



COMPARISON OF PHYSICAL ACTIVITY BASED ON SOCIO-DEMOGRAPHICS IN URBAN AND RESIDENTIAL AREAS IN CHILDREN AGED 3-5 YEARS

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Abstract. The study aims to compare the levels of physical activity in children aged 3-5 years living in densely populated urban areas and residential areas. This research is a comparative study with an observational data collection technique, examining the physical activity levels of children aged 3-5 years in different demographic areas. The selection of parent respondents was based on consent forms to become respondents, with the observation subjects being children aged 3-5 years. The research instrument employed the Global Physical Activities Questionnaire (GPAQ) or global physical activity assessment questionnaire. Data analysis included univariate analysis with frequency distribution presentation and bivariate analysis involving normality and homogeneity prerequisite tests and conducting a t-test. The findings revealed that the physical activity level of children aged 3-5 years in densely populated urban areas ranged from 1400-3320 METs, classified as moderate with a percentage of 86% and classified as vigorous with a rate of 14%, and a mean value of 2428 METs. In contrast, the physical activity level of children aged 3-5 years in residential areas ranged from 1440-3840 METs, classified as moderate with a percentage of 67% and classified as vigorous with a rate of 33%, and a mean value of 2799 METs. The prerequisite test results indicated that the data was normally distributed with a p-value of $0.200 > 0.05$ and came from the same or homogeneous variance with a p-value of $0.409 > 0.05$. The t-test results showed a p-value of $0.28 < 0.05$. Based on the analysis test, it can be concluded that there are differences in physical activity levels in children aged 3-5 years in urban areas compared to residential areas.

Keywords: Physical Activity, Children Aged 3-5 Years, Urban Areas, Residential Areas

1. INTRODUCTION

Early age is a crucial stage in a child's development, this is because, in the early age phase, children will receive a lot of stimulation that supports their growth and development. The age category in early

childhood begins with toddlerhood (0-3 years) and continues through pregnancy (3-5 years). Children aged 0-6 years are individuals with unique characteristics and are considered a golden age where children will experience rapid development in their cognitive, affective, and psychomotor functions. Proper guidance and control in early childhood will help determine the individual's development in the future, so it can be concluded that a person's success in maturity is determined by the abilities they have at an early age [1]. Maturity at an early age which is related to the level of movement ability and physical activity is the most dominant aspect and can be observed and controlled through movement activities and sports games. Early childhood children tend to be active in moving to fulfill their motor skills activities such as running, throwing, crawling, and jumping. In the age range of 3-5 years, children have quite high energy which is needed when carrying out various movements to optimize physical abilities [2]. Theoretically, the physical abilities of each child will be different from one another. The environment is the most ideal cause in influencing a child's physical abilities among the many other factors involved. On the other hand, many preschool-age children (3-5 years) are physically less active in engaging in movement behavior patterns. Many young children fall into sedentary or sedentary behavior because of developments in technology and the facilities they have. Children with demographic backgrounds in residential and residential areas are more likely to be influenced by this behavior [3].

Previous research that has been conducted significantly states that parents allow their children to play too many video games and use television, resulting in children being reluctant to do activities [4]. The majority of preschool-aged children currently spend more time playing indoors, such as using smartphones, compared to playing outdoors, such as cycling and running [5]. Children should do more physical activity outdoors so that they will maintain good preferences and habits in maintaining and improving their health status [6]. Outdoor physical activities can utilize open land facilities such as playing in fields, playgrounds, or on roads in residential.

Outdoor physical activity must also be supported by the existence of infrastructure and facilities that support and encourage children to be active. If the facilities used for outdoor activities are not met, children will tend to be more influenced by technological facilities and increase the rate of sedentary behavior [7]. Research states that the environment

around where children live has a significant influence on the physical activity carried out by children, this is related to the presence of open land or playgrounds and sports facilities [8]. This is in line with the theory put forward by Arnold Gessel, namely that the environment is a factor in the maturation of physical activity and movement, so it can be concluded that the better the environmental structure around the child, the more interest the child will have in moving [9]. Overall, many factors determine the level of physical activity a child has, including parental parenting, knowledge, and peer influence. However, the environment is a factor that greatly influences how children will do their activities. This is supported by the ecological theory put forward by Urie Bronfenbrenner that an individual will be affected based on the environment in which the individual spends his time [10].

2. METHOD

This research focuses on observing and trying to compare the level of physical activity in children aged 3-5 years in urban with residential areas. Observations were carried out through planned observation activities, the variable in this study was physical activity with the research population of children aged 3-5 years who were administratively registered as students at Play Group or Early Childhood Education institutions in urban and residential areas. The research was carried out at KB Hudan Scholar as a residential area variable and 'PAUD Harapan Ibu' as a densely populated area variable with the consideration that the school was located in a strategic area and by the required research area variables.

Table 1. Building Density Classification

Classification	Building Density	Demographic type
Very low	<10 buildings/hectare	Residential areas
Low	11-40 buildings/hectare	
Moderate	41-60 buildings/hectare	
High	61-80 buildings/hectare	Urban areas
Very high	>81 buildings/hectare	

[11]

Researchers distributed several informed consent or willingness-to-be-respondent sheets to each Playgroup or Early Childhood Education agency in urban and residential areas. The sample was obtained using a total sampling technique based on a willingness sheet filled in by the

student's parents or guardians and through specified criteria and conditions including 1) Children aged 3-5 years, 2) Registered as students at the school where the research was conducted, 3) Physically healthy and not currently undergoing health care, 4) Do not have disability status.

Based on informed consent, it was stated that 42 parents were willing to be respondents, with 21 respondents in densely populated areas and 21 respondents in residential areas. The research instrument used is the Global Physical Activities Questionnaire (GPAQ), this questionnaire instrument contains physical activity domains including daily work activities, travel activities, and free time activities which are presented on the metabolic equivalent of task or MET scale accumulatively in a week [12].

The analytical data is presented using descriptive statistical analysis which aims to describe the data obtained during the research process with calculations based on the percentage classification of physical activity norms obtained. After that, prerequisite tests were carried out in the form of data normality tests and homogeneity tests, then different tests were carried out to determine differences in physical activity of children aged 3-5 years in residential areas and densely populated settlements. The results of physical activity measurements will be categorized into the GPAQ physical activity classification:

Table 2. Physical Activity Classification

MET	Category
<600	Light PA
600 -1499	Moderate PA
1500 – 2999	MVPA
3000>	Vigorous PA

[13]

3. RESULTS AND DISCUSSION

3.1 Result

Data from the analysis of physical activity of children aged 3-5 years in urban dan residential areas settlements based on observations of physical activity using the Global Physical Activities Questionnaire (GPAQ) questionnaire instrument for seven days are presented based on percentage classification in the physical activity domain and the type of physical activity carried out as well as carry out different tests on physical activity levels in densely populated and residential areas.

Table 3. Demographic Characteristics Of Participants

	Urban areas		Residential areas	
	Σ	(%)	Σ	(%)
Sex				
<i>Male</i>	10	48%	16	76%
<i>Female</i>	11	52%	5	24%

Table 4. Physical Activity Record

Domain	N=21	%	Mean	N=21	%	Mean
<i>Work</i>	21	100	1546,7	21	100	1398,1
<i>Leisure time</i>	19	90	487,7	21	100	765,7
<i>Transport</i>	18	86	540	19	90	702,1
Type Of Activity						
<i>HI activities</i>	17	81	1058,8	20	95	908
<i>MI activities</i>	8	38	762,1	19	90	589,4
<i>HILT exercise</i>	19	90	470	19	90	555
<i>MILT exercise</i>	16	76	313,7	16	76	360
PA Category						
<i>Light PA</i>	0	0	0	0	0	0
<i>Moderate PA</i>	1	4	1400	1	4	1440
<i>MVPA</i>	17	82	2357,6	13	62	2564,6
<i>Vigorous PA</i>	3	14	3166,6	7	34	3428,5

Nonstandard Abbreviations and Acronyms

METs	Metabolic Equivalent of Task
PA	Physical Activity
HI	High Intensity
MI	Moderate Intensity
HILT	High-Intensity Leisure Time
MILT	Moderate Intensity Leisure Time
MV	Moderate to Vigorous

Physical activity in children aged 3-5 years based on the activity domain has different mean values, children in urban areas organizational areas have higher MET values in the daily activity domain with an average of 1546.7 MET while children in residential areas with an average average 1398.1 MET. In the leisure time activity domain, children in urban areas have a lower average with a value of 487.7 METs compared to children in residential areas with an average

of 765.5 METs. In the transport domain, children in urban areas have an average of 540 METs, and children in residential areas are superior with an average of 702.1 METs.

Table 5. Prerequisite test

<i>Test</i>	<i>p-value</i>
Data normality test	0,200
Homogeneity of variance test	0,409
Sig-2 tailed	0,028

Based on the prerequisite normality test, a significance value of p -value of $0.200 > \alpha 0.05$ was obtained so that the data was normally distributed and the homogeneity test obtained a significance value of p -value of $0.409 > \alpha 0.05$, it could be concluded that the data had the same variance or was homogeneous. Based on the results of the prerequisite test, the data had a normal and homogeneous distribution, so an independent difference test was carried out with a significance value of $0.028 < \alpha 0.05$ so it could be concluded that there were quite significant differences in children aged 3-5 years in urban and residential areas.

3.2 Discussion

The results of the analysis show that the level of physical activity in children aged 3-5 years in urban and residential areas is medium. The achievement of this classification indicates that the child has quite good effectiveness in carrying out any physical work both indoors and outdoors. However, there are differences in the intensity or level of physical activity carried out by children in urban populated and residential areas. Children who live in residential areas tend to have a higher intensity of physical activity than children who live in urban areas. The differences in the intensity of physical activity that occur are certainly caused by factors that influence the child's physical condition. According to the study, it was concluded that the level of physical activity possessed by children cannot be separated from the role of parents and teachers in supervising and implementing supportive parenting patterns so that children will continue to move. Parenting patterns that are not supportive will be a risk factor that will hinder children's movement needs, for example allowing children to do screen time activities including watching television, watching videos, and listening to stories for long periods [14]. This condition may be made worse when parents allow their children to play with gadgets more often and prefer to carry their children rather than ask them to walk.

Based on this, it can be seen that parents have the control to supervise the activities carried out by children so parents must be a supporting factor by cultivating children's awareness and keeping children away from risks that could interfere with their development in the future.

Characteristics of the area of residence are factors that cause differences in children's physical activity levels, this is of course related to the availability of infrastructure and living conditions in densely populated and residential areas. Studies state that living conditions have an impact on increasing physical activity in pre-school children, this shows that differences in living conditions will influence differences in the rate of increase in physical activity [15]. Increasingly dense environmental conditions mean that there is less and less open land that children can use for activities. Children do more activities in open land, if there is less open land where the child lives, the lower the intervention of facilities and infrastructure around the child's residence in supporting physical activity [16]. Children who have a living environment with sufficient open land and sports facilities have greater opportunities for physical activity than areas that have minimal sports facilities and facilities. Therefore, the environment is a factor that has a significant impact in facilitating children to play and move if it is supported by the availability of facilities such as open land and safe and comfortable sports and play facilities.

Providing a comfortable and conducive environment to support physical activity is very important. The existence of a comfortable and supportive environment must also be aligned with increased utilization and ease of access. Difficulty accessing facilities and playgrounds results in a decrease in enthusiasm and desire to use these facilities and facilities [17]. With the ease of accessing outdoor facilities and facilities, it is hoped that children will use and utilize these facilities more often and can support various physical activities so that children will avoid various kinds of risks that can threaten both their physical development and their physical health.

The impact that will occur if physical activity is not carried out properly will be a risk to the child's motor development. This has been proven that a child's motor development depends on the physical intensity carried out so the higher the physical intensity carried out, the better the child's motor development [18]. However, in reality, there are still many children who fall into sedentary behavior, most children under five years of age spend a lot of time sitting, watching television, playing with gadgets, and other screen-based activities [19]. Sedentary behavior or lack of movement is certainly caused by several factors

including social and economic status conditions [20]. Each social group in a region tends to have the same average economic ability, although the average is different compared to social groups in other regions, which may lead to disparities. Research states that the higher the parents' financial income, the greater the child's tendency to behave sedentary, this is because with a high financial, income the parents are increasingly able to provide various facilities for their children [21]. It can be concluded that each region with different social groups may have different financial capabilities and this can influence the level of sedentary behavior in children because of the financial gaps that occur. Children's interest in active physical activity can be generated and aroused by parents by providing examples and getting children used to moving from an early age so that it is hoped that this will become a habit and can continue continuously. This has been reflected in this research as evidenced by the number of children with low levels of physical activity at minimal levels due to many supporting factors that are realized and intervene in the physical activity patterns carried out by children aged 3-5 years. Sufficient physical activity will have a positive impact on health including lowering the risk of cardio-metabolic diseases and reducing the risk of chronic diseases such as hypertension, obesity, and osteoporosis [22]. The Ministry of Health of the Republic of Indonesia states that regular physical activity by combining aerobic and anaerobic mechanisms will increase immunity and endurance so that you don't feel tired easily [23]. Therefore, it can be concluded that physical activity is a part that cannot be underestimated, physical activity determines the direction of development that will occur in the future. Living with a healthy body and good movement abilities is the result of knowledge and consistency in carrying out physical activities.

4. CONCLUSION

Based on the results and discussion presented, it was concluded that the level of physical activity possessed by children aged 3-5 years, both those who live in urban areas and residential areas, is classified as medium to high. There are significant differences in the physical activity levels of children aged 3-5 years in urban and residential areas. The physical activity level of children in residential areas tends to be slightly higher than that of children in urban.

The results of this research were obtained using a physical activity measurement instrument so that when the measurements were carried

out there might have been deficiencies in the respondents' perceptions and validity. Based on this, further studies are needed to measure the level of physical activity in children aged 3-5 years using instruments that better describe physical activity conditions, such as the use of accelerometer instruments. In this way, it is hoped that the results of the assessment of physical activity levels can be obtained validly and measurably.

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