

**EFFECTS OF HEALTH CAPABILITY DEPRIVATION ON ACADEMIC PERFORMANCE OF PRIMARY SCHOOL PUPILS IN RHONDA SLUMS, NAKURU WEST SUB-COUNTY, KENYA**

Nancy Atieno Kasera<sup>1</sup>, Dr. Peter Koome<sup>2</sup>, Dr. Paul Gesimba<sup>3</sup>

<sup>1,2,3</sup>Department of Development Studies, St. Paul's University

**ABSTRACT**

Childhood capabilities refer to a range of options that a child has that determine the kind of life he or she lives. Approximately 19.5% of the global children population lives in state of capabilities deprivation while in Kenya, childhood capabilities deprivation rate stands at 45% of the total children population. This study sought to examine the effect of health capability deprivation on the academic performance of primary school pupils in Rhonda slums. It utilized the descriptive survey design where it targeted a population 3276 individuals comprising of 3204 pupils and 72 teachers in six primary schools in Rhonda slums. From this population, a sample of 90 pupils was selected using the random sampling technique and 7 teachers were selected using purposive sampling. Semi-structured questionnaires were used to collect quantitative data from pupils while semi-structured interview guides were used to collect qualitative data from teachers. Quantitative data was analysed using descriptive and inferential statistics while qualitative data was analysed using thematic technique. Results showed access to preventive care ( $t=3.232$ ,  $p=.002$ ) and school absenteeism due to illness ( $t=1.996$ ,  $p=.044$ ) were the main health-related factors affecting the academic performance of pupils in Rhonda slums. The study recommends the development and implementation of interventions aimed at improving access to preventive care and reducing school absenteeism due to illness.

**Keywords:** Childhood capability, Health capability, Capability deprivation, Academic performance, Rhonda slums, Nakuru.

**1. INTRODUCTION**

The term capability has become popular in the field of development. According to Underwood, Valeo, & Wood, (2012) capabilities refer to actions or states of being that are valued by an individual. Capabilities may be potential or realized with each individual having a unique set of

capabilities. In the context of children, capabilities refer the ability of young persons to help themselves, shape their own lives, and live a dignified life (Peleng, 2013). Bigeri and Anich (2009) defined capabilities as the opportunities that an individual has to influence the life he or she may live. According to Hart and Brando (2018), capabilities can therefore be understood as ‘the range of options a person has in deciding what kind of life to lead’, which ‘represent the various combinations of functioning (being and doing) that the person can achieve’, and as such constitutes one’s freedom

Nussbaum and Dixon (2012) defines capability as those entities that enable people to execute their human functions. Capabilities should therefore be understood as ‘what people are actually able to do and to be. Despite the tendency to overlook children in that regard, children too should be seen as entitled to exercise their agency and capabilities. Nussbaum and Dixon (2012) suggests a list of ten capabilities that she qualifies as concrete, universal, inseparable and essential to the realization of human development. The ten capabilities are: life, bodily health and integrity, freedom of movement, sense, imagination and thought, emotions, practical reason, affiliation with friends and other species, play, and control over one’s environment. Anich (2009) identified another set of 14 capabilities that a child should have during his or her life. These capabilities include life and physical health, love and care, mental well-being, bodily integrity and safety, social relations, participation/ information, education, freedom from economic and non-economic exploitation, shelter and environment, leisure activities, respect, religion and identity, time autonomy, and mobility.

Capability leads to optimal functioning and flourishing of an individual. On the other hand, capability deprivation has dire consequences for human lives. It leads physical, social, and psychological problems for the child. Biggeri, Trani, and Mauro (2010) broke down capability deprivation into 10 dimensions: health deprivation, material deprivation, food security, care and love, social inclusion, freedom from economic exploitation, access to schooling, autonomy, and mobility. The UK Department for Education proposed eight dimensions of capability deprivation: income and material deprivation, wordlessness, unmanageable debt, poor housing, parental skill level, access to quality education, family stability, and parental health deprivation (Dickerson & Popli, 2015).

Childhood capability deprivation is an endemic problem in all parts of the world. According to the World Bank (2016), there are 385 million children living in abject poverty globally. According to Newhouse, Becerra, & Evans (2016), the global prevalence of child deprivation stood at 17% in 2016 which was greater than the global rate for adults. Prevalence of capability deprivation was highest among the 5-9 year old at 21.5% followed by 0-4 years old at 21%. Childhood deprivation rate stood at 21.1% in the United States of America (USA) and 30% in

the United Kingdom (UK) (McCarty, 2016; Bulman, 2018). In developing countries, one in every five children lives in the extreme poverty (defined as deprivation of one or more basic human need) while in sub-Sahara Africa prevalence stands at one in every two children (World Bank, 2016).

Gordon, Nandy, Pantazis, Pemberton, and Townsend (2009) further estimates that 37% of children in sub-Sahara Africa are living in absolute poverty defined as deprivation of two or more basic human needs. In Kenya, there were 9.5 million children who were deprived of three or more basic needs in 2016 (Kenya National Bureau of Statistics, 2016). This figure translates to a childhood deprivation rate of 45%. Health deprivation was among the most prevalence form of deprivation with 15% of the children having little access to health. Childhood deprivation not only affects the child's future but also drags down the society.

Children raised in low-income families are at risk for academic and social problems as well as poor health and well-being, which can in turn undermine educational achievement. It has been well documented that beginning as early as the second year of life, there is an association between deprivation and children's development and academic performance. However, most studies conducted on this subject have not focused on specific dimensions of deprivation leading to generation of generic recommendations that do not support targeted interventions. It is in this regard that the current study sought to examine the effect of health capability deprivation on academic performance of primary school pupils in Rhonda slums in Nakuru County, Kenya

## **2. LITERATURE REVIEW**

Education is critical to the optimal development of a child. Individuals without proper education encounter hardships such as illiteracy, unemployment, low wages, and low self-esteem (Abbott, 2012). Academic performance is one of the realistic measures of children's educational achievement and successful learning. The term refers to metrics assigned to show what the learner has achieved vis-à-vis the goals of the academic curriculum (Umamaheswari & Divyaa, 2015). It tells whether the student has attained the learning objectives and developed the desired skills and competencies.

There are different measures of academic performance. The most widely utilized is the assessment/ grading system (Chiekem, 2015). This system entails subjecting the students to different types of assessments such as continuous assessment tests and standardized examinations in order to generate valuable information about the learning process. Although the grading system has been lauded for providing objective and easy measures of performance, it is widely criticized for not capturing the actual skills and knowledge gained by the students. For

instance, Ziegler and Montplaisir (2014) argue that while a written science examination may be effective in assessing a students' ability to remember concepts, it may not be effective in examining his or her ability to apply the concepts. The grading system has also been faulted for encouraging unethical practices such as drilling and cheating (Chiekem, 2015). A section of education scholars advocate for alternative measures of performance such as the use of portfolio and formative assessment formats.

In the Kenyan primary school setting, the main measure of academic performance is through examinations/ grading system (Kasembeli & Gathara, 2014). Midterms and final examinations are the most common system used to evaluate students' academic performance within the basic education setup. These examinations often comprise of multiple choice questions. Continuous Assessment Tests are also common methods of assessment. Classroom assessment methods such as open questions, observation, and assignments are also common in Kenyan primary schools but are rarely incorporated into students grades (Kipkorir, 2009). Examinations are mainly written but some subjects incorporate elements of practical examinations that assess students' ability to apply concept learnt in class. At the end of the eight- year period, the students are subjected to a national examination where their scores are graded. Numerous factors affect the academic performance of children. One of these factors is childhood capability deprivation

### **2.1 Health Deprivation and Academic Performance**

Health deprivation is one of the main dimensions of child capability deprivation. It is a condition characterized by limited access to health services including curative, preventive, and health education services (Gordon *et al.*, 2009). Health deprivation as indicator for child capability deprivation was illustrated in the study by Wickham *et al.*, (2016), where it was found that children living in poverty in the UK were more likely to die in the first year of life, be born prematurely, be bottle-fed, suffer from asthma, and breathe second hand smoke. A study by Milliano and Plavgo (2014) revealed that 56% of children in sub-Saharan African were experiencing health services deprivation. Health has a major implication on the survival and development of children.

In their study, Yourkavitch *et al.* (2018) examined child health inequality across 27 selected sub-Saharan African countries. Five indicators were used to measure access to health including exclusive breastfeeding, immunization (measles, diphtheria, pertussis, and tetanus), and care seeking behaviour, stunting, and under-5 mortality. Results showed that there were significant disparities within and across the 27 countries in relation to the five health indicators. Several factors were found to have contributed to the health disparities including distance to healthcare facilities, socioeconomic characteristics of regions, and climatic conditions. Yourkavitch *et al.*

(2018) recommended the development of health policies that reach everyone and have uniform effect on all subpopulations. The study also recommended development of policies that specifically target underserved populations.

The relationship between health service deprivation and educational outcome has been explored in a number of studies. Miller, Lundy, Maguire, and McEvoy (2008) examined the associated between the wellbeing of primary school pupils in Northern Island and their educational attainment. Results showed that there was a statistically significant and positive association between the pupils' physical wellbeing and performance in mathematics. No significant association was found between physical wellbeing and performance in English (Miller *et al.*, 2008). The study recommended the development of interventions that will reduce disparities in access to health services by the primary school pupils. A study by Action for Children (2016) also found that good development in a child early years has a positive association with better outcomes later in life including higher education attainment

In another study, Sturdy *et al.*, (2012) found that children in the UK suffering from Asthma performed poorly in national school examinations as compared to children not suffering from the illness. The study also established that children from low socioeconomic backgrounds were more at risk of developing this condition. The effect of asthma on academic performance was also more pronounced among children from poor families. The study recommended the development of policies for improving educational attainment among pupils with deprived health status. Caird *et al.*, (2011) also found that there is weak negative association between obesity and education attainment among children and young adults. The study found that individuals with higher body mass index had lower educational attainment. Although the study did not directly measure access to health services, high rate of obesity is a good indication of deprivation to health information and preventative health.

The study by Johansen (2015) found that the prevalence of sickness among Norwegian school going children was 24%. Sickness presence among the student affected their learning by reducing the students' motivation level and causing absenteeism. The issue of school absenteeism among children with health challenges was also documented in the study by Meng, Babey and Wolstein (2012), who found that asthma contributed to the loss of 14.4 million school days in the USA in 2008. Children with asthma from low SES families were disproportionately affected by the absenteeism as findings showed that they had a higher probability of missing school due to their illness. Younger students were also more likely to miss school due to asthma. The study by Meng *et al.* (2012) was however conducted in the USA and only assessed the effect of a single illness on school absenteeism. The current study sought to investigate the effect of health deprivation in general on pupils' academic performance.

**3. RESEARCH METHODOLOGY**

To meet the objective of the study, the study used the descriptive survey research design. The research targeted a total of 3276 individuals comprising of 3204 pupils and 72 teachers in six primary schools located in Rhonda slum. The appropriate sample size for the study was determined as 97 individuals using the Taro Yamane sample size formulae:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n= sample size

N= target population (3276)

e= margin of error (10% or 0.1)

$$n = \frac{3276}{1 + 3276(10)^2} \qquad n = 97.03$$

The respondents were selected from the two groups that formed the target population as shown in Table 1.

**Table 1: Sampling Plan**

<b>Category</b>	<b>Population</b>	<b>Sample Size</b>
Pupils	3204	90
Teachers	72	7
Total	3276	97

All the six primary schools within the study area were involved in the study. From each school, 15 grade 8 pupils were selected using the random sampling technique. Two teachers were selected from Heshima Primary School because it had the highest population of teachers while one teacher was selected from each of the remaining five schools using purposive sampling. The teachers' length of stay in their respective schools was used as the selection criteria where the teacher who who had the longest stay in each school was selected. This criterion was based on the assumption that teachers with the longest stay were more likely to have more information regarding the overall performance of pupils, their capabilities, and the relationship between the two. Two data collection tools were used: (1) questionnaire for pupils and (2) interview guide for

teachers. The questionnaire for pupils contained both closed and open ended questions. The interview guide for teachers contained only open-ended questions.

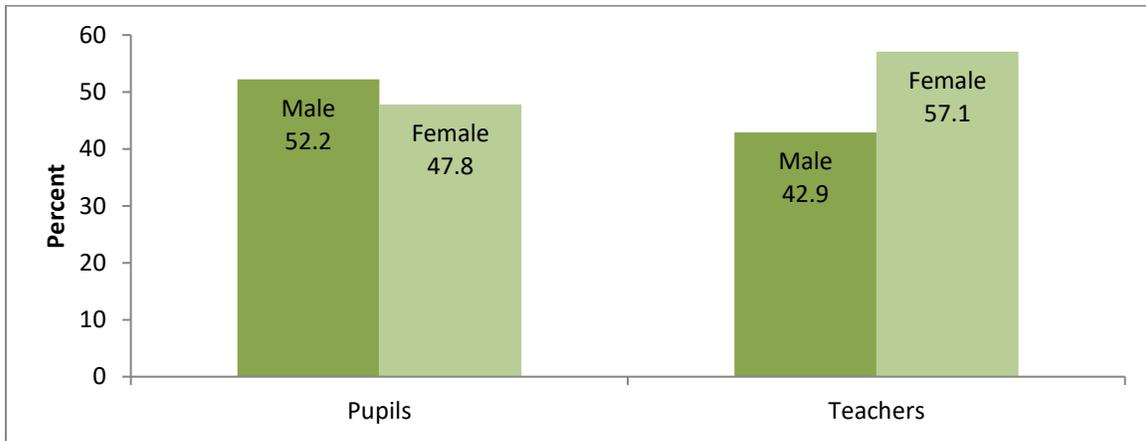
The validity of the instruments was examined by seeking expert opinion from research supervisors at the School of Social Sciences of St. Paul's University. The researchers sought the supervisors views regarding the appropriateness, clarity, and suitability of the questions in measuring what the study intend to measure. The supervisors gave various recommendations including the need to simply the language used in the questionnaire in order to make it comprehensible to primary school pupils.

Reliability of the instrument was assessed by conducted a pilot study in the adjacent Kaptembwa slum. The pilot study involved 10 respondents comprising of 9 pupils and one teacher. The reliability of the questionnaire was assessed using the test retest method, which entailed collected data from the same respondents in an interval of one week and then checking the consistency of the responses provided by each participant. It was established that most of the questions in the questionnaire were reliable.

The pre-tested instruments were personally administered by the researcher. The researcher-administered approach was preferred so as to address the difficulties that some of the pupils had in interpreting the questions. The researcher also conducted the interviews with the selected teachers in person. Quantitative data that was collected using questionnaires was coded and entered into the SPSS software where it was analysed using both descriptive and inferential statistics. Qualitative data collected using the open-ended questions and interview guides was analysed using the thematic technique.

#### **4. DATA ANALYSIS, PRESENTATION, AND INTEPRETATION**

All the 97 individuals who were targeted were able to complete the study, which translates to a response rate of 100%. The high response rate was attributed to the easy accessibility of the target population. As illustrated in Figure 1, there were more male pupils in the sample constituting 52.2% of all respondents as opposed to a female representation of 47.8%. This gender representation is consistent with the gender composition of primary school pupils in the country. On the other hand, there were more female teachers (57.1%) in the sample than male teachers (42.9). This gender distribution was also constituent with the gender composition of primary school teaching workforce in Kenya (Kenya National Bureau of Statistics, 2017).



**Figure 4.1: Distribution of Respondents by Gender**

The average age of the pupils was 13.98 years with the youngest being 12 years old while the oldest was 16 years. The average age of teachers who were interviewed was 54.36 years. The youngest interviewee was 49 years while the oldest was 57 years. The teachers were at an advance age because the sampling strategy targeted teachers who had the longest length of stay in the sampled schools.

**4.1 Academic Performance of Primary School Pupils in Rhonda Slums**

Academic performance of primary school pupils in Rhonda slums was the dependent variable of the study. It was measured using pupil’s grade in the previous term. To assess the pupils’ grade, the sampled pupils were asked to state the total marks that the obtained in the previous term examinations. Results are presented in Table 2

**Table 2: Statistics for Pupils Grades in the Previous School Term**

Statistic	Value
n	90
Mean	304.94
Minimum	171
Maximum	472

As illustrated in Table 2, the average grade for sampled pupils in the previous term was 304.94 marks out of 500. This score is higher than the national average score of 250 marks in the 2018 KCPE examination (MOEST, 2018) suggesting that on average primary school pupils in Rhonda

slums have better academic performance than the average pupils in the country. Good performance on the part of primary school pupils was also supported by the qualitative data collected during the interview. Mary (not her real name) expressed that:

Pupils' performance has significant improved in the last few years. The reason is improvement in school infrastructure and other learning resources such as classrooms, lighting, libraries, and books. This has helped improved the learning process for the pupils in the area, (Mary, Interview, 2019).

Margaret also expressed that:

Pupils' performance has improved in recent years. It seems that pupils in the area have developed more interest in learning and have increased their commitment to academic work, (Margaret, Interview, 2019).

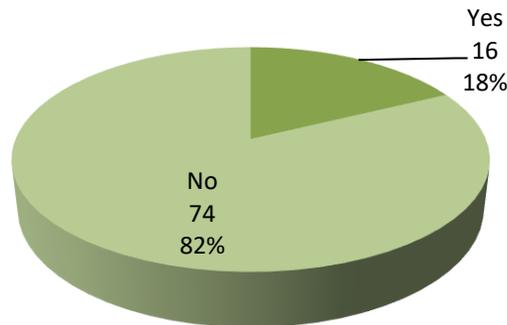
The pupil with the lowest grade had 171 marks while the highest had 472 marks. The difference between the mean grade pupils mean Examination grades are an important indicator of academic performance as they show the knowledge gained by the pupils from what was taught. In addition, examination grades at primary level determine the kind of secondary school that the pupil will join and consequently the quality of secondary education that he or she will receive.

#### **4.2 Effects of Health Capability Deprivation on Academic Performance**

Health capability deprivation was the independent variable of the study. It was measured using three indicators: access to preventive care, sickness, and school absenteeism due to illness.

##### **4.2.1 Access to Preventative Care and Academic Performance**

The World Health Organization (2009) recommends that children in their first year of life visit a physician at least six times, at least three times during their second years, and annually after the third year for preventative care. The annual preventative health check-ups provide the chance to monitor the child's growth as well as detect and address health anomalies at the earliest point. To assess this issue, pupils' were asked to indicate whether they attend health check-ups on a regular basis. Results are summarized in Figure 2.



**Figure 2: Whether Respondents attend Regular Health Check-ups**

From Figure 2, it is evident that the majority of the primary school pupils in Rhonda slums (82%) do not attend regular health check-ups. This finding is consistent with the study by Peters *et al.* (2009) who found that despite major improvement in healthcare within the developing countries, a substantial proportion of the population in these countries have limited access to health care. The study found many residents in the developing countries rarely seek health services unless they are seriously ill. It is a common practice for people to purchase medication over the counter whenever they have a minor health problem. This finding was also supported by the qualitative data collected during the interview with selected teachers. James narrated that:

Most of these pupils come from very humble background; things like health check-ups a luxury to them. Most individuals in this area only go to the hospital when they are serious sick, (James, Interview, 2019).

To examine the effect of access to preventative healthcare, the mean grades of pupils who reported that they attend health check-ups on a regular basis was compared with the mean grade of pupils who do not go for the check-up using the independent sample t-test. Results are presented in Table 3.

**Table 3: Difference in Mean Grade of Pupils who go for Check-up versus those who do not**

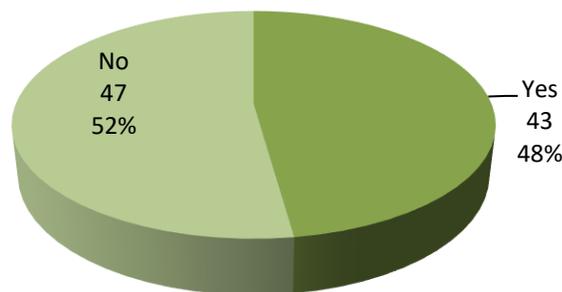
Category	N	Mean Grade	Mean Difference	DF	t	Sig.
No Check-up	74	294.5	58.75	88	3.232	.002
Attend Check-up	16	353.4				
<b>Total</b>	<b>90</b>	<b>304.94</b>				

Source: Field Data

From Table 3, it is apparent that pupils who attend health check-ups on a regular basis had a higher mean grade (mean= 353.4) than those who are deprived of this service (mean= 294.5). The independent sample t-test showed that the difference in mean grade of the two groups of pupils is statistically significant ( $t=3.232$ ,  $p= .002$ ). This means that deprivation of preventive health services has a statistically significant effect on pupils' academic performance with pupils who are deprived of preventive health services likely to record low academic performance.

#### **4.2.2 Sickiness and Academic Performance**

The second indicator that was used to measure health capability deprivation was sickness. The study assumed that pupils who do not have adequate access to health care are likely to fall sick more often than those who have adequate access. To evaluate this issue, pupils were asked to indicate whether they had fallen sick in the prevailing school term. Their responses are summarized in Figure 3.



**Figure 3: Whether Pupils had fallen sick during the academic term**

From Figure 3, it emerges that nearly half of the pupils (48%) had fallen sick at some point during the academic term. This proportion is higher than the prevalence recorded in developed countries. The study by Johansen (2015) found that the rate of sickness presence in Norwegian schools was 24%. Interviewed teachers also confirmed that there were high incidences of pupils fall sick within their schools. Jane recounted that:

“The number of pupils who fall sick is very high. Every week, we get tens of cases where pupils fail to turn up due to illnesses such as flu, stomach problems, and headaches among others,” (Jane, Interview, 2019).

To examine the effect of sickness on academic performance, the mean grade of pupils who reported falling sick during the academic term was compared with that of pupils who did not fall sick using the independent sample t-test. Results are presented in Table 4.

**Table 4: Mean Grade Difference between Pupils who fell sick and those who did not**

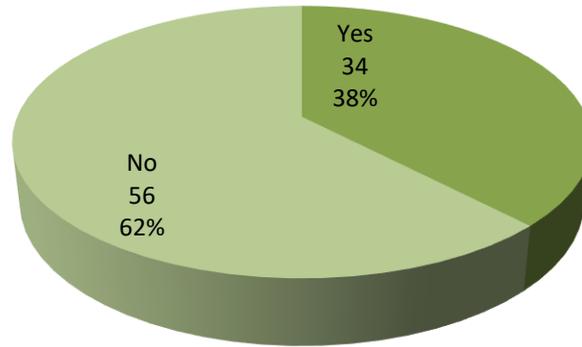
Category	N	Mean Grade	Mean Difference	DF	t	Sig.
Fell Sick	43	301.36	7.499	88	0.510	.611
Did not Fall Sick	47	308.86				
<b>Total</b>	<b>90</b>	<b>304.94</b>				

As Table 4 illustrates, pupils who did not fall sick during the academic term had a higher mean grade (mean= 308.86) than those who fell sick (mean= 301.36). The independent sample t-test however showed that the difference in mean grades of the two groups of pupils was not statistically significant (t= 0.51, p= .611). This implies that sickness does not have a significant effect on the academic performance of primary school pupils in Rhonda slum. The findings imply that pupils who fell sick had more or less the same academic performance as those who did not fall sick.

The finding is not consistent with Sturdy *et al.*, (2012) who found that children in the UK suffering from Asthma performed poorly in national school examinations as compared to children not suffering from the illness. The study also established that children from low socioeconomic backgrounds were more at risk of developing this condition. The insignificant effect of sickness observed in the current study may be attributed to the fact that the study did not require pupils to specify the kind of illness that they had suffered from. It is probable that most of the pupils who reported falling ill during the term had suffered from manageable illnesses such as common cold rather than serious conditions like asthma.

#### **4.2.3 Absenteeism due to Illness and Academic Performance**

The final indicator that was used to measure health capability deprivation was school absenteeism due to illness. To assess this aspect, pupils were asked to indicate whether they had missed any school day during the prevailing term due to illness. Results are presented in Figure 4.



**Figure 4: Whether Respondent has missed a School Day due to Illness**

As shown in Figure 4, about 38% of the pupils said that they missed at least one school day during the prevailing academic term due to illness. To determine the effect of sick absence on the pupils’ academic performance, the mean grade of pupils who missed at least a day in the term due to illness was compared to those who did not have any sickness absence using the independent sample t-test. Results are presented in Table 5.

**Table 5: Mean Grade Difference of Pupils with Sickness Absence and those with No Sickness Absence**

Category	N	Mean Grade	Mean Difference	DF	t	Sig.
Had Sickness Absence	34	289.21	25.294	88	1.996	.044
No Sickness absence	56	314.50				
<b>Total</b>	<b>90</b>	<b>304.94</b>				

As Table 5 shows, pupils who had a sickness absence during the academic term had low average grades (mean= 289.21) than those who did not have any sickness absence (mean= 314.50). The independent sample t-test showed that the difference in mean grades of the two groups of pupils was statistically significant (t= 1.996, p= .044). This implies that sicknesses absence has a significant effect on pupils’ academic performance with pupils who miss school due to sickness being more likely to record poor academic performance.

## **5. CONCLUSIONS**

The study concludes that inadequate access to preventive healthcare as well as school absenteeism due to illness, have a statistically significant effect on academic performance of primary school pupils. Pupils who do not attend regular health check-up, and those who miss school days due to illness were more likely to record low academic performance. Sickness in itself does not have a significant effect on academic performance unless it leads to school absenteeism.

In line with these conclusions, the study recommends the development and implementation education programmes may help create awareness regarding the importance of attending regular health check-ups. The government should also find strategy for increasing enrolment into the National Hospital Insurance Fund by households living in highly deprived areas in order to increase their access to preventive and curative health. This will also help to address high incidences of sickness and school absenteeism due to illness. Programmes that take preventative healthcare services closer to the primary school pupils such as mobile screening for diseases such as diabetes may help increase access to preventive health as well as reduce incidence of illness.

The current study was limited to primary school pupils in Rhonda slums. Future studies should consider replicating this study in other informal settlements and highly deprived areas so as to support generalization of findings. Future studies should also consider expanding this study to also examine the effect of childhood deprivation on the academic performance of secondary school students. Future studies should also consider other deprivation dimension such as shelter, information, love and care, leisure activity, mobility, and safety deprivation.

The study established that there are high incidences of sickness in the study area, which affects academic performance when they cause school absenteeism. Future studies should explore the common illnesses that pupils in these areas suffer from so as to generate evidence that will guide the development of targeted interventions for addressing these illnesses.

## **REFERENCES**

- Action for Children (2016). *Witten submission to All Part Parliamentary Group on Health in all policies inquiry into child poverty and health*. London, UK: UK Parliament.
- Biggeri, M. Traini, J., & Mauro (2010). *The multidimensionality of child poverty: An empirical investigation on children of Afghanistan*. London: Oxford Poverty & Human Development Initiative.

- Bulman, M. (2018). Number of children in poverty surges by 100,000 in a year, figure show. *Independent*. Retrieved <https://www.independent.co.uk/news/uk/home-news/child-poverty-increase-children-family-benefit-households-a8268191.html>.
- Caird, J., Kavanagh, J., Oliver, K., Oliver, S., O'Mara, A., Stansfield, C., & Thomas, J. (2011). *Childhood obesity and educational attainment: A systematic review*. London, UK: Social Science Research Unit.
- Dickerson, A., & Popli, G. (2015). The many dimensions of child poverty: Evidence from the UK millennium cohort study. Economic Research Paper Series. Retrieved <https://pdfs.semanticscholar.org/a924/ccacdc407a5f35e82bbadda053ca36ddad3.pdf>.
- Gordon, D., Nandy, S., Pantazis, C., Pemberton, S., & Townsend, P. (2009). *Child poverty in the developing world*. Southampton: Hobbs the Printers Ltd.
- Johansen, V. (2015). Sick and still at school: An empirical study of sickness presence among students in Norwegian secondary school. *BMJ*, 5(9), e008290.
- Kenya National Bureau of Statistics (2016). *Child poverty in Kenya: A multidimensional approach*. Nairobi, Government Press.
- Kenya Bureau of Statistics (2017). *Economic Survey 2017*. Nairobi, KE: Government Printer.
- Kenya National Bureau of Statistics (2017). *Child poverty in Kenya: A multidimensional approach*. Nairobi, KE: Government Press.
- McCarty, A. (2016). Child poverty in the United States: A tale of devastation and the promise of hope. *Sociology Compass*, 10(7), 623- 639.
- Meng, Y., Babey, S., & Wolstein, J. (2012). Asthma-related school absenteeism and school concentration of low-income students in California. *Preventing Chronic Disease*, 12(9), 110312.
- Miller, S., Lundy, L., Maguire, L., & McEnvoy, L. (2008). *Wellbeing and educational attainment of primary school pupils in Northern Ireland*. Belfast, UK: Queen's University Belfast.
- Milliano, M., & Plavgo, I. (2014). *Analysis child poverty and deprivation in sub-Saharan Africa: CC-MODA-Cross country multiple overlapping deprivation analysis*. Florence, IT: UNICEF Office of Research.

MOEST (2018). *2018 Basic Education Statistical Booklet*. Nairobi, KE: Government Printer.

Newhouse, D., Becerra, P., & Evans, M. (2016). *New estimates of extreme poverty for children*. Policy Research Working Paper 7845.

Peters, D., Garg, A., Bloom, G., Walker, D., Brieger, W., & Rahman, H. (2009). Poverty and access to health care in developing countries. *Annals of the New York Academy of Sciences*, 1136(1), 161-171.

Sturdy, P., Bremner, S., Harper, G., Mayhew, L., Eldridge, S.....& Griffiths, C. (2012). Impact of asthma on educational attainment in a socioeconomically deprived population: A study linking health, education and social care datasets. *PLoS One*, 7(11): e43977.

Wickham, S., Anwar, E., Barr, B., Law, C., & Robinson, D. (2016). Poverty and child health in the UK: Using evidence for action. *Archives of Disease in Childhood*, 101(8). doi: 10.1136/archdischild-2016-311570.

World Bank (2016). *Ending extreme poverty: A focus on children*. New York: World Bank.

Yourkavitch, J., Brucker, C., Assaf, S., & Delgado, S. (2018). Using geographical analysis to identify child health inequality in sub-Saharan Africa. *PLoS ONE*, 13(8): e0201870.

#### **ABBREVIATION AND ACRONYMS**

**KCPE:** Kenya Certificate for Primary Education

**MOEST:** Ministry of Education, Science and Technology

**SPSS:** Statistical Packages for Social Science

**UK:** United Kingdom

**USA:** United States of America