




Issue no: 1 | Vol no: 4 | November 2023: 228-234

Relationship between selected ecological factors and enrolment of girls in rural public primary schools in Samburu County, Kenya

Ropilo Lanyasunya⁽¹⁾ 

Fredrick B. J. A. Ngala⁽²⁾ 

Betty Tikoko⁽³⁾ 

(1,2,3) Kabarak University, Kenya.

Main author email: ropilolanyasunya@gmail.com

Article History

Received: 06.08.2023

Accepted: 13.10.2023

Published: 13.11.2023

Cite this article in APA

Lanyasunya, R., Ngala, F. B. J. A., & Tikoko, B. (2023). Relationship between selected ecological factors and enrolment of girls in rural public primary schools in Samburu County, Kenya. *Editon consortium journal of educational management and leadership*, 4(1), 228-234.

<https://doi.org/10.51317/ecjmel.v4i1.429>

Abstract

This study sought to examine the relationship between ecological factors and the enrolment of girls in rural public primary schools in Samburu County, Kenya. Enrolment of girls in rural primary schools in the County has remained persistently low over the years despite the government's efforts to promote it. The study employed a descriptive correlation survey design guided by the Social Conflict Theory by Oberschall. The target population of the research was 136 female teachers and 135 headteachers from rural public primary schools in Samburu County. The sample size for the study was 136 female teachers and 27 headteachers. The census method for female teachers who responded to the questionnaires was used, while the purposive sampling technique was applied for head teachers whose data was obtained using interview schedules. Result analysis by Pearson Correlation Coefficient revealed a statistically significant negative correlation of -0.429 with a p-value (Sig.) of 0.025. The significance level of 5 per cent indicates that higher ecological factors are associated with a decrease in girls' enrolment in rural public primary schools in Samburu County. The study recommended the enhancement of safety measures along with resolving water scarcity issues as well as expanding access to education in rural areas in Samburu County as a means for enhancing girls' enrolment in rural primary schools.

Key words: Distance to school, ecological factors, girls enrolment, rural schools, school enrolment.



This article is distributed under the license of a [Creative Commons Attribution-Non Commercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/). It is permitted to be used, reproduced and distributed in line with Editon Consortium Publishing guidelines.

INTRODUCTION

Given that girls' education is a critical determinant for overall societal development and is a basic human right, girls' school enrolment levels are still low in Africa, especially in its rural areas. It has been noted that girls' education impacts positively on women with regard to health, economic empowerment, and social development (Moodley et al., 2019; Ali, 2020). Women's earnings are compounded by the number of years they spend in school learning (Silva & Oliviera, 2022). As such, nations in Africa are in agreement to uphold girls' entitlement to education. Educational planning has been a key promoter of girls' access to basic education. The Convention on the Elimination of All Forms of Discrimination against Women –CEDAW (1979) and The Convention on the Rights of the Child – CRC (1989) comprise some of the declarations in this regard (Silva & Oliviera, 2022). The Dakar Conference of 2000 looked at the progress made in achieving Universal Primary Education (UPE) in Africa, it sought to implement the goal of tackling incongruity in primary schools by 2005 and gaining gender parity in education by 2015 in order to enhance achievement of education for all, whereby the 2000 Conference in Dakar proclaimed successful achievement of primary school for all by 2015.

Significant progress in school enrolment has been made; however, millions of girls above boys are not in school worldwide, especially in Africa south of the Sahara desert (United Nations Statistics Division -UNSD, 2019; Rafaeli & Hutchinson, 2020). Just seven nations in sub-Saharan Africa attained the goal of at least 80 per cent gross enrolment ratio (United Nations Scientific and Cultural Organization-UNESCO, 2019). According to UNESCO (2019) and World Bank (2019), there are still one hundred and thirty million primary girls who are not in school, most of whom hail from West Asia and sub-Saharan Africa. Evans and Yuan (2020), as well as Steinmann and Rutkowski (2023), have noted that the majority of girls across the African continent are still enrolled in school.

Ecological factors such as drought and shortage of water influence the way children enrol in school (Singh et al., 2023); escalation of such adverse

ecological factors engender from desertification and deforestation through the cutting of trees and farming practices are processes responsible for species decimation, diminishing water supplies, destruction of grazing grounds and farmland, as well as contributing to recurring flood emergencies (Bodo et al., 2021). In Kenya, ecological factors such as high temperatures and malaria scourge have surpassed the world average as even the weather in the highlands is becoming warmer, thus increasing mosquitoes. Highland malaria appears to be rising in the rainy season and with elevated temperatures (Rastogi, 2019). Consequently, this study aims to look at ecological aspects in relation to the girls' entry into the rural schools in the County of Samburu, which can yield a clear perspective.

The government of Kenya has been working to promote girls' access to primary education. However, data from 42 counties in Kenya show that urban girls are doubly likely to be in school than rural girls (National Bureau of Statistics, 2022), and a girl in central Kenya is more than seven times more likely to attain a grade two level of literacy and numeracy than a girl in northern Kenya (Sakwa, 2020). In Samburu County, the gap between girls and boys in primary school enrolment is wider in schools in rural than in schools in urban areas.

The level of enrolment of girls in primary school in Samburu County has remained low continually. The percentages have remained around 40 per cent with marginal increases. The national primary school enrolment depicts very minimal disparities of decimal points. The Gender Parity Index (GPI) for 2022 in Samburu County was 0.7. According to UNESCO (2020), if the GPI ranges from 0.97 to 1.03, then it means that gender parity has been attained. GPI below 0.97 indicates an imbalance in favour of boys, but 1.03 and above favours girls. Primary school enrolment data for 2022 shows that Kenya achieved gender parity at 0.98 (Ministry of Education, 2022). Samburu County is, therefore, way below the acceptable bracket of between 0.97 and 1.03.

Enrolment figures for the girl child remain low in remote areas such as Samburu County. Together with that, there is a disparity between boys' and girls'

enrolment in rural primary schools in Samburu County. Girls' enrolment in public primary schools was 36.5 per cent, while 63.5 per cent of boys were in school in 2022. Similarly, there were variations between sub-counties. For instance, Central Sub-county had relatively higher enrolment at 40.2 per cent while Samburu East had a meagre 34 per cent.

Though the government of Kenya has made efforts to promote education for all children through its educational planning and economic policies and plans, girls' enrolment in primary school remains low in rural areas, especially in Samburu County, where girls school enrolment in rural public primary schools in 2022 is 36.5 per cent (UNICEF, 2019; MOE, 2020). Singh et al., (2023) indicated that distance to school and drought were major hindrances to the enrolment of children in schools; the implication of this finding for girls in Samburu County, as well as other ecological factors which could hinder enrolment of girls in rural primary schools, necessitates similar research in Samburu County.

LITERATURE REVIEW

The literature review centred on the relationship between Ecological Factors and Enrolment of Girls in School. Singh et al. (2023) inquiry on distance to school and drought vis-a-vis girls' school enrolment in Punjab, Pakistan, revealed that distance to school and drought were significant factors in influencing girls' school attendance. A similar study in Tanzania by Bray (2021) found that the severity of drought excluded girls from enrolment in schools. Bennell's (2023) study in Nigeria also highlighted the effect of the negative severity of drought on the enrolment of girls in school. Regarding the effect of distance to school on girls' enrolment in school, Ukaohia et al. (2019) found that more girls were likely to enrol when distances to school were shorter. Ihugba's (2020) findings support this position. Reyes-Foster (2019) found that in Mexico, girls were more likely to enrol in school when temperatures were milder than when they were higher. Stenseth and Bæk (2021) examined the role of geographical context on school enrolment in Norway, concluding that geographical factors influenced the decision-making process in school enrolment.

METHODOLOGY

This research adopted a descriptive correlational design, and a survey method was applied for the collection of data on the relationship between ecological factors and girls' enrolment in rural public primary schools in Samburu County by use of questionnaires and interview schedules. The study was based in rural public primary schools in Samburu County, Kenya. The respondents were 136 female teachers and 135 head teachers in rural public primary schools. The census method was used to select all 136 female teachers, and purposive sampling was used to select 27 head teachers. Piloting was done on 14 female teachers and 3 headteachers. The questionnaires used four-degree Likert-type items in order to avoid neutral responses. Quantitative data analysis was conducted using Statistical Package for Social Science (SPSS) version 29.0. Descriptively, percentages were computed. Correlation analysis was conducted to test the direction, existence and degree of the relationship between ecological factors and the enrolment of girls in rural public primary schools in Samburu County, Kenya. Analysis of Variance (ANOVA) test was extracted through regression analysis to test for significance. Regression analysis was carried out to show the predictive capacity of ecological variables on girls' enrolment in rural public primary schools in Samburu County. In conducting and reporting the research findings, the utmost level of respect for the rights of the respondents was adhered to, including adherence to integrity and truthfulness.

RESULTS AND DISCUSSION

There was a 100 per cent turnout of the respondents, with 30.3 per cent being above 35 years of age, while the rest ranged between 21-34 years. All had primary teacher education training certificates (P1). The study focused on selected ecological variables of distance to school, drought, physical environment, high temperatures, as well as water and pasture scarcity. Regarding distance to school, 16.6 per cent of the respondents disagreed that distance affected the enrolment of girls in schools, while 83.4 per cent alluded that distance was one of the main ecological factors affecting enrolment. This agrees with the findings of Singh et al. (2023). On drought, 85.3 per cent of the respondents agreed that drought affected the enrolment of girls in schools, while only 14.7 per

cent were of the contrary opinion. Bray (2021) also had similar results. For the physical environment, 59.9 per cent of the respondents disagreed that the physical environment affected the enrolment of girls in schools, while 40.1 per cent, on the other hand, alluded that the physical environment was indeed affecting enrolment. On physical environment, 74.6 per cent of the respondents disagreed that physical environment affected enrolment of girls to rural

primary schools, while those that were of the contrary opinion were 25.4 per cent. Finally, on water and pasture scarcity, 54.2 per cent of the respondents disagreed that water and pasture scarcity affected the enrolment of girls in schools, while 45.8 per cent, on the other hand, indicated that water and pasture scarcity affected the enrolment of girls in schools.

Table 1: Summary of Ecological Factors’ Relationship with Enrolment of Girls

Ecological Factors	% Disagreed	% Agreed
Drought	14.7	85.3
Distance	16.6	83.4
Water, pasture	54.2	45.8
Physical environment	59.9	40.1
High temperatures	74.6	25.4
Average	44	56.0

Test of the null hypothesis, 'There is no statistically significant relationship of EF on enrolment of girls in Samburu County'.

TABLE 2: TEST OF HYPOTHESIS

Area of Residence	Selected Factor	Enrolment of Girls	Pearson Correlation Coefficient Values	Sig. (2-tailed)
Samburu County	EF		-.429*	.025

* - Means significant at 5 Per Cent level

The Pearson Correlation Coefficient value of -0.429 signifies a moderate negative correlation. In simpler terms, as ecological factors worsen or become more challenging, girls' enrolment in Samburu County tends to decrease. The associated p-value (Sig. 2-tailed) of 0.025 indicates a 5 per cent level statistical significance, suggesting that this observed negative correlation is unlikely to be a result of random chance. The results of the ANOVA performed on the independent variable (EF) and dependent variable (enrolment of girls in public primary schools) are summarised in Table 38. The results show that the

regression line fits the actual data since the mean square of the residuals is very small (0.330) compared to the mean square of the regression (1.704). The F-statistics of the regression result is $F_{(1, 120)} = 5.166$, while the reported p -value=0.025, which is less than the conventional probability value of 0.05 alpha level. The model applied can thus significantly predict the change of the dependent variable as a result of the independent variable in the model. Thus, the coefficients of the model are not equal to zero; this indicates that the model fits the data significantly.

Table 3: Anova Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.704	1	1.704	5.166	.025 ^b
	Residual	39.575	120	.330		
	Total	41.279	121			
a. Dependent Variable: Enrolment rate of girls						
b. Predictors: (Constant), Ecological Factors						

There existed a statistically significant negative relationship between EF and enrolment of girls in public primary schools of Samburu County ($\beta = -.348, p < 0.05$). The beta coefficient of $-.348$ means

that when the practice of IGCF increases by an additional unit, enrolment of girls in public primary schools in Samburu County decreases by $.348$.

Table 4: Anova Coefficients

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.342	.507		6.596	.000
	Ecological Factors	-.348	.153	-.429	-2.273	.025

The constant term (Constant) in the model represents the predicted value of girls' enrolment when ecological factors have no effect (i.e. when they are at their reference level). In this case, the constant is 3.342, with a standard error of 0.507. The t-value of 6.596 indicates that this constant is statistically significant ($p < 0.001$), suggesting that girls' enrolment is influenced by factors other than ecological ones. The coefficient for Ecological Factors represented as "B" is -0.348 , with a standard error of 0.153. This coefficient signifies the change in girls' enrollment for each unit change in ecological factors. Importantly, the standardised coefficient (Beta) of -0.429 indicates that ecological factors have a moderate negative effect on girls' enrolment. The t-value of -2.273 is associated with a significance level of 0.025, indicating that the relationship between ecological factors and girls' enrolment is statistically significant at the 5 per cent level. The ANOVA coefficients reveal a significant negative relationship between ecological factors and girls' enrolment in Samburu County, corroborating findings from the broader empirical literature. These results emphasise the need for targeted interventions and policy measures to address ecological challenges and enhance girls' access to education in this region,

drawing on insights and recommendations from relevant studies conducted in similar contexts.

Qualitative findings also point to the same relationship and give more details on the sub-factors. Participants were asked if the distance between the family residence and the school was a factor affecting girls' enrolment in the school. Most of the head teachers agreed that family residence had a relationship with girls' enrolment in public primary schools. The respondents reported that this relationship was linked to fatigue, which was reflected in the long distances that these girls had to travel in order to get to school. They said that the distances forced girls to miss school, and others dropped off. Hence, the distance factor was affecting the girls' enrolment in public primary schools. Lack of food at home during drought also makes many girls fail to go to. Instead of using their energy to walk to school, they would better walk those long distances in search of food. As a result, girls are not enrolled in public primary schools, while some drop out of school and others often miss to attend school. These dynamics could be illustrated by the following statement:

The drought in Samburu is worsening every day, making desperate families trek long distances in search of pasture, water and food for their livestock. Men go looking for food, while women, including school-going children, stay at home to take care of other family members as they look for more food to sustain themselves.

CONCLUSION AND RECOMMENDATIONS

Conclusion: This study brought to the fore the way Ecological factors such as distance to school, drought, physical environment, high temperatures, as well as water and pasture scarcity are correlated with girls' enrolment in primary school. The onus is on both the national and the county governments to devise and implement measures for addressing the cited ecological factors. This study should be replicated in every County of the Republic of Kenya so that county-based solutions for problems facing

girls' enrolment in public schools, particularly in individual counties, may be worked out.

Recommendations: There is a need for investments in infrastructure, such as opening up remote rural areas by constructing road networks, increasing mobile phone networks and constructing more primary schools, including boarding schools. Pastoralists should be trained in the diversification of livelihood sources, such as crop farming and entrepreneurship. Finally, rangeland management issues need to be addressed, especially in the face of the increasing human population that threatens the availability of grazing areas that used to be refuge for livestock during droughts. There is a need for further research countrywide on the relationship between Ecological factors and the enrolment of girls in public primary schools because this study only limited itself to studying public primary schools in Samburu County.

REFERENCES

- Ali, F. M. A. M. (2020). *The Impact of Economic Transformations on the Development of the Status of Women in The Arabian Gulf: The Case of Qatar and Bahrain* (Doctoral dissertation).
- Bennell, P. (2023). The attainment of gender education equality: A preliminary assessment of Country performance in sub-Saharan Africa. *International Journal of Educational Development*, 98, 102722.
- Bodo, T., Gimah, B. G., & Seomoni, K. J. (2021). Deforestation and habitat loss: Human causes, Consequences and possible solutions. *Journal of Geographical Research*, 4(2), 22-30.
- Bray, T. M. (2021). *Shadow education in Africa: Private Supplementary Tutoring and its Policy Implications*. Comparative Education Research Centre, the University of Hong Kong.
- Evans, D., & Yuan, F. (2020). *We can Learn a Lot about Improving Girls' Education from Interventions that Don't Target Girls*. Centre for Global Development.
- Ihugba, O. (2020). The impact of distance to school and harassment of girls on their school enrolment in rural Nigeria. *International Journal of Educational Development*, pp. 73, 38–46.
- Ministry of Education. (2020). *Basic Education Statistical Booklet 2019*.
- Moodley, L., Kuyoro, M., Holt, T., Leke, A., Madgavkar, A., Krishnan, M., & Akintayo, F. (2019). *The Power of Parity: Advancing Women's Equality in Africa*. McKinsey Global Institute.
- National Council for Population Development. (2023). *Kenya Population Situation Analysis*. Government Printer.
- Rafaelli, T., & Hutchinson, G. (2020). The secondary impacts of COVID-19 on women and girls in Sub-Saharan Africa.
- Rastogi, S. (2019). *As Climate Change Intensifies, It Could Create Barriers for Children's Education*. Youth Ki Awaaz.
- Reyes-Foster, B. M. (2019). *Psychiatric Encounters: Madness and Modernity in Yucatan, Mexico*. Rutgers University Press.
- Sakwa, H. N. (2020). *Effects Of Early Marriages On The Education Of Primary School Girls In Buna Sub-County, Wajir County, Kenya* (Doctoral Dissertation, Effects Of Early Marriages On The Education Of Primary School Girls In Buna Sub-County, Wajir County, Kenya.).

- Steinmann, I., & Rutkowski, L. (2023). The link between gender gaps in school enrolment and School achievement. *Comparative Education Review*, 67(3), 584-612.
- Stenseth, A. M., & Bæck, U. D. K. (2021). Being able to stay or learning to stay: A Study of rural boys' educational orientations and transitions. *Journal of Applied Youth Studies*, 4, 15–30.
- Silva, R. D., & Oliveira, J. (2022). Global education policy in African fragile and conflict-affected states: Examining the Global Partnership for Education. *Globalisation, Societies and Education*, 20(4), 508-522.
- Singh, A., Gupte, S. S., & Chattopadhyay, A. (2023). The Problem of Undernutrition: Positioning India and Its States. In *Undernutrition in India: Causes, Consequences and Policy Measures* (pp. 1-19). Springer Nature Singapore.
- UNESCO Institute for Statistics. (2020). School-age population: Global snapshot.
- Ukaoha, K. C., Abdullahi, M. B., & Nwankwo, W. (2019). Towards achieving the sustainable Development goals of education in Nigeria using open and distance learning. *African Journal of Management Information System*, 1(2), 19-29.
- UNESCO. (2019). *Out-Of-School Children: New Data Reveal Persistent Challenges*. UNESCO Fact Sheet.
- UNICEF. (2019). *A Profile of Female Genital Mutilation in Kenya*.
- UNSD (2019). *Gender Statistics*. UNSD
- World Bank. (2019). *Girls' Education*. The World Bank.