PLAY AND NUTRITIONAL INTAKE ON PHYSICAL DEVELOPMENT OF PRE-SCHOOL PUPILS IN AKWA IBOM STATE

BY

ATAKPA, ARIT OKONOBONG.
DEPARTMENT OF EARLY CHILDHOOD EDUCATION,
AKWA IBOM STATE COLLEGE OF EDUCATION,
AFAHA NSIT.

ABSTRACT

The study investigated the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. The population of this study comprised of all pre-school pupils in Akwa Ibom State. The study adopted Expost-Facto research design while stratified random sampling was used in selecting the respondents. The instrument for data collection which was tagged "outdoor and indoor play on physical development of pre-school pupils questionnaire" (OIPPDPP) was administered to the respondents and used for the study. The instrument was designed by the researcher, vetted by the supervisors, researcher's consultant and a lecturer in test and measurement in the Faculty of education before the reliability test was conducted with 40 respondents. Data collected were analyzed using descriptive statistics and Pearson Product Moment Correlation Analysis. From the results of the data analysis, it was observed that there is remarkable impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. There is also remarkable joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. The conclusion revealed that physically playing with your child teaches social skills while enjoying good exercise. Your child will learn to take turns and accept winning or losing. It was therefore recommended that active play and walking as a routine in the daily lives of young children should be encouraged to help prevent obesity. Opportunities for spontaneous play should be required in young children in order to increase their physical activity.

INTRODUCTION

According to Brown (2009), the human brain is "wired for play at birth" Based on his own clinical interviews with adults and children and his review of both animal and human studies, he notes that active play is required for healthy brain growth. In particular, play is essential for developing those parts of the brain required for regulating behavior and emotions. Play is simply having fun, the spontaneous activity of children. Hudson and Thompson (2001) opines that play encompasses many things—it can be done with the body (running, jumping, dancing); the mind (fantasy play); props (building blocks, pushing a toy); and words (jokes, singing). Play is fueled by curiosity and is driven by it. Play begins simple and grows more complex as the child grows.

Playgrounds provide an opportunity for free play. Free play differs from the structured play of recess or organized sports and games. Playground free play allows children to play any way they choose, supported by a wide range of structures and spaces. Free play allows the child to explore according to his or her natural tendencies, and allows them to learn from one another and to interact with a wide range of age groups. Rivkin (2000) asserts that the act of play by a child stimulates brain development and function and has a key role in building the foundation, organization, and

capabilities of the brain. It is very important for children to have many regular opportunities for a variety of gross motor activities. Children that do not get crucial interaction in their first six years will face a lifetime of limited brain power (Galetta, 2000).

Decades of research have shown that play is an important mediator in the physical, social, cognitive, and language development of young children (Bergen, 2002; Garvey, 1993). In spite of this, play faces threats from many directions in modern life. The growing emphasis on standards, assessment, and accountability in schools has led to a reduction in outdoor and active physical play. In many schools and centers, play has been all but eliminated to make room for quieter, academic learning (Stipek, 2006). Preschools and kindergartens in public school settings have become particularly regimented and adult-directed, with teachers feeling compelled to increase literacy and numeracy instruction at the expense of play time (Golinkoff, Hirsh-Pasek, & Eyer, 2004).

Olson & Strawderman (2008) assert that the main concern about the disappearance of physical play in early childhood is the impact it will have on physical development. Childhood obesity and other health problems can result, particularly for those living in poverty. What may be less obvious to educators, policymakers, and parents is the impact a sedentary childhood will have on intellectual, physical, social, and emotional development.

Apart from play, good nutrition plays a vital role in the well being and physical development of children. Malnutrition among children is a major public health problem in developing countries (Islam, Alam, Tariquzaman, Kabir, Pervin, Begum and Khan, 2013). It has been reported that about 13 million infants and children, less than five years of age, die each year in developing countries and most of these deaths are attributed to under-nutrition. According to WHO criteria, 52% of young children in under-developed countries are considered normal, while malnutrition among children is a critical problem because its effects are long lasting and go beyond child-hood. It has both short- and long-term consequences. For instance, malnourished as compared to non-malnourished children are physically, emotionally and intellectually less productive and suffer more from chronic illnesses and disabilities. Malnutrition among children depends on complex interactions of various factors reflecting socio-demographic, environmental, reproductive, institutional, cultural, political and regional factors. Thus, this study seeks to determine the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Statement of the Problem

Growing up, many of us might have been told at some point to go outside and find something to do. Today, especially in a school setting it seems children are being told less and less to go outside, as they are encouraged to stay inside and study more. Our children seem to be getting fewer breaks from academics in order to achieve higher scores on testing and to meet standards for achievement. The issue with studying more is that the brain doesn't have a chance to get a break, and recharge. In an educational institution, recess is a time where children should engage in unstructured play, which is not directed by adults, although supervised.

Although children love to move, and adults tend to think of them as constantly being in motion, children today are leading much more sedentary lives than their predecessors. Our culture is moving away from outdoor play and children are spending excessive time watching television shows, playing on their tablets or phones**,** and playing video games. The problem of this study is to

determine the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Objective of the Study

The main objective of this study is to determine the impact of outdoor and indoor play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. The specific objectives are as follows:

1. To determine the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.
2. To determine the impact of nutritional intake on physical development of pre-school pupils in Akwa Ibom State

Research questions

The research questions will be answered:

1. What is the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State?
2. What is the influence of nutritional intake on physical development of pre-school pupils in Akwa Ibom State?

Hypotheses

The following hypotheses will be tested:

1. There is no significant influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.
2. There is no significant influence of nutritional intake on physical development of pre-school pupils in Akwa Ibom State.

Literature Review

Outdoor and Indoor Play on Physical Development of Pre-School

According to Hope (2007), outdoor and indoor play in childhood is important for many reasons and a variety of sources indicate a direct relationship between physical activity and children's health. In early childhood physical exercise helps build strong bones, muscle strength and lung capacity (Lindon 2007). It may also increase cognitive function, improve academic achievement and accelerate neurocognitive processing. In addition, it appears that active children are also less likely to smoke, to abuse alcohol or take illegal drugs as they grow up (BHF 2009). Several studies have shown that playing is good for developing motor functioning and most infants and toddlers acquire fundamental movement skills through unstructured physical activity and play. Children who lack proficient motor skills often choose not to participate in physical activities as they get older, and as games become more competitive (Graham 2005). Better motor function has also been found to lead to fewer accidents (HC Netherlands 2004).

Hemmings (2007) assets that fun and enjoyment are the greatest motivators for physical activity and, whilst children see health reasons as important, they are more attracted by 'unhealthy' activities if they are more fun than 'healthier' activities Young children are innately active, but this natural tendency is easily overridden by external constraints, including adult supervision (Jebb 2007). Brady (2008) found that physical activity in early years settings was influenced by a number of factors, including the layout of the setting, ethos of play staff, encouragement from staff, opportunities for free flow play and access to outdoor space and suitable equipment. This not only influenced the time children spend playing actively, but also the quality of the play.

Encouraging active play and walking as a routine in the daily lives of young children may be important in preventing obesity. Children who sleep fewer hours a day are more at risk of obesity and active children tend to sleep longer (Taheri 2006). For older children and teenagers, the outdoors is perceived as the most important environment for physically active play (Open Space 2006), and that children who go out without adult supervision are likely to be more physically active than those who are with adults (Mackett and others 2007). As Dietz points out: 'Opportunities for spontaneous play may be the only requirement that young children need to increase their physical activity' (Dietz 2001).

Brookman (2011) highlighted the benefits of outdoor and indoor play in preschool pupils, he said it allows an infant to listen to outdoor noises around them such as cars, airplanes, and other children at play; it allows an infant to experience different weather patterns such as hot, cold, wind, sun, rain; Stimulate their eyes by observing different colors and objects that are shiny, bright or dull; It stimulate smells of all varieties; Adjust their eyes to the various intensities of sunlight; it allows infants crawl on and touch both rough and smooth textures such as grass, sand, concrete, leaves; grasp items such as sand and leaves using fine motor skills and inhale fresh air to decrease risk for germs.). Elardo (2011) found that access to a variety of toys during infancy was associated with higher IQ levels at the age of three, irrelevant of ethnicity, gender or social class. Play in school settings can allow children to connect with their surroundings and give the opportunities for interactive learning (Ginsburg 2007).

Nutritional Intake and Physical Development Of Pre-School Pupils In Akwa Ibom State

Scrimshaw (2001) asserts that worldwide, adequate nutrition is being increasingly emphasized as a human right. The nutrition of preschool children is of considerable importance not only because of concern over their nutrition in formative stage of life but is widely perceived to have a substantial and persistent impact on their physical and mental development and on their health status and productivity as adults. Childhood malnutrition is characterized by growth failure. Anthropometric measurements especially that of children is particularly important in assessing their nutritional status. The nutritional diet and physical activity of children should be carefully analysed and discussed between teachers, parents and children.

Children need to understand the importance of healthy eating and to accept it as a conscious care for their proper development and physical condition. According to Dawson (1992), heights and weights of children, particularly those less than 5 or 6 years of age, and pregnant/lactating women, are accepted measures for monitoring their growth and nutritional status, and are also considered as an indicator of the nutritional status of the entire community. Indicators used for classification by comparison with a reference population (NCHS/ WHO International growth reference) are: weight for height; weight for age and height for age. Wasting refers to a low weight – for – height that is below 2SD of the median value of the NCHS/WHO International weight – for – height reference. A prevalence of wasting or acute malnutrition between 5 – 8% indicates a worrying nutritional situation and prevalence greater than 10% corresponds to a serious nutritional situation (SCN, 1995). Underweight is defined as low weight for age at below 2SD of the median value of the NCHS/WHO International reference for weight for age.

A lot of reports show that there exist problem of malnutrition among Nigerian children. Report by WHO (2000), showed that 37.7% and 39.1% of preschool children are stunted and

underweight, respectively, in Nigeria. According to National micronutrient survey (1993), report, there exist problem of stunting (24%) and wasting (22%) in South Eastern Nigeria. It is well known that the reasons for increase in weight are a low level of physical activity and unhealthy nutritional habits. Many authors highlight the fact that this weight gain is mainly due to low physical activity, rather than increased energy intake (Booth, Denney-Wilson, Okely & Hardy, 2005). It is recommended that youngsters spend at least one hour per day engaged in light to moderate indoor and outdoor play, such as jogging, jumping, dancing and different kinds of sport (Elliot,Erwin, Hall & Heidorn, 2013).

METHOD

Research Design

This study adopted an Ex-post Facto research design because the phenomena for design studies have already occurred. Accordingly, the researcher does not have direct control of independent variables because of their earlier manifestations. The researcher can not manipulate the effects but just obtain the effect on already existing natural course of events.

Area of the Study

The study area is Akwa Ibom State which is one of the thirty six (36) states of Federal Republic of Nigeria.

Population of the Study

The population of this study comprised of all pre-school pupils in Akwa Ibom State.

Sample and Sampling Technique

The population was first divided into strata. A stratified random sample was then taken from each of the stratum. The sub- samples were eventually joined to form the total samples of 400 respondents.

Instrumentation

The instrument for this study was research questionnaires tagged "outdoor and indoor play on physical development of pre-school pupils questionnaire" (OIPPDPP)

Validation of the Instrument

The instrument was designed by the researcher, vetted by the supervisors, researcher's consultant and a lecturer in test and measurement in the Faculty of education

Reliability of the instruments

The test-retest reliability study was conducted with the use of forty (40) respondents who did not form part of the main study. The instrument was subjected to test re-test reliability study. This study was carried out in order to prove the level of reliability of the research instrument.

Administration of Instrument

The (OIPPDPP) questionnaire was administered personally by the researcher to the respondents. This personal administration of questionnaire helped to minimise loss of questionnaire. The respondents were given enough time to complete the questionnaire before they were collected for analysis.

Data Analysis and Result

Research Question One

The research question sought to find out the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. In order to answer the research question, descriptive statistical analysis was performed on the data collected (see table 1)

Table 1
Descriptive statistical analysis of the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State

Variables	N	Arithmetic Mean	Expected Mean	R
Outdoor and indoor play	400	13.63	12.5	0.81[a]
Physical development of pre-school pupils in Akwa Ibom State		15.88	12.5	

Source: Field survey

Table 1 presents the result of the descriptive statistical analysis of the impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. The two variables were observed to have strong to perfect relationship at 81%. The arithmetic mean (13.63) for the outdoor and indoor play was observed to be greater than the expected mean score of 12.5. In addition to that, the arithmetic mean (15.88) as regards to physical development of pre-school pupils in Akwa Ibom State was observed to be higher than the expected mean score of 12.5. The result therefore means that there is remarkable impact of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Research Question Two
The research question sought to find out joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. In order to answer the research question, descriptive statistical analysis was performed on the data collected (see table 2)

Table 2
Descriptive statistical analysis of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State

Variables	N	Arithmetic Mean	Expected Mean	R
Play and nutritional intake	400	17.39	12.5	0.83[a]
Physical development of pre-sch pupils in Akwa Ibom State		15.88	12.5	

Source: Field survey

Table 2 presents the result of the descriptive statistical analysis of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. The two variables were observed to have strong to perfect relationship at 83%. The arithmetic mean (17.39) for the play and nutritional intake was observed to be greater than the expected mean score of 12.5. In addition to that, the arithmetic mean (15.88) as regards to Physical development of pre-school pupils in Akwa Ibom State was observed to be higher than the expected mean score of 12.5. The result therefore means that there is remarkable joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State.

HYPOTHESIS TESTING

Hypothesis One

The null hypothesis states that there is no significant influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. In order to test the hypothesis regression analysis was performed on the data, (see table 3).

TABLE 3

Regression Analysis of the influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Model	R	R-Square	Adjusted Square	Std. error of the Estimate	R Square Change
1	0.81[a]	0.66	0.66	1.25	0.66

***Significant at 0.05 level; df= 398; N= 400; critical R-value = 0.113**

The table shows that the calculated R-value 0.81 was greater than the critical R-value of 0.113 at 0.5 alpha level with 398 degree of freedom. The R-Square value of 0.66 predicts 66% of the influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. This rate of percentage is highly positive and therefore means that there is significant influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. It was also deemed necessary to find out the extent of the variance of each case of independent variable (outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.) as responded by each respondent (see table 4).

TABLE 4

Analysis of variance of the influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1193.56	1	1193.56	763.49	.000b
Residual	622.19	398	1.56		
Total	1815.75	399			

The above table presents the calculated F-value as (763.49) and the P-value as (000). Being that the P-value (000) is below the probability level of 0.05, the result therefore means that there is significant influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State.

Hypothesis Two

The null hypothesis states that there is no significant joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. In order to test the hypothesis regression analysis was performed on the data, (see table 5).

TABLE 5

Regression Analysis of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State.

Model	R	R-Square	Adjusted Square	Std. error of t Estimate	R Squa Change
1	0.83a	0.69	0.68	1.20	0.69

***Significant at 0.05 level; df= 398; N= 400; critical R-value = 0.113**

The table shows that the calculated R-value 0.83 was greater than the critical R-value of 0.113 at 0.5 alpha level with 398 degree of freedom. The R-Square value of 0.69 predicts 69% of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. This rate of percentage is highly positive and therefore means that there is significant joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. It was also deemed necessary to find out the extent of the variance of each case of independent variable (play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State.) as responded by each respondent (see table 6).

TABLE 6

Analysis of variance of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1244.24	1	1244.24	866.49	.000[b]
Residual	571.51	398	1.44		
Total	1815.75	399			

The above table presents the calculated F-value as (866.49) and the P-value as (000). Being that the P-value (000) is below the probability level of 0.05, the result therefore means that there is significant joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State.

Discussion of Findings

The result of the data analysis in table 3 was significant due to the fact that the calculated R-value 0.81 was greater than the critical R-value of 0.113 at 0.5 alpha level with 398 degree of freedom. The R-Square value of 0.66 predicts 66% of the influence of outdoor and indoor play on physical development of pre-school pupils in Akwa Ibom State. The significance of the result is in agreement with the findings with Taheri (2006) who said that encouraging active play and walking as a routine in the daily lives of young children may be important in preventing obesity. Children who sleep fewer hours a day are more at risk of obesity and active children tend to sleep longer. This also agrees with Open Space (2006) who said that the outdoors is perceived as the most important environment for physically active play, and that children who go out without adult supervision are likely to be more physically active than those who are with adults. As Dietz (2001) points out: 'Opportunities for spontaneous play may be the only requirement that young children need to increase their physical activity'.The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

The result of the data analysis in table 5 was significant due to the fact the calculated R-value 0.83 was greater than the critical R-value of 0.113 at 0.5 alpha level with 398 degree of freedom. The R-Square value of 0.69 predicts 69% of the joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. This result implies that there is significant joint influence of play and nutritional intake on physical development of pre-school pupils in Akwa Ibom State. The significance of the result is in agreement with the National micronutrient survey (1993), report, that there exist problem of stunting (24%) and wasting (22%) in South Eastern Nigeria. It is well known that the reasons for increase in weight are a low level of physical activity and unhealthy nutritional habits. The significance of the result caused the null hypotheses to be rejected while the alternative one was accepted.

Conclusion

From the findings of the study, it was revealed that physically playing with your child teaches social skills while enjoying good exercise. Your child will learn to take turns and accept winning or losing. Outdoor and unstructured play may be one of the best forms of physical activity for children. It also revealed that the harmonious development of children requires an individual approach to the training process. It includes not only tracking the physical development, but also the nutritional diet.

Recommendations

Based on the findings of the study, it was recommended that:

1. Active play and walking as a routine in the daily lives of young children should be encouraged to help prevent obesity.
2. Opportunities for spontaneous play should be required in young children in order to increase their physical activity'
3. Youngsters should spend at least one hour per day engaged in light to moderate indoor and outdoor play, such as jogging, jumping, dancing and different kinds of sport.

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