children to be a natural and normal thing because they are in the growth period (Azade et al., 2022). This statement is completely wrong, considering the high prevalence of overweight and obesity has an impact on the physiological and psychological development of children. At this stage, children are required to be able to do activities actively to support their growth and development (Aycan, 2009).

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Overweight cases have negative impacts and are associated with various health risks, especially in early childhood (3–5 years), who have a higher potential to experience respiratory system disorders such as asthma compared to children with normal weight. Asthma is triggered by the narrowing of the respiratory tract, one of which is influenced by diaphragmatic breathing (Mazzotta & Barkai, 2025). In addition to asthma, type II diabetes is also a disease risk that is highly concerning in early childhood. Diabetes that is genetically inherited from parents has a high potential to affect children with excess weight, particularly during pregnancy. Diabetes and obesity are independent factors contributing to the risk of unhealthy conditions and mortality across the life cycle (Oktaviani et al., 2023). The obesity epidemic has taken a significant toll on children worldwide, with various conditions linked to diabetes and obesity that may lead to long-term chronic disorders. Due to the increasing prevalence of overweight, children today are expected to live shorter lives than previous generations (Yakovenko et al., 2019).

Overweight and obesity are major contributors to high health risks and mortality that affect all ages from adults to children (Obesity & Force, 2024). Efforts to end, reduce and prevent the prevalence of weight gain, especially in early childhood, continue to be carried out, including by identifying the factors causing the increase in overweight and obesity in the hope of reducing the scope of the problem and providing preventive action solutions (Matana & Krajinovi, 2024).

Overweight is commonly defined as a condition characterized by a high percentage of body fat (Grace et al., 2022). Although various definitions of overweight exist, it is generally understood as an excessive accumulation of body fat (Tariq & Faisal, 2023). Conventionally, body weight is classified as overweight when it exceeds 10% of normal body weight, while obesity is defined as body weight exceeding the overweight threshold, namely more than 10% above normal body weight. These classifications can be assessed using the Body Mass Index (BMI) or the height-minus-100 formula. In addition to body fat percentage, the balance between energy intake and energy expenditure plays a crucial role in determining body weight status. Excess body weight reflects a condition in which energy intake exceeds energy expenditure (Deal et al., 2020). However, the assessment of body weight in early childhood differs from that in adults. In this population, weight status is evaluated based on anthropometric standards issued by the Ministry of Health. These assessments are conducted using two primary indicators: weight-for-height (WFH) and body mass index-for-age (BMI-for-age), the latter being specifically applied to toddlers (Pulungan et al., 2024).

As previously explained, overweight and obesity are associated with various health risks. Higher the degree of obesity in children, the greater the associated health risks (Smith et al., 2020). Children with excess weight or obesity are at risk of developing both long-term and short-term disorders, including physical and psychological problems (Lumeng et al., 2019). Obesity and its major comorbidities have become a global health challenge affecting children and adolescents of all ages (Alkautsar, 2022). Obesity also has specific characteristics, where children experiencing overweight or obesity tend to face more health problems as they enter adolescence.

The increasing number of sudden deaths caused by cardiovascular disorders has been accurately linked that excess body fat, especially low deposity lipoprotein, triggers plaque in the coronary artery blood vessels, causing blockage of blood to supply oxygen to the heart. Excess fat itself is a result of excess body weight. Overweight / obesity is closely related to a number of comorbidities in children, even children have worse effects than adults. In some cases, the symptoms experienced by children for cardiovascular disorders are the same as those experienced by parents. The results of the information indicate that cardiovascular disorders can begin in childhood but are only detected in adulthood (Umekar & Joshi, 2024).

In addition to cardiovascular disorders, disorders of the respiratory system are most often experienced by children with excess weight and obesity, namely asthma. Asthma is a chronic disease that commonly attacks children. Asthma is one of the respiratory disorders that can interfere with all human activities (Bogossian, 2023). The increase in obesity and overweight is in line with the increase in asthma sufferers in children (Shenoy & Ramdas, 2023). Several research results conclude that there is a relationship between asthma and children with overweight and obesity problems. Potential pathophysiological theory explains the relationship between obesity and asthma, namely the chronic inflammatory process created by excessive additives involved as a factor underlying the pathogenesis of asthma (Sansone et al., 2020). Increased fat mass is associated with increased systemic inflammatory

mediators that can worsen airway inflammation through inflammatory mediators such as leptin, adiponectin, Interleukin-6 (IL-6) and Tumor Necrosis Factor-alpha (TNF-α) (Ellulu et al., 2017).

Overweight and obesity in children are associated with respiratory impairments that limit physical activity. Elevated serum leptin has proinflammatory effects that may contribute to respiratory tract inflammation, leading to breathing difficulties during activities such as running and jumping (Malli et al., 2010). Shortness of breath reflects inadequate oxygen intake and reduced pulmonary efficiency. Evidence shows that more than 80% of overweight and obese children experience a 15% decline in lung endurance during physical activity, compared to 40% of children with normal weight (Kawalec et al., 2024). This reduced exercise tolerance is strongly suspected to be linked to increased bronchial hyperresponsiveness in overweight and obese children (Iii & Park, 2021). Consequently, overweight children aged 4–5 years tend to participate less in outdoor play than their normal-weight peers, partly due to parental concerns about asthma attacks during physical activity (Alkautsar, 2022).

In addition to cardiovascular and respiratory disorders, the risk of diabetes is included in the list of obesity-risk disorders that are worthy of being watched out for (Bogossian, 2023). Overweight children have the potential to experience a higher risk of diabetes II, especially when entering adulthood, which is exacerbated by a history of heredity or hereditary factors where parents have a history of diabetes, so the potential for disease factors passed down through offspring during pregnancy becomes higher (Jebeile et al., 2020). The risk of diabetes in children with overweight and obesity is worthy of being watched out for. Overweight children have a higher potential to experience diabetes II (Oktaviani et al., 2023). Moreover, if parents have a history of diabetes, the potential for disease factors passed down through offspring during pregnancy becomes higher. Early childhood is a child in the pre-school phase. Some experts mention the age classification for early childhood from 0-8 years while in other views it states 0-6 years. However, in general it is classified in the age range of 0-8 years with a special specification of 3-6 years (Aycan, 2009). This is based on the government policy that divides the classification of children based on age levels starting from infants, toddlers, early age and children who are connected to the level of education, namely Early Childhood Education, Kindergarten, and Elementary School (Oktaviani et al., 2023).

In physical education, the early childhood development phase emphasizes the development of fine and gross motor skills integrated with thinking skills, social attitudes, responsibility, honesty, sportsmanship and especially fitness and health (Marini et al., 2022). It is very important to maintain physical fitness and health during the early age phase in order to be able to play and do various physical activities by maintaining normal body weight (Ayu et al., 2023). As time goes by, lifestyle factors play a role in causing the high number of people with obesity, especially in children. Sanusi (2020) defines lifestyle as daily living behavior or can be said as a habit. Carrying out a lifestyle will be easy because this process is part of the activities carried out every day. Lifestyle is closely related to regulating diet and physical activity (Marini et al., 2022). These two parts are important variables that affect weight conditions, especially in early childhood. Especially healthy living habits by routinely doing physical activities and sports on the basis of awareness to get a better quality of life (Kawalec et al., 2024). The most fundamental change in lifestyle is the sedentary phenomenon, namely the tendency towards inactivity or low physical activity (Budiarto et al., 2023)

In this modern era, obesity is a threat at all ages that disrupts health, including in early childhood (Tariq & Faisal, 2023). In response to this, parental understanding is needed not to assume that obesity in children is a common thing (Grace et al., 2022). This study was conducted based on concerns about seeing the high obesity rate in early childhood. With this study, information will be obtained about what factors cause weight gain in early childhood, so that it can be understood and anticipated by parents regarding child care patterns, especially in maintaining children's health in a lifestyle that includes diet (junk food), minimal physical activity (dependence on smart phones).

METHODS

The design of this study is quantitative analysis with a cross-sectional design, namely research and observation are carried out simultaneously at one time simultaneously. Cross-sectional is an observational study that collects a lot of data at one point involving research subjects in order to obtain data (Maguiña et al., 2021). The data obtained will be used to analyze between cases. Generally, the analysis is carried out only for one case but is discussed in depth. The characteristic of cross-sectional

is that the research is based on observations carried out simultaneously (Wang & Cheng, 2020). In this study, the emphasis is on finding as much information as possible that has the potential to have an effect/impact on the dependent variable, although it consists of many parts of the variable but still focuses on one case.

The data analysis technique used in this study is the multivariate data analysis technique of multiple linear regression. Multivariate data analysis techniques are statistical analyses aimed at analyzing data consisting of many variables and it is estimated that each variable is related to each other. Multivariate analysis is used to see the relationship between independent variables (covariance) and dependent variables. In multiple linear regression, it is intended to analyze the factors of the independent variables in order to obtain information on the causes of problems or to help find information. In other words, multiple linear regression involves more than one independent variable or predictor to see the whole with one dependent variable.

Tabel 1. Interview Protocol (Jansen et al., 2018)

No	Search construction	Question indicators
1	Personal Data and Sociohistorical Scope of the Subject	Name, Age, Daily Activities, Residential Environment Conditions
2	Genetic Factors	Parental History, Grandparental History, Health or Disease History
3	Risk Factors (Nutrition/Dietary Implementation)	History of Food Consumed Daily (Type of Food and Portion)
4	Daily Physical Activity	History of Physical Activities Done Every Day, Every Week, and Every Month
5	Health Services	Health Check-up Schedule, Laboratory Check Schedule

This study was conducted in early childhood education and kindergartens located in the city of Kediri, East Java Province, Indonesia. The sample selection technique was carried out using a purposive sampling technique, meaning that the sample selection was based on certain considerations, namely samples that were overweight or obese. The research sample in this study amounted to 50 early childhood boys with an age range of 3-5 years. Data collection was carried out in two ways. First, measuring the weight of parents and children. Weight measurements were carried out based on the health standards of the Ministry of Health which were measured in two ways, namely the comparison of Body Weight and Height, and Body Mass Index (specifically for toddlers) according to age. Second, interviews with parents regarding children's activities and eating patterns:

This research was conducted in early childhood education and kindergartens located in Kediri City, East Java Province, Indonesia. The sample selection technique used purposive sampling, meaning the sample selection was based on certain considerations, namely samples that are overweight or obese. Based on this, a sample of 50 early childhood boys aged 3-5 years was selected. Data collection was carried out in two ways. First, measuring the weight of parents and children. Weight measurements were carried out based on the Ministry of Health's health standards, which are measured in two ways: the ratio of body weight to height, and the Body Mass Index (specifically for toddlers) according to age. Second, interviews with parents regarding their children's activities and eating patterns:

Table 2. Children's Weight Standards According to the Ministry of Health (Irawan et al., 2021)

Age	Gender	
	Female	Male
1 y.o	7 – 11.5 kg	7.6- 12 kg
2 y.o	9 – 14.7 kg	9.6 – 15.2 kg
3 y.o	10.7 – 18.1 kg	11.2 – 18.2 kg
4 y.o	12.2 – 21.4 kg	12.6 – 21.1 kg
5 y.o	13.6 – 24.8 kg	14.1 – 24.1 kg

RESULT AND DISCUSSION

Result

This study involved 50 samples aged 3-5 years. Researchers conducted direct observations by measuring body weight and asking several questions related to the history of parents with overweight/obesity, diet and physical activity of children. The data results were analyzed using multivariate analysis techniques. Multivariate analysis is used to see the relationship between independent variables (covariance) and dependent variables. The frequency distribution of each independent variable, namely heredity, diet, and level of physical activity as shown in Table 2. Based on the results of the multivariate analysis in Table 2, the data obtained, the heredity factor variable obtained a percentage of 56%. The p value obtained was 0.045 which showed p <0.05 indicating that there was a significant relationship between heredity and weight gain with an odds ratio value of 3.6 which means that children with parents who have weight problems have a risk 3 to 4 times higher than children with parents who do not have weight problems.

Table 3. Results of Multivariate Analysis of Weight Gain in Early Childhood Identification of Causal Factors

Variable	Risks of Overweight and Obesity			
	N	%	P Value	Odds Ratio
Parental Genetics				
Risky	28	56	0.045	3.6
Not Risky	22	44		
Dietary Habit				
High	31	62	0.023	2.7
Low	19	38		
Physical Activity				
High	23	46	0.027	2.7
Low	27	54		

The second variable was diet, with the highest percentage at 62%. The p-value was 0.023, indicating $p < 0.05$, indicating a significant relationship between diet and weight gain in early childhood. The odds ratio was 2.7, indicating that children with a high-intake diet had a threefold greater risk of weight gain than children with a low-intake diet.

The final variable was physical activity, with a percentage of 54%. The p-value was 0.027, indicating $p < 0.05$, indicating a significant relationship between physical activity and weight gain. The odds ratio of 2.7 indicates that children with low levels of physical activity had a threefold higher risk of weight gain than children with high levels of physical activity.

Multivariate Analysis

Based on the multivariate analysis, it was found that the causes of weight gain in early childhood are influenced by heredity/genetics from parents, diet, and low physical activity. High levels of diet are the variable with the highest percentage contribution to weight gain in early childhood, while in terms of risk frequency, heredity/genetics is the most dominant variable, with a risk frequency of 3 to 4 times greater.

Discussion

The problem of weight gain has become a serious problem that has been widely discussed in world health forums. Silent killer is the right term to be attached to overweight and obesity, considering the current impact is so drastic on health risks that cover all levels, especially early childhood. In line with the findings of Pulungan et al. (2024) obesity has become a global disorder that leads to pathological conditions. At least in the United Kingdom, 1 in 5 children experience overweight starting in early school.

Prevention efforts have been carried out in a structured manner but have not had a significant impact on reducing the prevalence of overweight and obesity. This is due to the low awareness and understanding of parents regarding the ideal weight standards for children. The discussion above explains that there are three main factors that cause weight gain in children. Decreased physical activity

accounts for the highest percentage of weight gain in early childhood. in line with the theoretical study of Windaru et al. (2016) on energy expenditure, which discusses the balance between energy intake and output through physical activity. This is reinforced in early childhood which emphasizes growth and development through an exploration model by playing to increase basic motor movement capacity, where each movement activity is counted as an effort to expend energy.

In sports science, early childhood is directed to physical activities to develop gross motor skills such as: running, jumping, crawling, catching and so on which are combined in playing activities both individually and in groups. Physical activity provides a number of benefits, namely an ideal body, low blood pressure to improve mental and physiological health. Physical activity includes games that contain functions interpreted in social forms, exercises to improve physical abilities and fitness, develop character and strive for physical and mental health (Marini et al., 2022). The level of physical activity determines the energy expenditure connected to metabolism, so that the higher the child's activity, the higher the body's metabolism will be which has an impact on the amount of energy expenditure so that it affects the level of physical fitness.

Physical fitness in early childhood is not aimed at results but at the process (Kawalec et al., 2024). The process is to give children experience in activities that teach about the use of useful energy, learning to be responsible, and living a healthy lifestyle. Lessons learned from everyday life to get good physical fitness are physical activity or sports with a frequency of 2-5 times per week for 30-45 minutes in addition to physical motor learning at school. Strengthening the above opinion, Iii and Park, (2021) explained that disease prevention efforts have been taught to children since early age through the instillation of healthy living behaviors that are part of learning in Kindergarten. With increasing understanding of clean and healthy living, this process is expected to become an awareness and habit in children in maintaining and improving health, especially preventing obesity.

Development of today's lifestyle is the cause of irregular physical activity and unhealthy eating patterns, causing 300 thousand children to die each year (Deal et al., 2020). Another report shows that the number of obese children is estimated to increase more than 2-fold in the next 25 years. This condition is in line with the statement of (Sehgal et al., 2020; Sehgal et al., 2020) that more than 19% of children in Latin America, estimated at no less than 42.5 million children aged 0-17 years, are overweight to obese. In the last 10 years, socioeconomic, cultural, urban and geographical factors are believed to have increased obesity disorders.

Of the many factors causing the increase in obesity in children, the main trigger is an imbalance in energy intake and output. Although metabolism also affects energy expenditure, physical activity requires a lot of energy to carry out daily activities. Umekar and Joshi (2024) explained that weight gain will occur if there is an increase in the energy needed than the energy expended. Strengthened by Windaru et al., (2016) that physical activity provides energy balance to reduce health risks due to energy accumulation. Physical activity regulates the balance of energy expenditure to improve individual health. In line with the previous statement. Although behavior and social environment are factors in a very complex obesity problem, the root of the problem is very simple, namely that the energy input is more or greater than the energy expended so that it has a direct impact on the cause of obesity in a long period of time, in other words the key to suppressing weight gain is that the energy output must be more than the energy input (Shenoy & Ramdas, 2023).

Energy surplus is responsible for weight gain in children. Energy surplus should be used for normal growth, daily activities estimated at 110-165 calories per day. In overweight/obese children, there is an imbalance in energy accumulation estimated at 600-1100 calories per day. The indicator is the child's lack of physical activity during free time (Alkautsar, 2022). This change in energy needs occurs due to changes in children's eating patterns. Products with high sugar and fat content tend to become eating habits in children which are exacerbated by parents' low understanding of nutritional content and eating patterns. Preventing weight gain in children cannot be separated from efforts to regulate eating patterns. Clear cooperation is needed in compiling a meal program consisting of types of food and meal times. Azade et al. (2022) explains that eating patterns are an important actor associated with lifestyle and fitness, so that the selection and processing of food affects body condition.

Fast food is offered with an attractive shape and delicious taste with high fat, cholesterol and iodine content but low in fiber and calcium content. Understanding the regulation of nutritional needs by parents is a must. One of the triggers of obesity in children is malnutrition, which is interpreted as an imbalance in the body's metabolic system in regulating nutrition. Some evidence shows

immunosuppression malnutrition, a condition in which the immune system is weakened or does not function optimally. Conversely, excess nutrition causes immunoactivition, which is susceptibility to inflammatory conditions. Weight loss programs, physical activity cannot be used as a solution to reduce body fat. Almost on average people choose to exercise at a fitness center as a weight loss program, but only experience a weight loss of 1 ounce/week. This is because they do not have a diet pattern to regulate energy needs.

Parental understanding in regulating children's diet is important knowledge. Especially when it is related to metabolic syndrome. Metabolic syndrome is a difference in the body's metabolic system that affects energy intake and output. Children with low metabolism will quickly gain weight even though they eat a small amount, conversely children with high metabolism will not experience significant weight gain even though they eat a lot. In low metabolism, the energy processing process is relatively slower and in high metabolism, the energy processing process is relatively faster. These two differences will affect energy needs and expenditure. In a simple analogy, if children with high and low metabolism eat 100 calories, the child with high metabolism will expend 60 calories, and 40 calories will be stored as energy reserves. Conversely, in children with low metabolism, the energy expended is 40 calories and 60 calories of energy will be stored as reserves. Many cases show that people with overweight and obesity are dominated by people with low metabolism. Low energy expenditure, high energy reserves, minimal physical activity and a high-fat diet increase the risk of obesity.

Hereditary factors play a role in weight gain. Overweight parents (father or mother or both) have a direct impact on the child's weight gain. Pregnancy, parenting patterns in the family environment are strong indicators in this case. During the pregnancy process, mothers with overweight/obese conditions have a higher potential to pass on the genetics of overweight/obesity through metabolism, fat cells and so on. Children born to overweight/obese mothers tend to experience increased body fat at birth and the risk of obesity. A study conducted in Canada showed that a woman weighing 90 kilos before pregnancy and gaining 18 kg during pregnancy was proven to have a risk factor for autism in the fetus (Grace et al., 2022). Jebeile et al. (2020) added that during the pregnancy process, fetal growth depends on the mother. Diet, stress levels, activity and maternal genetics contribute to the process. Budiarto et al. (2023) explained in his research that babies born with a high birth weight, mothers with a history of diabetes, and the family environment also influence weight gain and have a high risk of metabolic syndrome.

One or both parents with weight problems directly provide a bad example. Laziness in exercising, smoking habits, drinking alcohol, and irregular eating patterns are some examples of many unhealthy family environment situations. The family environment is a simulation process for children to imitate every action of their parents such as exercise and physical activity. In line with the term "children see and children do" which indicates that parents provide an example of children's health. Entering the current urban era, the parenting pattern of parents towards child development and their direct involvement is quite worrying. Parents choose gadgets to entertain their children rather than playing with them. Gadgets are a solution to emphasize children's activeness in exploring, with gadgets children become calmer/tend to be quiet and don't move much because gadgets present interesting shows and games. This condition is a reality that along with the development and advancement of technology, it has an impact on the risk of lifestyle patterns that affect health risks, namely decreased physical activity. Including the involvement of parents to fill their free time by doing physical activities with their children. Physical activity does not have to be doing sports at a fitness center. Walking in the morning and evening, jogging during holidays or playing outside with children are the first steps in early education in introducing physical activity to maintain a healthy lifestyle through energy balance.

Weight loss will not be achieved if physical activity/exercise is not balanced with energy needs (Sehgal et al., 2020). It is important for parents to understand the characteristics of eating in children. Diet is not about restricting food, but an effort to make the eating process more quality and beneficial for the body, especially in children. This exposure shows that optimal nutrition is needed to achieve balance and health. Physical activity and diet are two different factors but cannot be separated (Wyszynska et al., 2020). In accordance with the definition of maintaining body weight is to regulate the balance of incoming and outgoing energy. Without eating the body does not have the energy to do activities, on the other hand if the diet is high then it is certain that the amount of energy intake is also small. Decreased physical activity creates a surplus of energy reserves that accumulate over time and cause obesity. Results in the field show that overweight children have several characteristics about eating patterns, namely high appetite, unhealthy types of food that tend to be foods with sweet and fatty

flavors and low parental knowledge regarding eating patterns/types. Fast food is one of the sources that causes the prevalence of obesity to increase.

The urban era has an impact on behavioral changes in social conditions where sedentary habits have become commonplace. Dependence on smartphones causes more time to be spent playing games for at least 1 to 4 hours per day. This is no exception for early childhood who use gadgets as a medium for playing facilitated by their parents. This condition is certainly contrary to the demands of child development that should be carried out according to age development. Physical activities such as playing outside the home to stimulate cognitive, affective and psychomotor development are very necessary to create energy balance to prevent obesity.

Based on the explanation above, it is undeniable that these three factors are the results of identifying the causes of weight gain in children. Heredity factors cause children to potentially get metabolic disorders which are supported by decreased physical activity so that energy surplus occurs due to irregular eating patterns.

CONCLUSION

Prevention of overweight and obesity problems is very necessary from the beginning, especially in early childhood. Children are assets and successors of the nation whose health needs to be guaranteed, especially the guarantee of getting a healthy environment. What happens if the prevalence of overweight and obesity in early childhood increases many times over in the next few years. Of course it will be a serious problem like a time bomb that is just waiting for when it will explode. One effort to prevent overweight/obesity is to take an approach that includes all levels, namely education, social to spiritual. Especially in increasing understanding and building public awareness through identification of the causes of overweight and obesity, thus the risk of weight gain in children can be prevented. Understanding the causes of weight gain in early childhood provides information about obesity prevention programs as early as possible.

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CONFLIC OF INTEREST

There are no conflicts of interest related to this research or the publication of this manuscript

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