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**THE HOUSEHOLD FACTORS CONTRIBUTING TO DROPOUT OF ADOLESCENT
AND YOUNG GIRLS FROM SCHOOL: A CASE STUDY OF SEME SUB-COUNTY,
KISUMU COUNTY, KENYA**

BY

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DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Study Research contains no material previously published or written by another person except where due reference is made in the Study Research itself.

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ABSTRACT

This study investigates the relationship between household factors and dropout rates among adolescent and young girls' participants in Seme Sub- County. The primary objective is to analyze how the household characteristics influence educational attrition and to provide evidence-based recommendations for reducing dropout rates. Factors analyzed include household income, accessibility to basic needs, household size, household health, and family structure. Using Ordinary Least Squares (OLS) regression, the analysis explores the statistical significance of each factor and magnitude these factors have in explaining dropout status.

The results generated from the dataset containing responses from over ten thousand adolescent and young girls indicate that household income ($\beta=0.2292$, $p<0.05$) and household health ($\beta=0.0247$, $p<0.05$) have significant positive associations with dropout rates, suggesting that higher-income or healthier households may prioritize non-formal educational or economic activities. Conversely, larger household size ($\beta=-0.0203$, $p<0.05$) and stronger family structures ($\beta=-0.1364$, $p<0.05$) significantly reduce dropout likelihood, highlighting the role of familial support in promoting education. Accessibility to basic needs, however, showed no significant impact ($\beta=-0.0013$, $p>0.05$).

Despite the modest explanatory power of the model ($R\text{-Squared}=0.146$), these findings provide critical insights into the interplay of socioeconomic and household dynamics affecting dropout rates. The study recommends policies that strengthen family support systems, promote inclusive education initiatives, and address contextual economic factors influencing household decisions. Additionally, interventions aimed at aligning health improvements with educational priorities could mitigate unintended shifts toward economic activities at the expense of schooling.

This research underscores the need for targeted and holistic policy approaches to reduce dropout rates and improve educational outcomes, particularly in socioeconomically vulnerable regions. The study contributes to the existing literature by highlighting nuanced relationships between household characteristics and education retention, offering valuable implications for researchers and policymakers alike.

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CHAPTER 1: INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Education is the process by which human abilities, behaviors, and capabilities are developed (Ndaloh et al., 2009). By equipping learners with the appropriate knowledge and skills that enable them to appreciate their cultural background, they creatively modify it for their benefit and their society (Mwaka et al., 2013). Education, as a form of human capital, is an investment to acquire knowledge and skills that can be used to secure and increase future income (Woßmann, 2003). Mutegi (2019), elaborates that education equips learners with problem-solving skills, communication skills in different settings, and the ability to embrace change generally used to improve economic participation globally. The concept of human capital encompasses a wide variety of attributes that are considered useful in personal or community development. Kabubo, et al (2007), states that investment in human capital is essential for development, especially in third-world countries. Hence, where human capital investment is low, economic growth is hindered and poverty eradication becomes a difficult task (Kabubo et al., 2007).

Education is regarded as a means of achieving economic prosperity, the way to scientific and technological advancement, the key to combat unemployment, the building bricks of social equity, and the spread of political socialization and cultural importance (Chimombo, 2005), is an essential factor contributing to poverty alleviation (Latif et al., 2015). Sigei et al., (2014), state that education is important in improving the welfare of an individual and increases the capability of society generally in aspects of economy and production. It provides all-round growth and development features to learners, which enhances their capabilities to overcome existing challenges and therefore, have a positive impact on their immediate society (Mwaka et al., 2013). Furthermore, education acts as a vital agent of the fast economic growth of nations by adding value and improving the efficiency of labor offered by the poor (Koskei et al., 2015). Therefore, education is an important investment for human and economic development (Latif et al., 2015), and it satisfies both individual and societal functions (Mwaka et al., 2013).

There have been breakthroughs in Kenya's education sector. According to the Educational Sector Strategic Plan and Implementation Matrices (2003), the country pledges to gear Its focus

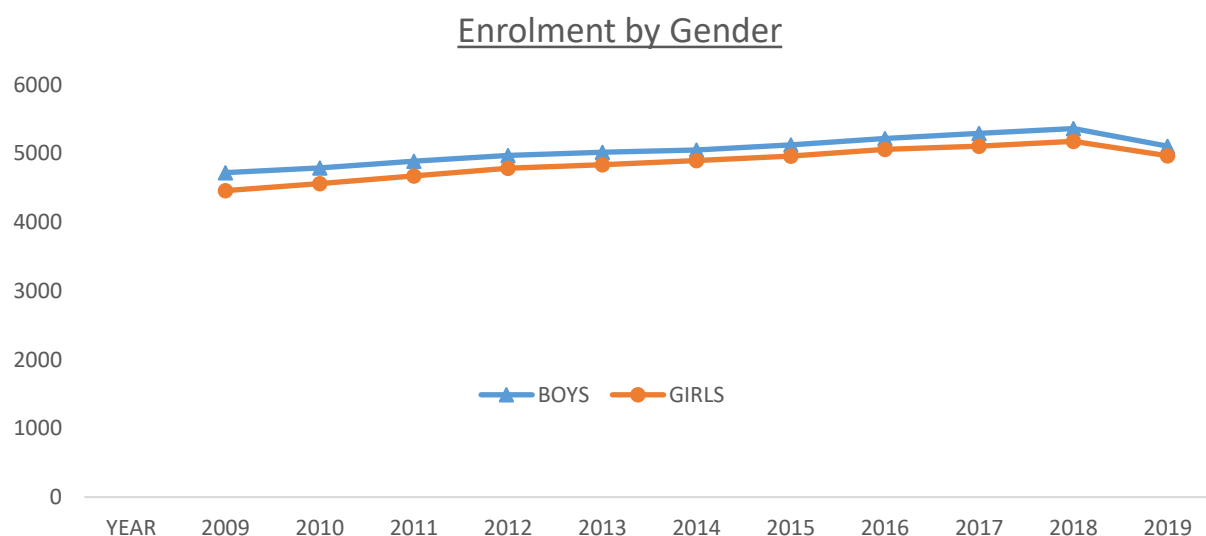
towards; promoting human rights through education, attaining sustainable development through education for all, and eradicating poverty which is a major setback to educational development. Achoka et al (2007), mention that to cope with the global transformation and development, Kenya realized that more investments in educational development and sacrifices towards its course are necessary. To achieve Education for All (EFA), since the early 90s, has been a major priority for developing countries (Nishimura et al., 2012). For example, Kenya, together with other developing countries, has made huge investments towards attaining the Millennium Development Goal of universal primary education by the year 2015 (Adrienne et al., 2012).

The government of Kenya made a promise to increase revenue allocation towards the education sector (Winny, 2012). According to The Kenyan Wall Street, the education sector is currently budgeted at 26.7% of the National Revenue, which includes funding for free secondary education and free primary school education as major beneficiaries. The National Budget trends in Kenya depict that the education sector is among the biggest beneficiaries, which signifies that as a country we are well invested in developing our education sector.

Abolishment of all fee requirements in public primary schools in Kenya was sanctioned in January 2003. The Free Primary Education (FPE) program acted as a reform in education with its main agenda being to increase enrolment by children especially those with poor backgrounds (Kabubo et al., 2007). According to Adrienne et al (2012), the program significantly increased pupils' enrollment in primary schools, almost twice as much as the pre-program era. The study further did an analysis which showed that the FPE program had a successful result in increasing access for poorer students to schools. On the other hand, Adrienne et al (2012) state that the FPE program was beneficial for primary schools in that it provided primary schools in Kenya with a significant number of children without largely affecting the quality of education offered. Therefore, the enrolment of pupils in primary schools has been on the rise ever since the program started. Gongera et al (2013), confirm that the access and demand for secondary education in Kenya have increased since the introduction of FPE in 2003 thus increasing the transition rate into the secondary level.

A combined statistics derived from the Basic Education Statistical Booklet (2014) and the Economic Survey (2020), presented in Figure 1 indicates the increase in enrollment by gender in primary schools in Kenya from 2009 to 2019.

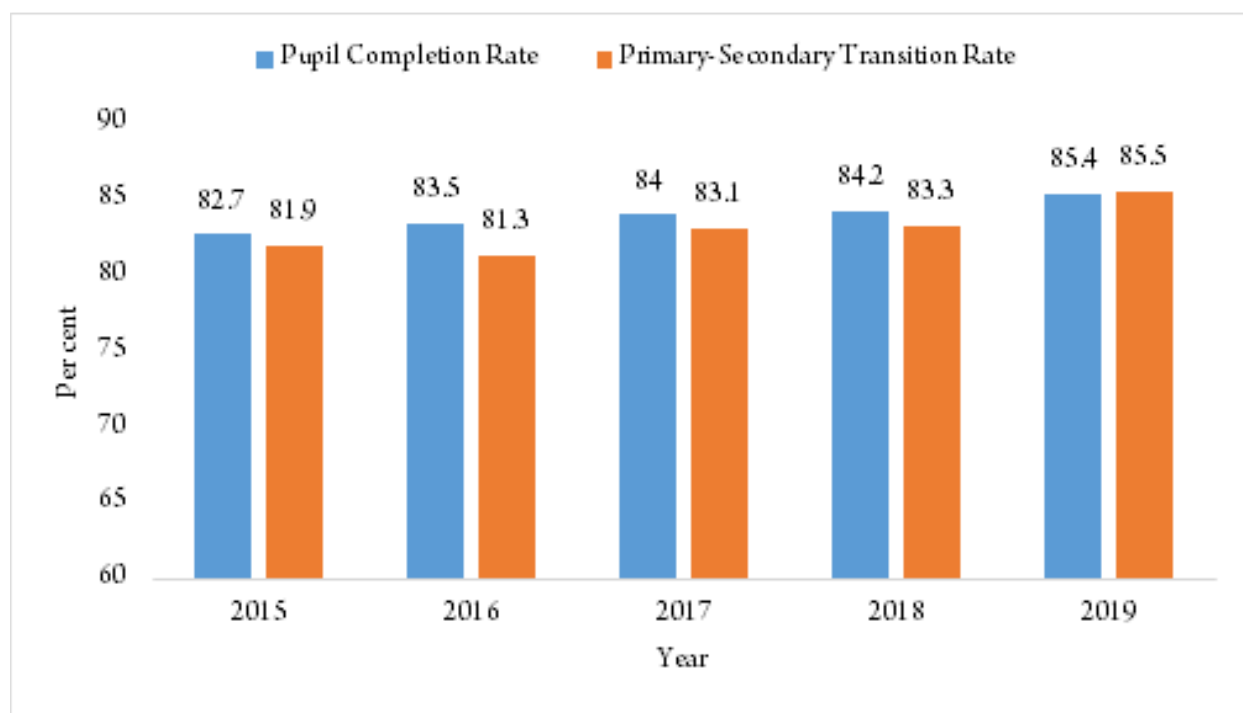
Figure 1: Line graph of primary school enrollment in Kenya by gender in ('000) from 2009 to 2019



The line graph above shows a gradual increase in enrolment for both boys and girls in primary schools in Kenya from the year 2009 to 2019. This gradual increase is contributed to by fundamental government programs such as Free Primary Education.

According to the Basic Education Statistical Booklet (2014), the Completion Rate is the value of new entrants divided by the total population that is expected to be in a particular class, whereas the Transition Rate is the value of learners admitted to a higher level as a percentage of the learners enrolled in the last class of a lower level in the previous year. The Economic Survey (2020) presents the completion and transition rates from 2015 to 2019 as shown in the figure below.

Figure 2: Completion Rate and Transition Rate in (%) from Primary to Secondary Schools in Kenya from 2015 to 2019



Completion and Transition rates in the education cycle for levels and grades, as depicted in Figure 2 above, are below the 100% mark. Meaning the completion rates and transition rates are not fully successful in the education sector of the country.

According to the Basic Education Statistic booklet (2019), the 100% transition policies contributed to the high completion rates and transition rates as shown in Figure 2. The booklet provides statistics that Kisumu contributed to the completion rate of 2.85% in the year 2019 which had a completion rate of 84.2%. Kisumu had a total of 287,150 pupils compared to the total which was 10,072,040 pupils.

A significant gap that presents crucial friction to the success of Free Primary Education is the existence of gender disparity. Gender parity in Kenya's education sector is yet to be achieved fully since disparities are still depicted in primary classes. According to the Basic Education Statistic booklet (2019), the Gender Parity Index (GPI) is calculated by finding the ratio of girls to boys, and an index of 0.97 and below shows that the disparity is in favor of boys. According to the booklet, 19 counties have been highlighted to have gender disparity in favor of boys, Kisumu

being one of them with a GPI of 0.97. There is much to be done concerning reducing gender parity in female education.

Sigei et al (2014), state that universal literacy in Kenya is not fully achieved due to hindering factors such high rate of dropouts, especially in secondary schools. Okiki (2016), defines a dropout as someone who was once a learner but prematurely departed from school without completing the course. Mutegi (2019), comments that many primary school pupils do not benefit from the FPE program because of dropouts, repetition, and absenteeism. As a result, referring to Figure 2, the completion rates and transition rates do not fully correspond. In developing countries, dropout rates are higher in rural areas (Levy, 1971). On the flip side, she comments that dropout rates are lower in areas experiencing a high level of urbanization. The Kenyan government has invested in its education sector; however, schools still register significant dropout rates (Ringera, 2020). Koskei et al (2015), outline that dropout rates in Kenya have persisted especially for female learners.

Shahidul et al (2015), state that the development processes in the country experience drawbacks due to the continued unequal distribution of education among male and female learners. Both boys and girls have equal rights to basic education in the country. However, female learners have a higher dropout rate result as compared to male learners (Shahidul et al., 2015). Dropouts in developing countries are a result of causes such as early marriages, indiscipline, and premature pregnancies (Ringera, 2020). Other factors are such as poverty, social problems, and child labor (Mathooko, 2009).

A higher rate of adolescent and young female dropouts calls for more effort and concern from educational stakeholders to investigate. Education ensures safety against poverty and female learners bear hope of achieving more in life. However, some are hindered from achieving this by societal circumstances such as dropping out to take care of the family, looking for jobs to help with the family's upkeep, and early marriages.

Seme Sub County is in Kisumu West. According to Okiki (2016) on the statistics of the region, the transition rate for girls is lower than that for boys, 43% and 57% respectively. Also in her study, she indicates that more girls are absent from school continuously than boys, which eventually leads to their high dropout rate. This study, therefore, will look at factors contributing

to dropout rates of young girls and adolescents from primary schools in Seme Sub County, with Household factors as the focus of the study.

1.2. PROBLEM STATEMENT

The policies made to achieve Education for All (EFA) within the education system, the introduction of Free primary education in 2003, and free secondary school education in 2008 are all efforts made by the government to curb an unending issue (Mudemb, 2010). More emphasis has been put on formulating a curriculum that is more gender-responsive to aid in the retention of girls in schools (Mudemb, 2010). Also, it is necessary to align with a vision in accordance with the fourth Sustainable Development Goals (SDGs), which is providing quality education for the prosperity of the nation.

Despite the 100% transition policy introduced in 2017, the education system in Kenya has encountered major setbacks majorly involving dropouts, which indicates there is a low internal efficiency. Emphasize is made that students prematurely withdraw from school despite policies made to ensure success in completion and transition rates in school (Sigei et al., 2014). The dropout situation has a resulting effect of wastage, which is the inefficiency of utilizing national resources set aside for education. Young girls who drop out lack adequate knowledge and skills. They also fail to mature in experience and the proper attitude necessary for employment and a better productive life (Oduya, 2020). All this results in a waste of the national resources invested as mentioned earlier as well as lost opportunities, which is a concern for the government, educational sponsors, community, and parents (Oduya, 2020).

Dropout is an issue in the Seme sub-county, especially in primary schools, having this as our area of study. In this study, we adopt an approach that aims to provide useful information and recommendations that not only shed light on this issue but also provide ways of coping with it. Data collected and provided by Pamoja CBO contains the statistics for young girls in the study area, which provides information on the school status and household conditions that they are in. In this study, we will use this data to formulate a relationship that shows how these household conditions affect the school status of these young girls i.e., in school or out of school.

1.3. RESEARCH OBJECTIVES

- i. To find out the influence of household factors on adolescents and young girls dropping out of schools in Seme Sub County, Kisumu.
- ii. To explain the effect of household factors on adolescents and young girls dropping out of schools in Seme Sub County, Kisumu.

1.4. RESEARCH QUESTIONS

- i. What are the household factors that influence adolescents and young girls' drop out from schools in Seme Sub County, Kisumu?
- ii. How do household factors influence adolescents and young girls' drop out from schools in Seme Sub County, Kisumu?

1.5. SIGNIFICANCE OF THE RESEARCH

1.5.1 Kenyan Education Sector

This study is beneficial to the Kenyan education sector as a whole, especially the Ministry of Education Science and Technology since it sheds light on the issues regarding the dropout rate, which when addressed will improve efficiency in the education system.

1.5.2 Institutions & Policy Makers

Institutions i.e., schools and policy makers can use the results of the study to formulate and implement policies and procedures to help limit young girls from dropping out. The policies and procedures formulated will address the challenges that these girls face that cause them to drop out of school.

1.5.3 Households

The study can help parents and guardians to recognize the factors within the household, which can contribute to dropout cases. Also, they can help counter other factors that are within their control, other than those they contribute directly, to reduce dropout primary school dropout rates further.

1.5.4 Researchers and scholars

Fellow researchers and scholars can use this study to further illustrate how other existing factors such as economic and social, are connected to the household factors. Also, they can use this study as an anchor paper on areas that have not yet been studied.



CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

This chapter reviews the literature on the factors that contribute to young girls dropping out of schools in Seme Sub-County, Kisumu. This is achieved by assessing household contributors, which are household income, household size, household basic needs, household health status, and family structure of the household, to explain dropout in primary schools. The chapter also contains the theoretical framework used and a conceptual framework for the study is also provided.

2.2. SCHOOL DROPOUT CONCEPT

Girls' students abandoning a school course to pursue an alternative path presents itself as unconventional to societal ways (Okiki, 2016). Ceasing attendance in school before successful completion raises eyebrows on various concepts surrounding the school system, the education system, and the dropouts 'environment as to whether customs, policies, and values are beneficial (Okiki, 2016).

2.3. EMPIRICAL LITERATURE

Household factors are those that arise from the home of the girls that cause them to drop out of school (Sigei et al., 2014). Components of a household have an impact on the access to education and its retention especially in underprivileged communities (Ochieng, 2012). There are various factors contained in a household that contribute to dropping out of pupils from primary school: the pupils come from low-income earning backgrounds, they need to look after younger siblings, they are a product of divorce, they are orphaned or have a single parent, their basic needs are not being met or they live in poor conditions (Mutua, 2014). The study categorizes these factors into household income, household size, and family structure.

2.3.1 HOUSEHOLD INCOME STATUS

The idea that coming from a poor household reduces the value of schooling and increases the necessity to work. Due to the free market economic forces, the nature of poor people has it that education has no beneficial returns (Obonyo et al., 2015).

Since educational access incurs variable costs, household income is an essential factor in influencing dropout rates in the community. The costs that are incurred are either direct or indirect. Direct costs include school fees and tuition fees, whereas indirect costs include stationery costs, uniform costs, travel costs, and opportunity costs of providing education for a child. Household income affects when the child can start school, their attendance in school, temporary withdrawal from school, and if or when he/she drops out from school (Croft, 2002).

Poverty is regarded as the primary reason why pupils are out of school (Mutua, 2014). Children from poor households more often tend to drop out of school once enrolled compared to those children from better-off households (Ochieng, 2012). According to Brown et al, (2002), children from a poor background are three times more likely to drop out of primary school compared to other children. Household income linked with household expenditure credit accessibility can determine whether a child drops out of school or not (Fuller et al. 1999).

Households, where income levels are low, tend to rely on the siblings in the household to supplement their income either directly through wage-earning employment or indirectly by freeing up other household members to go to work (Ochieng, 2012). It all sums up how the members of the household consider education and its importance. If they consider education as a luxury rather than a priority, they will have the option of dropping out to ensure household income is stable.

Household income levels have a major impact on girls' education in the sense that, during periods of financial constraints, households would rather educate the boy and leave the girl at home (Kadzamira et al. 2003). However, when income levels are increasing girls are considered by the household for schooling with the impact on boys' schooling having no significant shifts (Glick et al. 2000). Also, households with a low-income level are mostly characterized by children who have low aspirations for academic achievement which results in most of them dropping out of school early (Essen et al. 1982).

It is a clear indication that poor households have a lower demand for educational access than well-off households since it is more difficult for them to meet the rising costs associated with schooling (Colclough et al. 2000). Children from poorer households experience a lot of pressure to withdraw from school, especially when they grow older, since the opportunity cost with

regards to their time rises (Mutua, 2014). Therefore, they are motivated to drop out even earlier than intended.

2.3.2 HOUSEHOLD SIZE

The number of individuals within a household is a significant factor and can be an essential determinant of educational access and dropout among girls (Ochieng, 2012). For instance, with a larger household size, especially with children, income earners experience a greater financial burden and increased workload hence leading to more dropout cases when they fail to provide (Boyle et al, 2002).

Household size can influence the children's cycle of schooling. An educational investment in one sibling can affect educational access to the remaining siblings either positively or negatively (Ochieng, 2012). Households with more children have difficulty in deciding whether it is convenient to take one, some, or all children to school. Therefore, these households experience more issues with late enrollment, repetition, and early dropout (Enyegue, 2000).

According to Mucee et al, (2014), household income is limited when there are more children to educate. The study indicates that those pupils from large families form a significant cohort of pupils being sent back home for school fees. Also, pupils growing up in large families have poor academic performance which demotivates them towards academic achievement leading to early drop out of school (Essen et al.1982).

Household size collaborates with other influencing factors to cause dropout, for example, gender and birth order, research conducted indicates that more siblings below age 5 in a household negatively influence older girls to drop out (Ochieng, 2012). A larger household size, particularly in developing countries, requires the household to limit its resources allocated towards child investment, health, and education (Mutua, 2014).

In a study conducted by Morara et al, (2013), most of the dropout cases (82%) are from large households which contributes to the notion that household size is essential in determining the retention rate and completion rate at school. Mucee et al. (2014), emphasize that those households that have large families are majorly found in the rural areas and that they prefer to educate more boys than girls.

However, studies have come up to object to the impact of household size on educational access and dropout, indicating that with more individuals in the household particularly children, activities could be spread among them efficiently thus allowing more school attendance periods (Colclough et al, 2000).

2.3.3 FAMILY STRUCTURE

The type of family structure a pupil is in influences the probability of dropping out of school. A family structure includes both parents, single parent which is female-headed or male-headed, grandparents, and stepparent families. Death, divorce, and separation bring about change in the family structure to either of the above-mentioned categories (Pong et al. 2000). For instance, when a married couple ends up divorcing, income which was once joint becomes separate which might lead to a child being sucked into poverty (Pong et al. 2000).

Study reveals that children with single parents, particularly female-headed households, are more likely to drop out of school (Mutua, 2014), also those children staying with grandparents and stepparents are more vulnerable to dropping out of school. In a study by Omollo (2013), it shows that children living with single parents are 12.5% less likely to complete school. On the other hand, children living with both parents are seen to be receiving more encouragement and attention in matters concerning education (Omollo, 2013).

At the early stages of a child's life, it is important to have a stable family structure and put more emphasis on education. This is because as they become older, they shift more towards social interactions with others and the household will have less influence on them concerning education (Garaskys 1995). Therefore, the family structure critically affects the level of education attained by young girls in primary school since at a young age they are not well equipped to handle difficult situations arising in the household.

The absence of parents or an adult figure in the family affects children, in that a gap develops between the children and the parents which leads the children to attach themselves to less nurturing people with deviant characteristics encouraging them to drop out of school (Mutua, 2014). According to Lichter et al. (1993), those children who have experienced separation and divorce from their parents lack the necessary attention for education.

A study conducted in South Africa on educational access communicates that children living with their mothers were notably less likely to drop out of school respective to those whose mothers were not present (Grant et al., 2006). Therefore, according to this study, the presence of a mother figure in the household is a significant variable when considering dropout issues of girls in a community. This disagrees with a study conducted by Mutua (2014), indicating that children in female-headed households are more likely to drop out of school.

Wambugu (2012), notes that in most Kenyan communities' girls are designated to do household chores and they are the first to be considered to drop out of school to take care of a family member who falls critically ill. The study also states that it is much more difficult for the girl child when a parent dies, particularly the mother, and she is forced to take over the responsibilities in the house.

Loss of family members, especially parents, affects the family structure of a household and often drives children to vulnerable states where they are compelled to drop out (Case et al, 2004). This explains why most orphans are school dropouts since they are captives of childhood poverty in cases where a caregiver is not assigned (Ochieng, 2012). Most of the children drop out of school in the year which follows parent(s) death (Jukes, 2006). Maternal orphans are more likely to drop out of school and households in which the father has died succumb to poverty forcing other members to put down educational access (Ochieng, 2012). Paternal orphans are more likely to have educational access than female orphans (Ochieng, 2012).

2.3.4 AVAILABILITY OF BASIC NEEDS

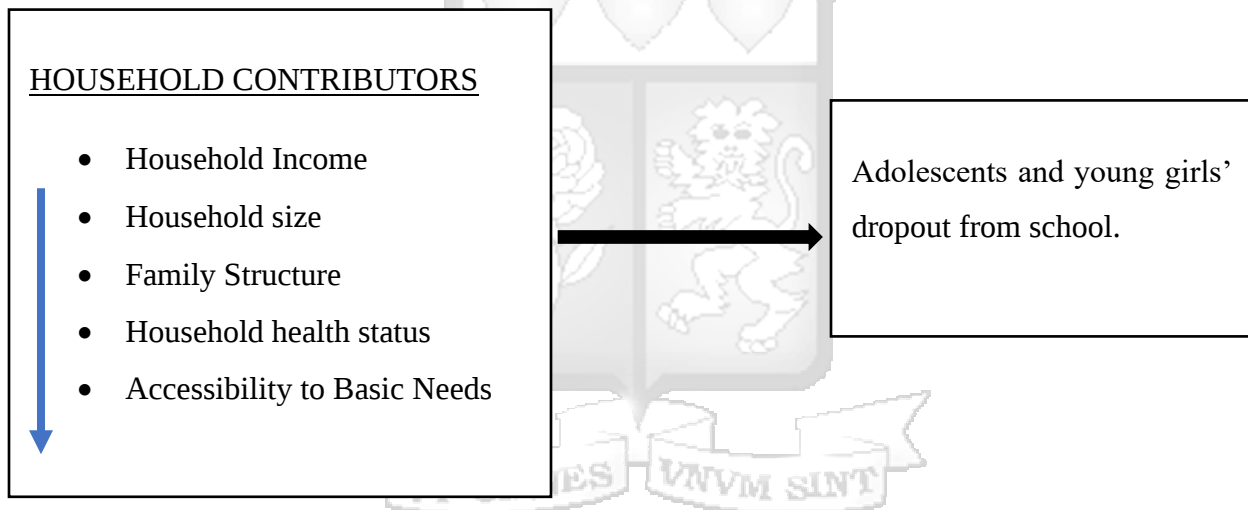
Accessibility of various basic needs correlates with other mentioned factors such as Household income, in that, it presents an opportunity cost between settling the costs of education versus transferring these costs to have basic needs in the household (Odongo et al., 2015). Therefore, a household lacking some basic needs usually ends up in such a dilemma. Furthermore, lacking basic needs in the household may prompt an impatient reaction, which involves the child developing a need to be of value in the household. Therefore, basic education seems non-beneficiary in the short term for the parents, guardians, and even the children (Odongo et al., 2015).

2.4. SUMMARY OF LITERATURE REVIEW

Literature containing various household factors contributing to school dropout cases has been reviewed. The factors identified under a household that influence the dropout of girls from primary school are household income, household structure, and household size. The review was centered on the girl child since most of the literature available focuses on matters affecting a particular gender about education. A research study on household factors contributing to the dropout of young girls in primary schools in the Seme sub-county has not been done. Therefore, the study seeks to fill the gap.

2.5. CONCEPTUAL FRAMEWORK

Figure 3: Conceptual Framework



The conceptual framework displayed in the figure above shows that the independent variables constituted within the household contribute to whether a primary school girl drops out of school or not. The study intends to illustrate that the resultant outcome experienced by adolescents and young girls in school is related to a range of household factors. More precisely, the study examines how these factors are likely to affect their dropout from school.

The conceptual framework also highlights the complexity of the Household contributors that influence adolescents and young girls' drop out of school, in that they are somehow interrelated and influence each other.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter gives in detail the methodology used, that is, the procedures adopted to explain the relationships between the variables, which are the targeted response data and the general targeted population. It describes the program tools that will be applied in cleaning and organizing the data acquired, and finally, the methods used to analyze the data.

3.2. RESEARCH DESIGN

During my short-term commitment as a Data Clerk at Pamoja CBO, I can conclude that the organization adopts a descriptive survey design to acquire both the qualitative and quantitative data used in this research study. This data describes with intention the existing conditions of the targeted population and existing relationships between events, which exist naturally.

This research will adopt a correlational research design. The data samples responses from 1200 respondents from households in Seme Sub-County. It consists of adolescents and young girls from different households with different schooling statuses. The factors, as described in the literature review, are categorized into one major denominator, which is Household factors i.e., household income status, household size, household family structure, household health status, and household accessibility to basic needs.

The data collected will be coded and analyzed using Jupyter Notebook, which is a program used to analyze both quantitative and qualitative data in Python computer language. In this research study, a model generated in Python will be used to establish the relationship between the response variable i.e., dropping out of school, and the explanatory variables or regressors i.e., household contributors.

3.3. TARGET POPULATION

The target population of this study was constituted of adolescents and young girls living and studying in the Seme-subcounty who voluntarily agreed to do a survey focusing on their education and household situation. Being familiar with the organization performing the descriptive survey, the extraction of data collected was easily achieved.

This research study targeted the Seme sub-county due to the presence of good relations with the community-based organizations conducting descriptive surveys in the region. The survey results show a high number of girls failing to complete school and have minimal attendance in school, hence the research study. Furthermore, there has not been a local study on the areas to confirm this situation hence the selection of Seme sub-county.

3.4. SAMPLE SIZE

The data used in this study was extracted in the year 2020, and it constituted over 1,200 adolescents and young girls' qualitative and quantitative data.

3.5. DATA PREPARATION AND ANALYSIS TECHNIQUE

The general information provided in the dataset had to be sorted out in Microsoft Excel program to ensure only the variables that are only relevant to the study are properly aligned. The information available in the dataset will be categorized into the primary variables as follows:

- i. Dependent Variable (Y): This is the dropout status of the girls, which will be presented as a binary information, that is, 1 to represent a dropout and 0 to represent a non-dropout.
- ii. Independent Variables (Xi's): Consisting of the aggregated household factors as described below:
 - a. Household Income: This is derived from indicators such as savings scheme participation and the presence of a current income source, which are questions responded to in the dataset.
 - b. Household Size: This is derived from the total number of household members.
 - c. Family Structure: This is derived from the information provided regarding the presence of both parents, one parent or none.
 - d. Household health: Information on chronic illness of parents, access to healthcare and HIV status of the respondents.
 - e. Accessibility to Basic Needs: Indicators such as housing material for floors, roofs and walls.

Using Microsoft Excel to prepare the dataset for analysis, the columns related to dropout status and household factors were identified and extracted. This is the segmentation of relevant variables step. The next step was to create composite scores for aggregated factors such as household income and household health. A score combining indicators like savings scheme participation and the presence of current income source was derived for household income factors and for household health factors, a score was derived based on parental chronic illness, HIV status of respondents and access to healthcare. Lastly, text-based variables were converted into numerical dummy variables for regression analysis. The regression equation output used is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Where Y is the dropout rate, the X_i 's are the household factors, and ϵ is the error term. Data analysis was conducted using Python (pandas, numpy, and statsmodels libraries), which provided efficient data handling and regression modeling capabilities. Furthermore, data analysis will also include the estimation test of normality and heteroskedasticity.

3.6. DATA DESCRIPTION

Table 1: Dataset Description

Variable	Description	Measure
Household Size	Number of individuals within a household.	The data provided has quantitative descriptions of the number of adults, children, female, and male individuals per household.
Family Structure	Who is the family leader and how is the family-run?	The data provided has descriptions of who is the household head and their age. Furthermore, if parents are alive or not.
Household Income	Financial literacy of the household and how they achieve it.	The data provided describes whether individuals in the household have a savings stream and if they have an income source or not.
Accessibility to Basic Needs	How easily can they access basic needs?	The data provided describes the household that has access to basic needs and how often they come by these needs.
Household Health Status	Are the people in the household healthy and fit?	The data provided describes the health conditions of the parents in the household and the HIV status of the respondents.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1. INTRODUCTION

This chapter discusses the analysis of the data collected, with specific attention to the household variables, its interpretation and how it addresses the objectives and research questions of the study. The data collected focuses on adolescent girls located in Seme Sub- County, which is found in Kisumu County, as the specific area of study. The following are the research questions that guide the analysis in this chapter:

- i. What are the household factors that influence adolescents and young girls' drop out from schools in Seme Sub County, Kisumu?
- ii. How do household factors influence adolescents and young girls' drop out from schools in Seme Sub County, Kisumu?

4.2. DEMOGRAPHIC INFORMATION OF PARTICIPANTS

All the respondents in this study were adolescent and young girls within the age bracket of nine years and twenty years of age. The data contained responses and information from over ten thousand participant girls. This provided substantial information to perform a broad analysis of the household factors.

4.3. RESULTS OF THE OLS REGRESSION

Table 2: OLS Regression Statistics Results

<i>Regression Statistics</i>	
<i>Multiple R</i>	<i>0.381472297</i>
<i>R Square</i>	<i>0.145521113</i>
<i>Adjusted R Square</i>	<i>0.145137112</i>
<i>Standard Error</i>	<i>0.336559055</i>
<i>Observations</i>	<i>11132</i>

Source: Jupyter Notebook, 2024

Table 2 presents the Regression statistics results from the analysis done. It was found that R-Squared value of 0.146 (14.6%) of the variation in dropout status is explained by the independent variables in the model, which are the household factors. It is evident that the household factors influence the dropout of adolescent and young girls in Seme Sub- County. This modest explanatory power suggests that other factors, not included in the model, may also play a significant role. Furthermore, with reference to the Adjusted R-Squared, being that there is a minor difference between it and the R-Squared suggests that the included variables collectively contribute meaningfully to the model.

Table 3: OLS Regression, Beta Coefficients Results

	<i>Coefficients</i>
X_0 - Intercept	0.721572996
X_1 - Household_income_score	0.22916744
X_2 - Accessibility_to_basic_needs_score	-0.00133901
X_3 - No_of_people_in_household	-0.020288063
X_4 - Household_health_score	0.024747851
X_5 - Family_Structure_Score	-0.136443349

Source: Jupyter Notebook, 2024

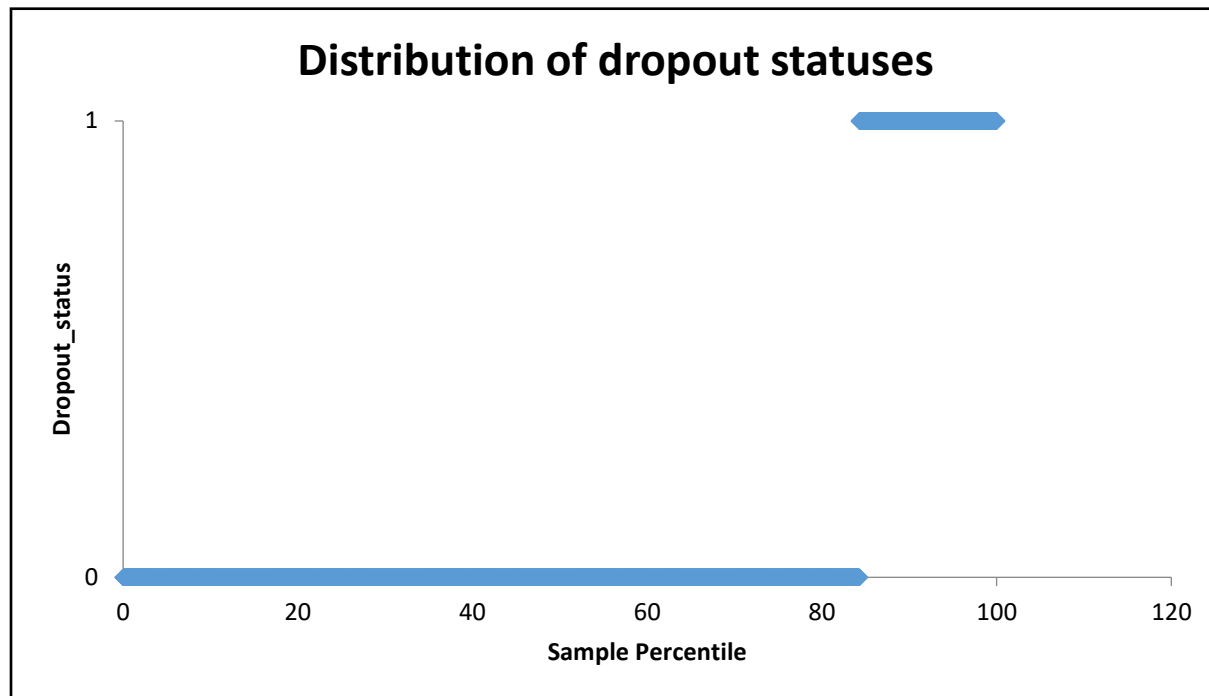
Tables 3 presents the Beta coefficients of the OLS regression. These results, when replaced in the original equation stated in chapter 3:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

would have the following outlook:

$$\underline{\text{Dropout_status} = 0.7216 + 0.2292 \cdot X_1 - 0.0013 \cdot X_2 - 0.0203 \cdot X_3 + 0.0247 \cdot X_4 - 0.1364 \cdot X_5 + 0.337}$$

Figure 4: A Scatter chart used to show the Distribution of the Dropout Status as per the dataset



Source: Jupyter Notebook, 2024

Figure 4 presents a scatter chart used to show the distribution of the dropout status as per the dataset analyzed. The Dropout_status was formatted into a binary output, to categorically places the dropout status of each participant to be 0 or 1. The responses of those participants who responded as not to have dropped out of school were replaced by 0, and those participants who responded to have dropped out of school were replaced by 1.

From the chart, we see clearly that most of the data points are concentrated at $y = 0$, that is 85% of the data points, and a smaller subset of data points exists at $y = 1$, that is 15% of the data points. This is a clear indication that the transition rate of 100% is still yet to be achieved in Seme Sub- County, and dropout is an ongoing problem in the region.

4.3.1 Influence of Household Income on dropout

Household income score (+0.2292) is positively associated with dropout status. For each one-unit increase in the income score, the dropout likelihood increases by 22.92%. Furthermore, it

has a p-value of ($p < 0.05$), which means that household income is statistically significant and likely affects dropout status hence leading to the conclusion of rejecting the null hypothesis.

This counterintuitive finding might suggest that higher-income households are less reliant on formal education for socioeconomic mobility. It could also reflect a preference for alternative education paths, such as private tutoring, early career involvement, or business ventures (Banerjee & Duflo, 2011).

4.3.2 Influence of Accessibility to Basic Needs on dropout

Accessibility to basic needs coefficient is (-0.0013), this shows a very small negative relationship. Furthermore, its p-value ($p > 0.05$) shows a negligible and statistically insignificant relationship with dropout status. This suggests that while basic needs are essential for general well-being, their direct impact on educational outcomes may be limited. Accessibility to basic needs might not be a critical factor influencing dropout status in this context. This aligns with studies indicating that basic needs affect education indirectly through health and economic stability (World Bank, 2021).

4.3.3 Influence of Number of People in the Household on dropout

Larger households are associated with lower dropout rates as suggested by its negative coefficient (-0.0203). According to the regression model, this means that a one-person increase in household size decreases dropout likelihood by 2.03%. Furthermore, it has a p-value of ($p < 0.05$), which means that the number of people in the household is statistically significant and likely affects dropout status hence leading to the conclusion of rejecting the null hypothesis.

This may reflect the presence of older siblings or extended family members who can support younger members, both financially and emotionally. However, it could also imply economies of scale in resource-sharing within larger households (Becker, 1991).

4.3.4 Influence of Household Health status on dropout

A better household health score is positively associated with dropout rates as suggested by its positive coefficient (+0.0247). This is an unexpected relationship since each unit increase in health score raises dropout likelihood by 2.47%. Furthermore, a p-value ($p < 0.05$) which means

that household health score is statistically significant and likely affects dropout status hence leading to the conclusion of rejecting the null hypothesis.

While counterintuitive, this could reflect situations where improved health allows family members to prioritize non-educational activities, such as labor or entrepreneurship, over schooling. This could also signal a gap in understanding how health improvements translate to educational outcomes (Case et al., 2005).

4.3.5 Influence of Family Structure on dropout

A stronger family structure is significantly associated with lower dropout rates as indicated by its coefficient (-0.1364). For every unit increase in family structure score, dropout decreases by 13.64%. Furthermore, a p-value ($p < 0.05$) which means that household family structure is statistically significant and likely affects dropout status hence leading to the conclusion of rejecting the null hypothesis. This aligns with research showing that family cohesion and parental involvement positively influence educational outcomes (Coleman, 1988). Strong family structures may provide both emotional support and practical resources, such as help with schoolwork or encouragement to stay enrolled. Supportive and well-organized families play a crucial role in retaining participants in education.

4.4. DIAGNOSTIC TESTS FOR REGRESSION ASSUMPTIONS

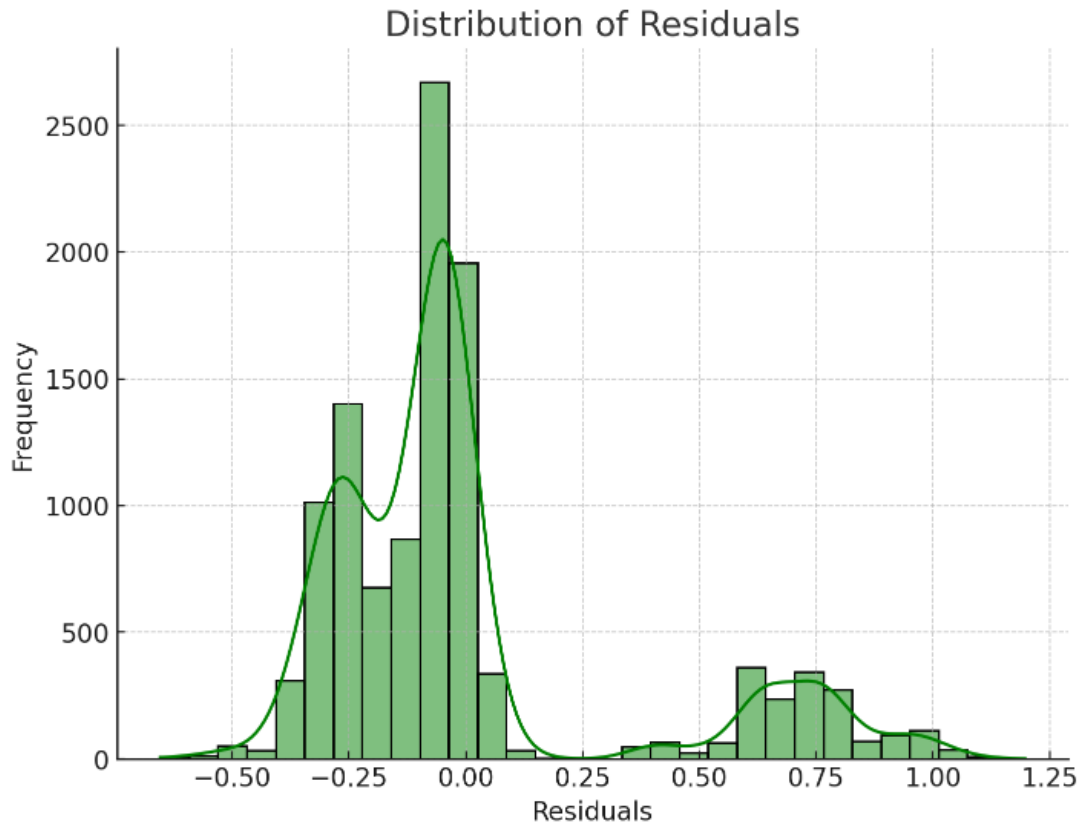
4.4.1 Normality Test of Residuals

The normality test evaluates whether the residuals (errors) of the regression model are normally distributed. This assumption is crucial for the validity of hypothesis tests and confidence intervals derived from the model.

The Jarque-Bera (JB) test was applied to test the normality of residuals. This test compares the skewness and kurtosis of the residuals to those of a normal distribution. A significant result ($p < 0.05$) indicates that the residuals deviate from normality.

The JB test yielded a statistic of 5150.06 with a p-value of 0.0, indicating that the residuals are not normally distributed. A histogram of residuals Figure 5 below showed deviations from the bell-shaped curve expected under normality, confirming this result.

Figure 5: A histogram chart used to show the Distribution of the Residuals



Source: Jupyter Notebook, 2024

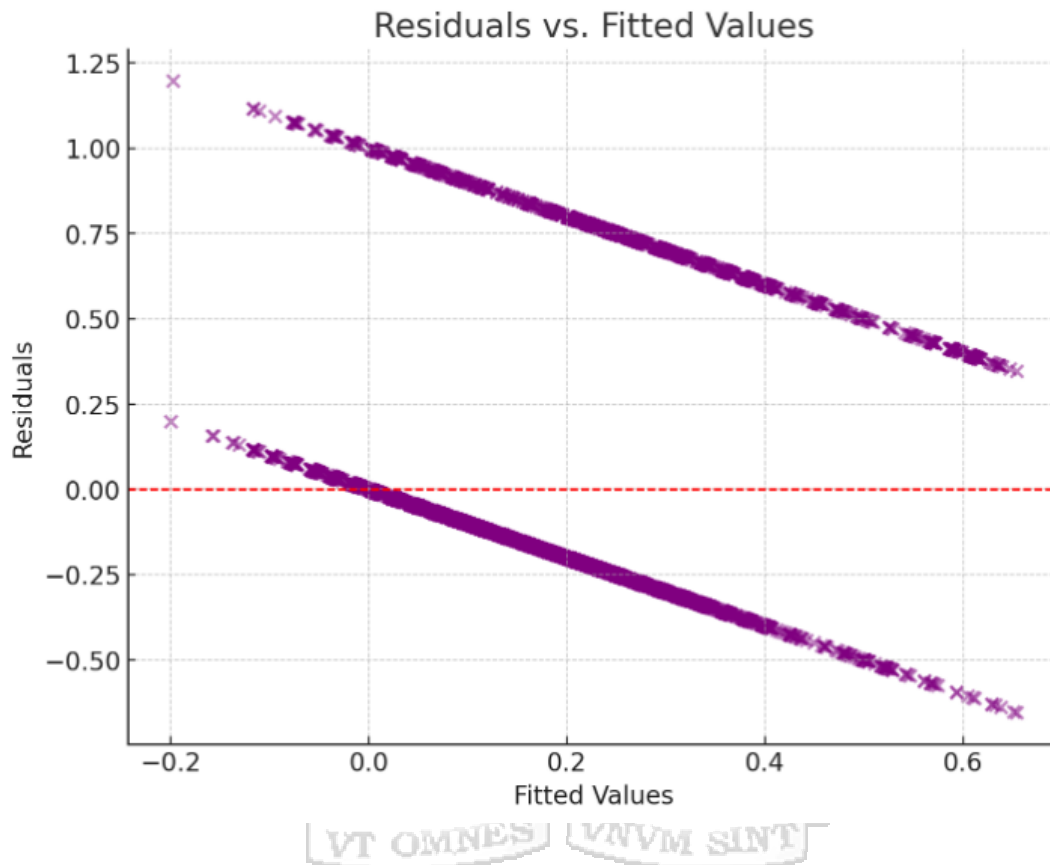
4.4.2 Heteroskedasticity Test

The heteroskedasticity test assesses whether the variance of residuals is constant across all levels of the independent variables. Heteroskedasticity violates a key assumption of OLS, potentially leading to inefficient estimators and biased standard errors.

The Breusch-Pagan (BP) test was employed to detect heteroskedasticity. This test examines whether the squared residuals are systematically related to the independent variables. A significant p-value ($p < 0.05$) indicates the presence of heteroskedasticity.

The BP test produced a statistic of 1227.95 with a p-value of 2.59×10^{-263} , indicating strong evidence of heteroskedasticity. A residuals-versus-fitted plot as shown in Figure 6 below revealed a pattern, confirming non-constant variance in the residuals.

Figure 6: A Scatter chart used to show the residuals-versus-fitted plot



Source: Jupyter Notebook, 2024

CHAPTER 5: SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

The main purpose of this study was to attempt to find out how the household factors affect the dropout rate of adolescent and young girls in Seme Sub – county. This chapter is a synthesis of the entire research project. It presents the summary of the key findings, the discussions following the key findings, the conclusion drawn from the findings and recommendations of the study and suggestions for further study. The conclusions and recommendations were drawn with the aim of achieving the following research objective:

- i. To find out the influence of household factors on adolescents and young girls dropping out of schools in Seme Sub County, Kisumu.
- ii. To explain the effect of household factors on adolescents and young girls dropping out of schools in Seme Sub County, Kisumu.

5.2. SUMMARY AND FINDINGS

This study investigated the relationship between dropout status and key household factors, including household income, accessibility to basic needs, household size, health status, and family structure, using Ordinary Least Squares (OLS) regression. The study was conducted on a dataset consisting on responses from over ten thousand adolescent and young girls from Seme Sub – county. The analysis generated a model explaining that approximately 14.6% of the variables in the dataset have a significant influence on the dropout status, that is $R\text{-Squared}=0.146$. The findings shed light on the factors influencing dropout rates and further provide actionable insights for policymakers, in that, there are more factors, not captured in the dataset, that can be used to explain the dropout rate of adolescent and young girls not only in Seme, but also in the nation as a whole.

Household income ($\beta=0.2292$, $p<0.05$) was positively and significantly associated with dropout status, meaning that a unit increase in the household income score increased the likelihood of dropout by approximately 23%.

Accessibility to basic needs ($\beta=-0.0013$, $p>0.05$) showed no significant impact on dropout status, with changes in this variable explaining less than 0.1% of dropout likelihood. This implies that while access to basic needs is critical for overall well-being, it does not directly affect educational outcomes in this study.

Household size ($\beta=-0.0203$, $p<0.05$) was negatively associated with dropout status, with each additional household member decreasing dropout likelihood by approximately 2%. This result highlights the role of family networks in supporting education.

Household health ($\beta=0.0247$, $p<0.05$) and family structure ($\beta=-0.1364$, $p<0.05$) had contrasting effects on dropout rates. A unit increase in household health score increased dropout likelihood by 2.5%, potentially reflecting shifts in focus toward economic activities or labor opportunities. Conversely, a stronger family structure reduced dropout likelihood by 13.6%, emphasizing the importance of family cohesion and parental involvement in ensuring educational retention.

5.3. CONCLUSION

The following conclusions were drawn from the findings. With regards to the household income factors, context-specific cultural or economic factors may mediate the relationship that household income has on dropout rate. For example, in some regions, higher-income families may prioritize economic activities over formal education. This comes as a reverse analogy being that we relate a stable household income to a stable education progress.

It was highly thought in the preliminary of this study that the more people there are in a household the higher the rate of dropout will be. We see a vice versa effect after doing a regression analysis of the dataset provided. Larger households may benefit from shared responsibilities and resources, reducing the burden on individual members and enabling continued education.

The basic needs that were available in the dataset might not have been the common needs known as a general knowledge. The dataset focused on the living conditions as its major indicator of access to basic needs. This might have been the reason why access to basic needs is seen as an insignificant variable in the study.

5.4. RECOMMENDATIONS

- Policymakers may need to focus on addressing indirect effects, such as improving health and reducing domestic labor burdens, to effectively combat dropout rates.
- Policies that strengthen family support systems could leverage the findings on family structure, better family structure and numbers reduces dropout rate, to reduce dropout rates.
- The need for policies that not only address health improvements but also actively promote family engagement to foster positive educational outcomes should be supported.
- Policies targeting dropout rates might benefit more from focusing on indirect effects, such as improving health or reducing household labor demands, rather than just ensuring basic needs are met.

5.5. RECOMMENDATIONS FOR FURTHER RESEARCH

The finding on household health factors suggests a need for further investigation into the pathways linking health and education. Policymakers might focus on ensuring that health improvements complement educational retention. Also, a further elaborate study on the access to the common basic needs, that is, food, water, clothing and housing should be focused on to establish a significance of these factors on dropout rate.

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