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ABSTRACT

Education is a fundamental pillar of individual and national development, and it is both a societal and parental responsibility to ensure children's access to quality learning opportunities. Despite continuous investment in Kenya's secondary education sector, disparities in academic performance remain evident across schools in varied counties. Existing international and local research indicates that parents' educational attainment influences students' achievement through factors such as home literacy environments, parental expectations, and academic support. This study examined the relationship between parental level of education and academic achievement among students in public secondary schools in Bureti sub county, Kenya. Specifically, it sought to determine the extent to which mothers' educational attainment predicts students' academic success. The study was guided by the Human Capital and the Classical Educational Production Function Theories. An ex post facto, descriptive, and correlational research design was adopted. Snowball and saturated sampling techniques were employed to select participants, while data were collected through questionnaires, interview schedules, focus group discussions, and document analysis guides. Quantitative data were analyzed using cohort analysis, descriptive, and inferential statistics, while qualitative data were thematically analyzed. The findings revealed a strong positive relationship between a mothers' educational attainment and students' academic success, with a correlation coefficient of 0.826**. The coefficient of determination ($R^2 = 0.6822$) indicated that the mother's level of education accounted for 68.22% of the variance in students' Kenya Certificate of Secondary Education (KCSE) performance. These findings underscore the pivotal role of maternal education in shaping academic outcomes and highlight the importance of promoting equitable access to education for both boys and girls, as this has far-reaching implications for future generations.

Keywords: Maternal education attainment, Student Academic Success

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1. INTRODUCTION

Background information

Education serves as a cornerstone for both nation-building and individual character formation. It is widely recognized as a driving force for societal transformation, economic progress, and human development. The quality of education that learners receive, however, is shaped not only by the institutions and teachers involved but also by the home environment in which learning is nurtured. Empirical research consistently demonstrates that a combination of socioeconomic, demographic, and school-related factors exerts a significant influence on students' academic performance. Among these determinants are parental education levels and occupation, socioeconomic status, gender, ethnicity, parental involvement, teacher and peer influence, school quality, students' self-efficacy, and neighborhood context (Aburi, Duah & Gyasi-Agyei, 2024).

Parental education, in particular, has emerged as a strong predictor of students' academic achievement. Educated parents are generally more aware of the value of education, set higher academic expectations, and are better equipped to support their children's learning. Consequently, students with educated parents often display stronger motivation, discipline, and confidence, which enhance their academic outcomes (Haider et al., 2024). Kassim (2011) similarly emphasizes that parents' education shapes children's knowledge, skills, and values, while home-based educational engagement significantly contributes to children's academic attainment. Research further shows that

parents influence children's vocabulary, linguistic competence,

and social skills—critical foundations for academic success. Educated parents also provide guidance grounded in their own educational experiences, helping children navigate academic challenges and develop adaptive behaviors conducive to lifelong learning (Idris, Hussain & Ahmad, 2020).

While both parents play vital roles in children's educational development, several scholars highlight the particularly profound influence of mothers. Athirathan (2024) asserts that mothers play a pivotal role in the physical, emotional, and cognitive development of children. Goel (2021) describes motherhood as an institution upon which societies have historically relied for socializing future generations, even before the advent of formal schooling. Moreover, women's education produces broader social benefits: whereas men's education primarily advances individual and familial economic outcomes, women's education enhances social development indicators at family, community, and national levels (Athirathan, 2024). Mothers with higher levels of education are more likely to maintain their children's health and personality development, thus contributing positively to overall child well-being. Yu (2023) reinforces this view, arguing that women's educational attainment influences their nurturing behaviors and consequently affects both the developmental outcomes of their children and the overall quality of society.

Education also empowers women by equipping them with knowledge, skills, and agency to participate productively in

society and to raise healthier, more capable children (Ross & Mirowsky, 1999). Educated women tend to value health, nutrition, and cognitive stimulation, which foster their children's physical, emotional, and intellectual growth (Grossman, 2005; Feinstein et al., 2008). Well-nurtured and cognitively stimulated children, in turn, perform better academically and socially, helping to break cycles of intergenerational disadvantage (Grantham-McGregor et al., 2007). Parental education thus remains one of the most direct pathways through which educational attainment and social mobility are transmitted across generations. As Aburi, Duah, and Gyasi-Agyei (2024) observe, the educational experiences parents acquire inform how they engage with their children, especially through educational activities at home, thereby shaping learning outcomes.

Despite the evident influence of parental education, limited research has focused specifically on the impact of **mothers' educational attainment** on students' academic performance in Kenya. This gap persists partly due to prevailing patriarchal norms that prioritize men's roles in society while undervaluing women's contributions to early childhood education and development. Yet, mothers serve as primary educators during a child's formative years, making their educational background particularly significant. Against this backdrop, the present study sought to examine the relationship between mothers' level of education and students' academic achievement in public secondary schools in Bureti Sub County, Kenya.

Purpose of the Study

The purpose of the study was to determine the role of mothers' educational attainment in shaping secondary school students' academic success in Bureti sub county, Kenya

Specific Objective

This study sought to investigate the relationship between a mother's educational attainment and students' academic success.

Research question

What is the relationship between a mother's educational attainment and students' academic success?

Hypotheses (testable)

H1: There is a relationship between a mother's educational attainment and students' academic success

2. LITERATURE REVIEW

Aburi, Duah, and Gyasi-Agyei (2024) conducted an exploratory and descriptive study examining the influence of parental education, race, and gender on students' academic performance. Using data from 1,000 U.S. high school students from diverse racial and ethnic backgrounds, the study analyzed demographic variables such as parental education level, gender, race/ethnicity, lunch status, and test preparation in relation to standardized mathematics, reading, and writing scores. Levene's test confirmed homogeneity of variance across all subjects, and subsequent t-tests and ANOVA analyses revealed that students with highly educated parents performed significantly better in all subjects, regardless of gender. The study offers valuable evidence on the predictive role of parental education in shaping academic outcomes and demonstrates strong analytical rigor. However, it differs from the present study in several ways. Whereas Aburi et al. conducted their research in the United States, the current study focuses on public secondary schools in Bureti Sub County, Kenya. Additionally, while their study examined multiple dependent variables—including gender, race/ethnicity, and test preparation—the present research specifically investigates the relationship between mothers' education and students' academic achievement. Furthermore, the current study employs ex post facto, descriptive, and correlational designs rather than a purely survey-based approach, thereby offering a more targeted analysis of educational influence within a Kenyan context.

Kumar, Bakariya, and Verma (2021) conducted a statistical inferential study to examine the effect of mothers' education on students' academic achievement in public secondary schools in Portugal. Data were obtained from 649 students across two public

schools, and analysis was performed using two non-parametric statistical techniques—the Kruskal-Wallis one-way ANOVA and the Mann-Whitney test—through SPSS version 19. The findings demonstrated a statistically significant relationship between the mother's level of education and students' academic performance. Post hoc analysis further indicated that students whose mothers had attained higher education performed markedly better in final examinations than those whose mothers had only basic education, highlighting the strong predictive power of maternal education on academic success. While this study offers valuable empirical evidence supporting the influence of maternal education on student achievement, it differs from the present study in several important respects. First, the research was situated in Portugal, a context characterized by distinct sociocultural and educational dynamics, whereas the current study is grounded in the Kenyan setting, where socio-economic realities and gendered educational experiences differ substantially. Second, Kumar et al. employed exclusively quantitative inferential statistical methods, focusing on numerical associations, while the present study adopts a mixed-methods approach that integrates both quantitative and qualitative data. In particular, qualitative findings in the current study are analyzed thematically to capture deeper contextual insights, complementing cohort, descriptive, and inferential statistical analyses. This broader methodological framework allows for a more comprehensive understanding of how mothers' educational levels influence academic achievement within a developing-country context.

Athirathan (2024) examined *The Impact of Mother's Education on Their Children's Academic Performance* among secondary school students in Vavuniya District, Sri Lanka. Using a descriptive survey design and a mixed-methods approach, data were collected from 100 students and their mothers, randomly selected from four schools in a socioeconomically disadvantaged area. Questionnaires were complemented by students' progress reports over two academic years (Classes 10 and 11), and data were analyzed using SPSS version 20 through descriptive statistics. The study revealed a significant relationship between mothers' education and parental involvement in schooling. Viewing education as a form of cultural capital, it found that mothers with higher education were more actively engaged in their children's academic life than those with lower educational levels. While this study offers useful insights into the broader influence of maternal education, it diverges from the present study in several respects. Conducted in Sri Lanka, it focused primarily on maternal involvement and volunteering, whereas the current study—based in Bureti Sub County, Kenya—employs ex post facto, descriptive, and correlational designs to examine the direct impact of mothers' education on students' academic achievement. Thus, while both studies underscore the significance of maternal education, the current research provides a more focused analysis within a different cultural and educational context.

Olokooba and Owoyale-Abdulganii (2022) examined the influence of parental factors on upper basic students' performance in Social and Islamic Studies in Ilorin, Nigeria, using a descriptive survey design. Seven public schools were randomly selected from 21 schools, yielding 180 students as participants. Data were collected through students' last-term examination results and a pro-forma capturing parental education, socioeconomic status, occupation, and marital status, as well as students' year, gender, and grades. Analysis of variance (ANOVA) at a 0.05 significance level, complemented by Scheffe's post hoc tests, revealed significant differences in academic performance based on parental education. Students whose parents held degrees (B.Sc./B.A./B.Ed.) scored highest, followed by those with OND/HND, SSCE, and NCE qualifications, with diploma holders' children performing lowest. These findings indicate that higher parental education is associated with better student achievement. While this study provides valuable evidence on the relationship between parental education and academic performance, it differs from the present study in several ways.

Geographically, it was conducted in Nigeria, whereas the current research focuses on Bureti Sub County, Kenya. Methodologically, the earlier study targeted a specific subject group and used pro-forma instruments, whereas the present study includes all students regardless of religious affiliation and employs a mixed-methods approach, integrating questionnaires, interviews, focus group discussions, and document analysis. Additionally, the current study adopts a smaller sample size (40 respondents) and combines descriptive, correlational, and ex post facto designs, providing a broader and contextually specific examination of maternal education on student achievement.

Haider et al. (2024) investigated the impact of parental education level on the academic performance of children in Pakistan. The study employed a mixed-methods approach, collecting data through interviews, direct observations, questionnaires, and Google Forms. Respondents were selected using simple random sampling, and descriptive statistics were used to analyze the data. A null hypothesis was tested for significance using the two-sample independent Z-test. The findings indicated a strong positive relationship between parental education and students' academic performance: children whose parents had attained higher education (12th grade or above) performed better in higher secondary school compared to those whose parents had lower educational levels (up to 10th grade). The researchers attributed this to the ability of highly educated parents to provide guidance, invest time in their children's education, and create conducive home learning environments, whereas parents with limited education were less able to support their children academically. This study is relevant to the present research as it provides empirical evidence on the influence of parental education on student performance and demonstrates the use of descriptive statistical analysis. However, it differs from the current study in several key aspects. Geographically, the research was conducted in Pakistan, while the present study focuses on Bureti Sub County, Kenya. Methodologically, Haider et al. relied solely on descriptive statistics, whereas the current study integrates both descriptive and inferential statistics. Furthermore, the data collection methods differ: the earlier study used interviews, observations, questionnaires, and Google Forms, while the present research employs questionnaires, interview schedules, focus group discussions, and document analysis, allowing for a more comprehensive and context-specific investigation of the influence of mothers' education on students' academic achievement.

Yu (2023), drawing on the theoretical framework of psychological suzhi, examined the influence of mothers' educational level on children's comprehensive quality. The study analyzed three dimensions of children's development: physical quality, cognitive and adaptability qualities, and science and cultural literacy. Findings indicated that higher maternal education enhances children's health and lifestyle, promotes cognitive development, individuality, and adaptability, and positively impacts their science and cultural literacy. The study concluded that mothers with higher educational attainment contribute significantly to the holistic development of their children and, by extension, to sustainable societal development. This study informs the present research by highlighting the impact of maternal education on children's outcomes. However, it differs from the current study in several ways. Geographically, Yu's study was conducted in a different context. Methodologically, the data collection and analysis approaches diverged, with Yu examining three dependent variables (physical quality, psychological development, and science/cultural literacy), whereas the current study focuses on a single dependent variable—students' academic achievement. Additionally, the theoretical frameworks differ: Yu applied the psychological suzhi model, while the current study is grounded in the Classical Educational Production Function and Human Capital theories. These distinctions reflect contextual and conceptual variations between the two studies, while both underscore the central role of maternal education in shaping children's outcomes.

Khan, Iqbal, and Tasneem (2015) investigated the influence of parental education on the academic achievement of secondary school students in Rajanpur District, India. A sample of 200 tenth-grade students was randomly selected, and data were collected through questionnaires, interviews, direct observation, and document analysis of students' ninth-grade examination results from the Board of Intermediate and Secondary Education, Dera Ghazi Khan. Independent Z-test analysis was conducted to compare the academic performance of students with parents of high and low educational levels. The observed Z-value of 3.87 exceeded the critical value at the 0.05 significance level, indicating a significant positive effect of parental education on students' academic performance. The study concluded that children of highly educated parents consistently outperform those whose parents have lower educational attainment. This study provides valuable insights into the relationship between parental education and student achievement, including methodological guidance on sampling and data collection. However, it differs from the current study in several key aspects. Geographically, it was conducted in India, encompassing both private and public schools, whereas the current research focuses on public secondary schools in Bureti Sub County, Kenya. Conceptually, Khan et al. examined general parental education, while the present study specifically investigates the influence of mothers' education on students' academic achievement, allowing for a more targeted understanding of maternal impact in the Kenyan context.

Alibraheim and Taifour (2023) investigated the relationship between mothers' educational levels and their children's academic performance in Manama, Bahrain, using a correlational research design. Data were collected through an online survey administered to 50 mothers whose children attended four primary schools. Descriptive statistics, including frequencies and percentages, were used to summarize the data, while Spearman's rank correlation coefficient (ρ) assessed the strength of the relationship between maternal education and students' GPAs. The results indicated no significant correlation, suggesting that higher maternal education alone does not necessarily translate to better academic performance. The researchers proposed that limited time spent by mothers with their children could explain this outcome, emphasizing the importance of parental engagement alongside educational attainment. This study is relevant to the present research as it provides insights into the potential influence of parental education on children's academic outcomes and demonstrates the application of correlational analysis. However, it differs from the current study in several ways. Geographically, the study was conducted in Bahrain in primary schools, whereas the current research focuses on public secondary schools in Bureti Sub County, Kenya. Methodologically, it employed a single correlational design and online surveys, while the present study integrates ex post facto, descriptive, and correlational designs, using questionnaires, interviews, focus group discussions, and document analysis. Additionally, the current study specifically examines the impact of mothers' education on students' academic achievement, providing a more context-specific and targeted investigation.

Idris, Hussain, and Ahmad (2020) examined the relationship between parents' education and their children's academic achievement in District Mardan, focusing on both fathers' and mothers' educational levels. The study population comprised 12,788 tenth-grade students (4,761 females and 8,027 males) from government high schools. Using a correlational research design, schools were selected through systematic random sampling, while 510 students from 34 public schools were chosen via simple random sampling. Data were collected using a self-developed Likert-scale questionnaire, pilot tested prior to administration, and analyzed in SPSS version 20 using means, standard deviations, and Pearson correlation coefficients. The findings indicated a significant positive relationship between parental education and students' academic performance, with children of highly educated parents outperforming those of less educated or

illiterate parents. This study provides important insights into the influence of parental education on student achievement and offers methodological guidance regarding sampling and data collection. However, it differs from the present study in several ways. Geographically, it was conducted in Pakistan, whereas the current research focuses on public secondary schools in Bureti Sub County, Kenya. Conceptually, Idris et al. examined general parental education, while the current study specifically investigates the effect of mothers' education on students' academic achievement. Methodologically, the prior study used a purely correlational design, whereas the current research employs ex post facto, descriptive, and correlational designs, allowing for a more comprehensive and context-specific analysis of maternal educational influence.

Theogene, Mutegi, and Khatete (2021) employed a mixed-methods design to examine the influence of parental education on internal efficiency, measured by repetition and dropout rates, in public primary schools in Rwanda's Western Province. The study population comprised 9,127 individuals, including 8,640 students, 384 teachers, 96 headteachers, and 7 District Directors of Education. A combination of Slovin's formula, stratified, purposive, and simple random sampling techniques was used to select 384 pupils, 115 teachers, 28 headteachers, and 2 district directors. Data were collected through questionnaires, interviews, and document analysis, and analyzed using descriptive statistics, Pearson correlation, and regression analysis. Findings revealed that the majority of parents had only primary education (fathers 45.9%, mothers 44.8%) and were minimally involved in their children's schooling (fathers 40%, mothers 32.9%). Notably, 59.02% of school dropouts and 44.8% of repeaters had parents with only primary education. Correlation analysis indicated a strong negative relationship between parental education and both dropout ($r = -0.759$, $p = .000$) and repetition rates ($r = -0.701$, $p = .000$), while regression analysis highlighted the significant contribution of mothers' education to internal efficiency (Beta = 0.223, $p = .000$). The study concluded that parental education significantly influences students' academic outcomes and school efficiency. This study informs the current research by demonstrating the impact of parental education on children's academic performance and providing methodological guidance on sampling, data collection, and analysis. However, it differs in context and scope: Theogene et al. focused on both parents' education in primary schools in Rwanda, examining internal efficiency, whereas the present study investigates the specific influence of mothers' education on academic achievement in public secondary schools in Bureti Sub County, Kenya, offering a more targeted analysis of maternal impact in a different educational and cultural setting.

Guided by Bandura's Social Learning Theory, Kaizirege and Biswalo (2023) conducted a qualitative study on home environmental factors and their effects on students' academic achievement in secondary schools in Dodoma, Tanzania. Data were collected from 28 informants—including 10 parents, 14 teachers, and 4 local street chairpersons—through interviews and observations. Qualitative analysis, likely involving coding and thematic interpretation, explored factors such as home environment, household chores, parental conflicts or divorce, parents' education levels, lack of learning supervision, and distance from school. Findings highlighted the significant influence of parental education on students' academic performance: parents with higher education tended to provide supportive and conducive learning environments, actively assisting with assignments and revisions, whereas those with lower education struggled to offer such academic support. Overall, the study established a clear association between parental educational attainment and children's academic success. This study is relevant to the current research as it underscores the critical role of parental education in shaping student achievement. However, it differs in several respects. Geographically, Kaizirege and Biswalo focused on Dodoma, Tanzania, while the present study examines public secondary schools in Bureti Sub County,

Kenya. Methodologically, their study relied solely on qualitative analysis, whereas the current study integrates both qualitative and quantitative approaches. Furthermore, while their data were collected through interviews and observations, the present research employs a combination of questionnaires, interview schedules, focus group discussions, and document analysis, allowing for a more comprehensive and context-specific understanding of maternal education and academic outcomes.

Grounded in Maslow's Motivation Theory, Ochieng', Achieng', and Asena (2020) employed a descriptive survey design to examine the influence of teacher, school-based, student, and home-related factors on English performance in KCSE in Rachuonyo North Sub-County, Homa Bay County, Kenya. The study sampled 46 schools, 68 English teachers, 342 students, and 46 principals. Data were collected through document analysis, class registers, questionnaires, and interviews, and analyzed using both qualitative (content analysis) and quantitative (descriptive and inferential statistics) methods. Among the home-based factors, the study examined parental education, parental support to the school, availability of private study time, provision of books and revision materials, parental motivation, and attendance at academic clinics. Findings indicated that most students came from homes with low to average parental education and received limited academic support at home, including insufficient study time, materials, and motivation. Many parents did not attend academic clinics, leading students to feel neglected. Overall, the study concluded that home-based factors, including parental education, have an average significant relationship with students' performance in English. This study is relevant to the current research as it highlights the role of parental education in student academic achievement and provides insights on data collection instruments. However, it differs from the present study in several ways. Methodologically, Ochieng' et al. used a descriptive survey design, whereas the current study employs ex post facto, descriptive, and correlational designs. Conceptually, the earlier study examined multiple home-based factors, while the present research focuses specifically on the influence of mothers' education on academic performance. The theoretical frameworks also differ: Ochieng' et al. used Motivation theory, whereas the current study is grounded in the Classical Educational Production Function and Human Capital theories, allowing for a more targeted analysis of maternal education within a production-based educational context.

Anchored in Pearson's Gender Relation Theory, Musyoka (2019) investigated home-based factors affecting the academic performance of high school girls in Machakos Sub-County, Kenya. Using a descriptive research design, data were collected from 280 respondents—210 students and 70 teachers—through self-administered questionnaires and document analysis. Data were analyzed using SPSS version 23.0, with results presented via frequency tables, bar graphs, and pie charts. The study found that parental education significantly predicts students' academic achievement, with children of highly educated parents performing better than those whose parents had lower educational attainment. This study informs the present research by demonstrating the impact of parental education on academic performance. However, it differs in several respects. Musyoka focused exclusively on female students, whereas the current study examines both male and female students in public secondary schools in Bureti Sub County. The theoretical frameworks also differ: Musyoka applied Pearson's Gender Relation theory, while the current study is grounded in the Classical Educational Production Function and Human Capital theories. Methodologically, the previous study employed a descriptive design, whereas the current research integrates ex post facto, descriptive, and correlational designs. Finally, while Musyoka collected data using self-administered questionnaires and document analysis, the present study combines questionnaires, interview schedules, focus group discussions, and document analysis, allowing for a more comprehensive understanding of maternal education's influence on student achievement.

Theoretical Framework

This study employed two theories namely: Classical Education Production Function and Human Capital theories.

Classical Educational Production Function Theory

The Classical Educational Production Function (EPF) theory, developed in the 1960s and 1970s through the works of economists such as Eric Hanushek, provides a framework for understanding how educational inputs are transformed into student outcomes. Drawing on the economic concept of a production function, the theory posits that outputs—such as academic achievement, test scores, and graduation rates—result from the effective combination of various inputs, including teachers, class size, school facilities, and student background. In essence, just as a factory converts labor and capital into goods, schools utilize resources and inputs to “produce” educational outcomes.

The key tenets of the theory relevant to this study are: (1) the recognition that multiple inputs, including family background and parental education, influence student performance; (2) the conceptualization of education as a production process where inputs must be efficiently managed to yield desired outputs; and (3) the emphasis on analyzing the effectiveness of different inputs in shaping academic outcomes. In the context of this study, a mother’s level of education can be viewed as a critical input that shapes the student’s learning environment, motivation, and access to academic support, ultimately influencing academic performance. Thus, the theory provides a foundational lens for examining how variations in maternal education contribute to differences in students’ scholastic achievement.

Human Capital Theory

The Human Capital theory, developed by economists such as Gary Becker in the 1960s, posits that education and skills are forms of capital that enhance an individual’s productivity and socio-economic outcomes. The theory emphasizes that investments in education—such as acquiring knowledge, skills,

and competencies—yield returns not only for the individual but also for society by improving overall economic and social development. Education is therefore considered an investment that enhances human capabilities and future performance.

Key tenets relevant to this study include: (1) education as an investment in human potential, where parents’ educational attainment influences the resources, knowledge, and guidance they provide to their children; (2) the notion that higher parental education enhances the quality of the learning environment, fostering better cognitive, social, and emotional development in children; and (3) the idea that educational attainment produces measurable returns, in this case reflected in the role of mothers’ educational attainment in students’ academic success. In the context of this study, a mother’s education represents a form of human capital that can directly and indirectly shape her child’s academic performance through guidance, motivation, and provision of learning resources.

Combined with the Classical Educational Production Function theory, Human Capital theory provides a dual lens: it frames maternal education both as a critical input in the educational production process and as an investment in the child’s human capital that enhances academic outcomes.

Conceptual Framework

The conceptual framework (Figure 1) postulates that the role of mothers’ educational attainment in shaping secondary school students’ academic success in bureti sub county, Kenya. The conceptual framework was based on the concept of investment choices advanced by Psacharopoulos and Woodhall (1985). Woodhall (2004) indicates that education is a form of investment in human capital that yields economic benefits and contributes to the country’s future wealth by increasing the productive capacity of its people. Maternal education achievements is an investment aimed at promoting mothers’ educational attainment and students’ academic success.

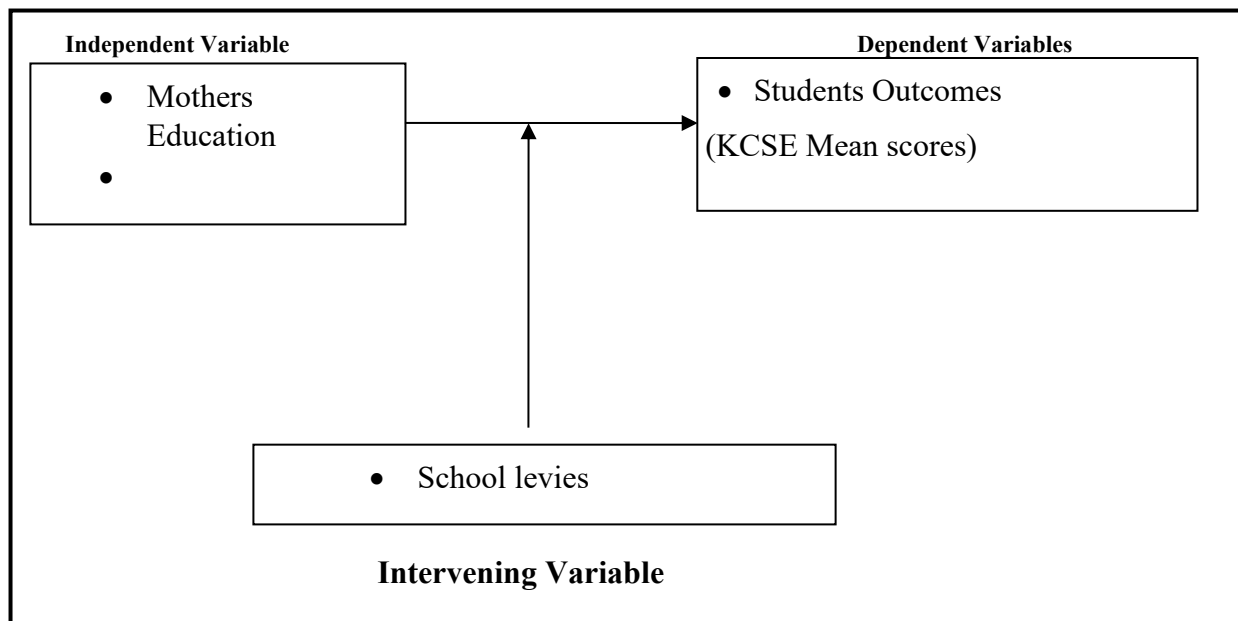


Figure 1: Conceptual Framework Showing the relationship between themother’s level of education and the student’s academic achievement in Bureti sub county

This conceptual framework was adapted to examine the relationship between the independent and dependent variables. The independent variable is the mother’s Academic Attainment while the dependent variable is the student’s academic success. According to McBurney and White (2010), an independent variable is deliberately selected to determine its effect on behavior, whereas a dependent variable measures the outcome influenced by the independent variable. In this study, the focus is on how mothers’ educational levels affect students’ academic performance in public secondary schools in Bureti sub county,

Kenya. School levies are included as an intervening variable, potentially influencing the strength and direction of this relationship.

3. METHODOLOGY

Ex post facto, descriptive survey and correlational research designs were used in this study. *Ex post facto* research design seeks to discover possible causes of behaviour, which have already occurred and cannot be manipulated (Gall, Gall & Borg, 2007). For the purpose of this study *ex-post facto* research design

allowed the researcher to get all the relevant information on Student Teacher Ratio and Survival rate in Bureti sub County. This was done through the use of relevant documents like KCSE results, class registers, school fees registers and admission books. Descriptive survey research design which involves careful description of education phenomena and reports the way things are was adopted in this study.

The descriptive survey is able to explore the relationship between variables in their natural setting as they occur (Leedy & Ormrod, 2005). The design was appropriate because it allowed the use of questionnaires and interview schedules as research instruments for collecting data at a given point in time. Questionnaire enabled the researcher to get the relevant information to compute survival rate. The weaknesses in the questionnaires were dealt with by the use of interview schedule. Correlational research design was also used in the current study. According to Mugenda and Mugenda (2003) correlational research design is used to establish relationship between variables. Correlational design involves collecting data in order to determine to what degree a relationship exists between variables. The degree of relationship is expressed as a correlation coefficient (r). The design was relevant in this study because it assisted in establishing the influence of maternal educational achievements and students' academic success in the sub county.

The study population consisted of 56 secondary school principals and 56 Directors of Studies in Bureti Sub County. The school principals were selected as respondents since they are the school accounting officers and are in a better position to avail all the information required on maternal educational achievements and

students' academic success. The principals had all the relevant documents required for instance KCSE results, class registers, admission books, accession and fee registers. They also had vast experience hence better placed to give the relevant information. Directors of Studies were also used as teachers' representatives moreover, they had a lot of experience and were in a better position to provide the required data as well as relevant information on the influence of maternal educational achievements and students' academic success in Bureti sub County.

Participants were selected using a combination of purposive and simple random sampling, ensuring both relevance and representativeness. The study sample consisted of 40 respondents chosen based on their direct involvement with the research objective. Data were collected through a structured questionnaire, an interview schedule, and document analysis providing both quantitative and qualitative information necessary for comprehensive analysis and interpretation.

The sample size for the students was determined using the

$$\text{formula by Israel (1992) .Thus: } n = \frac{N}{1 + N(e^2)}$$

Where: n is the sample size, N is the population size, and e is the level of precision. The students were used to get information on maternal Academic Attainment.

The sample size

Table 1
Sample Frame

Category of Respondents	Study population (N)	Sample size (n)	Percentage (%)
School Principals	56	40	71.43%
Directors of Studies	56	40	71.43%
Students	6566	600	9.14%

Saturated sampling technique was used to select the 40 Directors of Studies and the 40 School Principals. Saturated sampling is whereby the whole population is used because it is too small to be sampled (Mugenda & Mugenda, 2003).

Instruments for Data Collection

Questionnaire, interview schedule and document analysis guide were used in this study. Questionnaire is widely used in descriptive research because it obtains facts about current conditions and is useful in making inquiries concerning views and opinions (Mugenda & Mugenda, 2003). The instrument was selected because it gives the respondents adequate time to provide the information required. In addition, respondents' identities are hidden thus they do not shy off from providing information. A document analysis guide was used to assist the researcher examine the relevant documents and get appropriate information. Varied documents such as class and fee registers, accession registers, and admission books used were pivotal in the analysis of maternal educational achievements and students' academic success in Bureti sub County.

Interview schedules were used for Directors of Studies and the School Principals to get information on the impact of maternal educational achievements and students' academic success in Bureti sub County.

A questionnaire was also administered to the 40 school principals to get more information on the same. The researcher tested the data collection instruments to determine whether they were reliable or not. Reliability of a measurement instrument is the extent to which it yields consistent results when the characteristic being measured has not changed. Like validity, reliability takes different forms in different situations (Leedy & Ormrod, 2005). Test – retest method was adopted in this study because the instruments were to be administered on different occasions for a period of six months. The instruments were administered to the

same respondents twice at an interval of two weeks and Pearson product moment correlation coefficients was used to compute the correlation coefficient. The correlation coefficient was 0.8 at a set p -value of 0.05. This means the instrument were reliable as the calculated coefficient was greater than 0.7.

Interpretation of Pearson Correlation Co- Efficiency

Correlation coefficients (r) were therefore interpreted to determine the Impact of STR on Survival rates in terms of direction and strength of relationship. Elfison's, Runyon's and Haber's (1990) interpretation guideline was adopted (Table 1).

Table 2

Interpretation of Pearson Correlation Coefficients (r)

Strength of the relationship	Positive (+)	Negative (-)
Weak/low/small	0.01 – 0.30	0.01 – 0.30
Moderate/ medium	0.31 – 0.70	0.31 – 0.70
Strong/high	0.71 – 0.99	0.71 – 0.99
Perfect relationship	1.00	1.00
No relationship	0.00	0.00

From Table 2, it can be observed that Pearson (r) between + or - 0.01 – 0.30 is a weak/low/small relationship, between + or - 0.31 – 0.70 is a moderate/medium, while relationship between + or - 0.71 – 0.99 is a strong/high relationship. Perfect relationship is where it is positive or negative 1.00 while 0.00 means there is no relationship. Coefficient of determination R^2 is the square of the Pearson r which tells how much of the variance is accounted for by the correlation which is expressed in percentages while the other remaining percentage could be due to other factors (Leedy & Ormrod, 2005). This explanation was adopted in the interpretation of Pearson (r) and coefficient of determination R^2 in this study.

Findings

The return rate of principals' questionnaire was as shown in Table

Table 3
Return Rate of the Principals Questionnaire used for Data Collection

Respondents	Issued	Number Returned	Percentage (%)
Principals	40	40	100
Students	600	600	100
Totals	640	640	100

From Table 3, it can be observed that all principals returned the questionnaire as was required. The rate of return for the questionnaires was 100%. This data on return rates helps to justify the validity of the data that was used in this study and the new knowledge generated.

Demographic Characteristics of the Respondents

The respondents in this study included school Principals and Directors of Studies. Their demographic characteristics were as shown in Tables 4 and 5

Table 4
Principals' Gender and Headship Experience (n=40)

Demographic characteristics	Frequency (f)	Percentage (%)
Gender		
Male	30	75.00
Female	10	25.00
Total	40	100.00
Headship Experience in years		
5	1	02.50
6-10	12	30.00
11-15	17	42.50
16-20	10	25.00
Total	40	100.00

Table 4 indicates that out of all the 40 (100%) school Principals involved in the study, 30 (75%) were male while 10 (25%) were female. This shows that very few female teachers are as appointed school Principals in Bureti sub County. This is in agreement with a study carried out in a sampled number of schools in Kenya by Bosire et al., (2009) which revealed that out of the 30 sampled school Principals 22 (79%) were male while 6 (21%) were female. The school principals' leadership experience was also indicated and one (2.50%) had headship experience of 5 years, 12 (30.00%) had an experience of 6-10 years, 17 (42.50%) had 11-15 years of experience while 10 (25.00%) had 16-20 years.

Table 4 revealed that most school principals had headship experience of 6 years and above. This shows that they had enough experience in school management and were able to give relevant information on maternal educational achievements and students' academic success in Bureti sub County. Experience is an indicator for authenticity of data collected. The principals were also better placed given that the data required dated back to the year 2004.

Table 5
Teaching experience before being Appointed as School Principals (n=40)

Years	Frequency (f)	Percentage (%)
5-10	2	5.00
11-15	5	12.50
16-20	24	60.00
21-25	9	22.50

From table 5, those principals with a teaching experience of between 5 -10 years were 2(5%) between 11-15 years were 5 (12.50%), between 16-20 were 24(60%) while between 21-25 years were 9 (22.50%). The level of experience is an indicator that these principals had gone through all the ranks in the teaching profession and were therefore qualified to be appointed to administrative positions. According to Education Portal (2014),

most principals in the US enter the profession after obtaining enough experience as teachers. This is in agreement with the findings of this study which reveal the vast teaching experience that those appointed as principals have. Therefore, they were better placed to answer questions on maternal educational achievements and students' academic success in Bureti sub County. Table 5 provides information on the highest professional qualifications of the sampled principals in the study.

Table 6
School Principals' Highest Professional Qualifications (n=40)

Highest Qualification	Frequency (f)	Percentage (%)
Bachelor's Degree	15	37.50
Master Degree	25	62.50
Total	40	100.00

From table 6, fifteen (37.50%) had a Bachelor's degree while 25 (62.50%) had Masters. Basing on the findings in Table 5, it is clear that all the principals had the required level of education. Education Portal (2014) shows that in the US the requirement to be a School Principals is a Bachelor of Education degree. This is also applicable in this study and in agreement with The Basic Education Act 2013 (Republic of Kenya, 2013). Given their academic credentials, these principals were thus in a position to understand and give the relevant information on maternal educational achievements and students' academic success in Bureti sub County.

Maternal Academic Achievements in Bureti Sub County

To establish the influence of maternal academic achievements on student success. Pearson Product moment correlation between maternal academic achievements on student success was computed. The average Maternal Academic Achievements per school and KCSE means scores were as shown in Table 7 and 8.

Table 7
The average Maternal Academic Achievements per school in Bureti Sub County (n=40)

Maternal Educational Attainment	Frequency (f)	Percentages (%)
1.00-1.99	11	27.50
2.00-2.99	16	40.00
3.00-3.99	5	12.50
4.00-4.99	8	20.00

Source Researcher (2024)

Table 7 indicates the average maternal academic achievements per school in Bureti Sub County. The results were based on the academic level from Primary education denoted by one, secondary 2, certificate3, diploma 4 and undergraduate degree and above 5. Those mothers whose average education level per school were ranging from 1.00 to 1.99 were 11(27.50%), ranging from 2.00 to 2.99 were 16 (40%). While 3.00 to 3.99 were 5 (12.50%) and 4.00 to 4.99 (20%) respectively.

Students' outcomes in KCSE in Bureti sub county as indicated by the school principals

The KCSE means scores were computed as indicated in Table 3.

Table 8

KCSE Mean Scores in Bureti sub county as indicated by the principals (n=40)

Maternal Educational Attainment	Frequency (f)	Percentages (%)
2.00-3.99	2	5
4.00-5.99	20	50
6.00-7.99	8	20
8.00-9.99	10	25

Source Researcher (2024)

Table 8 indicates the schools' mean scores as given by the school Principals. From the 40 schools, 2(5%) had their mean score ranging from 2.00 to 3.99, twenty (50%) had their mean scores ranging from 4.00 to 5.99, 8(20%) had their mean scores ranging from 6.00 to 7.99 and 10 (25%) had their mean scores ranging from 8.00 to 9.99 respectively.

To establish the influence of maternal schooling on students' academic success the Pearson Product Moment (r) was computed to determine the influence.

Table 9

Pearson Product Moment Correlation (r) Matrix for Maternal Schooling and Students' Academic Success in Bureti sub county

Pearson Product Moment Correlation		Mother Education
Mother Education	Pearson Correlation	1
	Sig. (2-tailed)	
Student Outcomes	Pearson Correlation	.826**
	Sig. (2-tailed)	.000
		N
		40

Table 9 indicates that the relationship between maternal education attainment and Student academic success was a strong positive and statistically significant with a coefficient of 0.826** at a set p-value of 0.01. According to Elfison, Runyon and Haber (1990); Leedy and Ormrod (2005) guideline Correlation coefficients (r) interpretation indicated that this is a positive high influence. This means that maternal academic achievement accounted for an increase in students' academic success in KCSE.

Table 10

Maternal Schooling and students' outcomes Coefficient of determination R

	R	R Square	Percentage
Maternal Schooling and students' academic success	0.826	0.6822	68.22%

Table 10 is the Coefficient of determination R^2 was 0.6822 which means that the maternal academic achievement's accounted for 68.22% of the variations in KCSE. Therefore the hypothesis that there is a positive relationship between maternal as a predictor and academic achievements in Public Secondary schools in Bureti sub county, Kenya is accepted.

This findings are in agreement with the study done by Kumar, Bakariya, and Verma (2021) which conducted a statistical inferential study to examine the effect of mothers' education on students' academic achievement in public secondary schools in Portugal. The findings demonstrated a statistically significant relationship between the mother's level of education and students' academic performance. Post hoc analysis further indicated that students whose mothers had attained higher education performed markedly better in final examinations than those whose mothers had only basic education, highlighting the strong predictive power of maternal education on academic success. It doesn't concur with the study done by Athirathan (2024) on *The Impact of Mother's Education on Their Children's Academic Performance* among secondary school students in Vavuniya District, Sri Lanka. This study focused more on parental involvement rather than the outcome. It concurs with the study done in Nigeria by Olokooba and Owoyale-Abdulganiy (2022) which examined the influence of parental factors on upper basic students' performance in Social and Islamic Studies in Ilorin, Nigeria, using a descriptive survey design. The findings revealed that Students whose parents held degrees

(B.Sc./B.A./B.Ed.) scored highest, followed by those with OND/HND, SSCE, and NCE qualifications, with diploma holders' children performing lowest. These findings indicate that higher parental education is associated with better student achievement.

The current findings concurs with the studies done by Haider et al. (2024) which investigated the impact of parental education level on the academic performance of children in Pakistan. The findings indicated a strong positive relationship between parental education and students' academic performance: children whose parents had attained higher education (12th grade or above) performed better in higher secondary school compared to those whose parents had lower educational levels (up to 10th grade). The researchers attributed this to the ability of highly educated parents to provide guidance, invest time in their children's education, and create home learning environments, whereas parents with limited education were less able to support their children academically. It also concurs with the study done by Yu (2020) drawing on the theoretical framework of psychological suzhi, examined the influence of mothers' educational level on children's comprehensive quality. The study analyzed three dimensions of children's development: physical quality, cognitive and adaptability qualities, and science and cultural literacy. Findings indicated that higher maternal education enhances children's health and lifestyle, promotes cognitive development, individuality, and adaptability, and positively impacts their science and cultural literacy. The study concluded that mothers with higher educational attainment contribute significantly to the holistic development of their children and, by extension, to sustainable societal development. Its also in agreement with the study done in India by Khan, Iqbal, and Tasneem (2015) which investigated the influence of parental education on the academic achievement of secondary school students in Rajanpur District, India. The study concluded that children of highly educated parents consistently outperform those whose parents have lower educational attainment.

The current finding is not in agreement with the study done by Alibraheim and Taifour (2023) which investigated the relationship between mothers' educational levels and their children's academic performance in Manama, Bahrain, using a correlational research design. The results indicated no significant correlation, suggesting that higher maternal education alone does not necessarily translate to better academic performance. The researchers further proposed that limited time spent by mothers with their children could explain this outcome, emphasizing the importance of parental engagement alongside educational attainment. But it concurs with the study done by Idris, Hussain, and Ahmad (2020) examined the relationship between parents' education and their children's academic achievement in District Mardan, Pakistan focused on both fathers' and mothers' educational levels. The findings indicated a significant positive relationship between parental education and students' academic performance, with children of highly educated parents outperforming those of less educated or illiterate parents. It also concurs with the study done in Rwanda by Theogene, Mutegi, and Khatete (2021) which examine the influence of parental education on internal efficiency, measured by repetition and dropout rates, in public primary schools in Rwanda's Western Province. The study concluded that parental education significantly influences students' academic outcomes and school efficiency.

It also doesn't concur with the study done in Tanzania by Kaizirege and Biswalo (2023) which conducted a qualitative study on home environmental factors and their effects on students' academic achievement in secondary schools in Dodoma, Tanzania. The findings highlighted the significant influence of parental education on students' academic performance: parents with higher education tended to provide supportive and conducive learning environments, actively assisting with assignments and revisions, whereas those with lower education struggled to offer such academic support.

Overall, the study established a clear association between parental educational attainment and children's academic success.

There is also a similarity between the current study with that done by Ochieng', Achieng', and Asena (2020) which examine the influence of teacher, school-based, student, and home-related factors on English performance in KCSE in Rachuonyo North Sub-County, Homa Bay County, Kenya. Findings indicated that most students came from homes with low to average parental education and received limited academic support at home, including insufficient study time, materials, and motivation. Many parents did not attend academic clinics, leading students to feel neglected. Overall, the study concluded that home-based factors, including parental education, have an average significant relationship with students' performance in English. It also similar with the study done by Musyoka (2019) which investigated home-based factors affecting the academic performance of high school girls in Machakos Sub-County, Kenya. The study found that parental education significantly predicts students' academic achievement, with children of highly educated parents performing better than those whose parents had lower educational attainment. This study informs the present research by demonstrating the impact of parental education on academic performance.

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