A LINEAR REGRESSION MODEL FOR PREDICTING THE LEVEL OF NEED FOR SOCIAL PROTECTION IN KENYA.

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DECLARATION

I hereby declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made, and author duly acknowledged.

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ABSTRACT

This research delved into the complex dynamics of social disadvantage in Kenya, focusing on the nation's unique social protection needs. Using the Kenya Integrated Household Budget Survey (KIHBS), we explored factors such as Household income, Educational Attainment, Employment status, Health Indicators, and Disability Status. The research findings identified household income and disability status as crucial determinants for social disadvantage, underlining the importance of fair economic opportunities. Education and employment also emerged as significant influences, emphasizing the need for comprehensive educational access and robust job creation strategies. Based on the linear regression model statistics, the R-square value of 0.656 showed a stable model. Other regression validation metrics such as residual errors helped to confirm this. The study recommends refining data consolidation techniques to uncover deeper disparities within Kenya's diverse population. While highlighted key social disadvantage determinants have been highlighted, a more detailed examination of the urban-rural divide is essential. The study, deeply rooted in theoretical frameworks, suggests that further research should explore how these theories tangibly relate to the experiences of Kenyans, providing a foundation for creating more inclusive societies both in Kenya and globally.

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ACRONYMS AND ABBREVIATIONS

KES - Kenyan Shillings

MCAR - Missing Completely at Random

ML – Machine Learning

KIHBS - Kenya Integrated Household Budget Survey

NAC - Networks and Applied Computing

KCAU – Kenya College of Accountancy University

SDIS - Software Development & Information Systems

RMSE - Root Mean Square Error

NHIF - National Hospital Insurance Fund

LGBTQ - Lesbian, Gay, Bisexual, Transgender, Queer

SVM - Support Vector Machines

RBF - Radial Basis Function

CNNs - Convolutional Neural Networks

RNNs - Recurrent Neural Networks

MSE - Mean Squared Error

IT- Information Technology

MIS - Management Information Systems

GLOSSARY

Social Protection: Social protection refers to a set of policies, programs, and measures designed to reduce poverty, vulnerability, and inequality in a society. It includes various forms of assistance, such as cash transfers, healthcare, and employment support, aimed at providing individuals and communities with a safety net.

Linear Regression: Linear regression is a statistical modeling technique used to analyze the relationship between a dependent variable and one or more independent variables. It assumes a linear relationship between the variables and is often employed for predictive modeling.

Disability Status: Disability status indicates whether an individual has a disability. In this study, it is coded as 1 for "yes" (indicating the presence of a disability) and 0 for "no" (indicating the absence of a disability).

Health Indicators: Health indicators are subjective self-assessments of an individual's health status, typically measured on a scale ranging from 1 (poor health) to 5 (excellent health).

Household Income (KES): Household income measures the total earnings or financial resources of a household, usually expressed in thousands of Kenyan Shillings (KES).

Educational Attainment (years): Educational attainment represents the number of years of formal education an individual has completed.

Employment Status: Employment status is a binary variable denoting whether an individual is employed, coded as 1, or unemployed, coded as 0.

Geographic Location: Geographic location is a categorical variable indicating where participants reside, with categories typically including urban, suburban, and rural areas.

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CHAPTER ONE

INTRODUCTION

1.1. Background of The Study

Social protection is essential to improve people's quality of life and ability to support their families and communities. Effective social protection measures are necessary in Kenya, a nation with many socioeconomic problems. According to Staniszewska et al. (2021), understanding the extent of the Kenyan population's demand for social protection information is crucial to the effectiveness of such initiatives. The following factors are essential for Kenya's present need for social protection information. First, information access. An essential component of social protection is access to information. Accurate and current information regarding existing social protection programs, eligibility requirements, application processes, and benefits is needed by individuals and communities (Colombino, 2019). Unfortunately, access to information is still scarce in many parts of Kenya, especially in isolated and underserved populations. Access is necessary to take advantage of current social protection programs, which help to reduce poverty and inequality.

Secondly, awareness and understanding. Awareness and experience are essential for social protection programs to be implemented successfully. From Maina & Mang'ana's (2022) viewpoint, many Kenyans, particularly those who live in rural regions, are unaware of and uninformed about the numerous social safety programs that are available for them to access. Language obstacles, insufficient information diffusion, and a lack of educational tools can all be attributed to this lack of knowledge. As a result, potential beneficiaries do not benefit from the assistance and chances offered by social protection programs. Thirdly, communication channels (Liu et al., 2021). Suitable communication channels are crucial to the efficacy of social protection information distribution. Traditional information dissemination techniques, including radio,

community meetings, and posters, are still widely employed in Kenya. However, the country's quick technological development offers a chance to investigate more creative and inclusive methods (Hidrobo et al., 2022). The reach and usability of social protection information may be improved by utilizing mobile technology, social media, and community-based networks, especially among young people and the digitally connected population.

Fourthly, information is tailored to specific groups: Social protection programs frequently focus on groups, such as those at-risk youth, the elderly, people with impairments, and women. Information must be tailored to various groups' unique needs and features to guarantee inclusion. For instance, the efficacy of information transmission and the acceptance of social protection programs may be improved by using local languages and visual aids and engaging community leaders and influencers (Tan et al., 2021). Finally, capacity development. Increasing people's and communities' ability to access and use social protection information is crucial. This involves giving instructions on program eligibility, the application procedure, and understanding one's rights. People may actively engage in social protection programs, fight for their rights, and make the most of the advantages at their disposal by being given the information and abilities they need.

Information on social protection is greatly needed in Kenya. To meet this demand, Riisgaard et al. (2022) argue that a multifaceted strategy is needed, one that focuses on increasing information availability, increasing awareness and knowledge, using effective communication channels, personalizing information to groups, and creating capability. Kenya can empower its people to end the cycle of poverty, achieve sustainable development, and enhance general well-being through improving the availability and accessibility of social protection information (Ongowo, 2022). Government agencies, civil society groups, and other interested parties must coordinate efforts to close the information gap and ensure that social protection services are

available to those most in need.

Especially in developing nations like Kenya, social protection programs, which include a variety of interventions, including cash transfers, food assistance, health care, and educational support, play a critical role in boosting the well-being of vulnerable communities. These initiatives seek to eradicate poverty, lessen inequality, and protect everyone's fundamental social rights. Even though these programs are accessible, significant obstacles prevent the efficient use of these services (Colombino, 2019). Lack of information specifically customized to the requirements and preferences of the intended recipients is one of the main problems. To comprehend the various social protection services, eligibility requirements, application processes, and the overall advantages of these programs, people must have access to accurate, timely, and relevant information (Ouma & Adésínà, 2019). Without sufficient information, users may have trouble navigating the system and are unable to make full use of the help offered to them. Various government and non-governmental organizations in Kenya implement social protection programs to address the needs of various vulnerable groups, such as the elderly, people with disabilities, orphaned and vulnerable children, and families in deep poverty (Riisgaard et al., 2022). However, there are still significant gaps in the accessibility and transmission of information despite the efforts made by these organizations.

The diversity and complexity of Kenya's social protection system is one of the leading causes of the absence of specialized knowledge. It is challenging to construct a universal strategy for information transmission since diverse programs are created to fulfill specific requirements and target different demographics. According to Bender et al. (2021), The information gap is further worsened by the absence of coordination and collaboration among many parties. Furthermore, access to information about social protection in Kenya needs to be improved by the digital divide.

Although technological developments have created new channels for the diffusion of information, a sizeable percentage of the population still needs access to the internet, cell phones, or computers. Because digitally connected people have more opportunities to obtain and use social protection services than without, this digital gap produces disparities in information access (Hidrobo et al., 2022).

1.1.1 Bridging the Gap: How Technology Can Improve Kenya's Social Protection

Social protection programs are essential in developing countries like Kenya in the effort to raise living standards and assist vulnerable groups. Nevertheless, despite the existence of these programs, it is still difficult to deliver information that is suited to the requirements of the intended users. Technology integration, especially machine learning (ML) models, can change the comprehension of social profiles and precisely anticipate the degree of disadvantage to solve this issue (Shibairo et al., 2023). By utilizing technology, we can increase the efficacy of social protection measures and provide people and communities with the tools they need to fight inequality and poverty.

First, using machine learning for social profile analysis has become more important as complicated social dynamics have become more and more difficult to comprehend. ML algorithms may find trends, pinpoint people that are at danger, and more precisely forecast socioeconomic disadvantages by evaluating massive volumes of data. For instance, Zelenev (2023) observed that social scientists and data analysts may design ML models to analyze demographics, socioeconomic indicators, and other pertinent elements to produce detailed social profiles. These profiles offer in-depth understandings of the needs and difficulties that various populations in Kenya, including the elderly, those with disabilities, and orphaned and vulnerable children, confront.

Second, realistic disadvantage level forecasting. Machine learning techniques can go

beyond static social profiles and allow the prediction of individual and collective disadvantage levels. Multiple factors, including income, schooling, job status, and health indicators, may be examined by ML models to determine who needs social protection the most (Osabohien et al., 2022). These prediction models can assist in allocating scarce resources to those who need them the most, guaranteeing effective social support distribution.

Third, customizing social protection information: The use of technology enables social protection information to be tailored to the distinct requirements and preferences of various target groups. To provide information in a way that is accessible and meaningful to the intended receivers, Chakraborty et al. (2022) claimed that ML models may assess language tastes, literacy levels, and cultural subtleties. For instance, ML-powered chatbots and mobile apps may give individualized advice on eligibility requirements and application procedures as well as real-time updates on social protection schemes in local languages.

Fourth, improving communication channels. Technology presents chances to enhance communication channels for the dissemination of social protection information. To determine the most efficient channels for communication, ML models may examine the digital footprints of people and communities (Osabohien et al., 2022). Information transmission may be targeted to a wider audience by utilizing social media platforms, mobile technologies, and community-based networks, especially among young people and groups with high levels of digital connectivity.

Fifth, empowerment and capacity building. By offering teaching and training materials on social protection programs, machine learning algorithms may also significantly contribute to capacity building. Interactive modules that inform people about their rights, their eligibility for certain programs, and the application process can be made available through ML-powered platforms (Ofori et al., 2023). People may participate actively in social protection programs, fight

for their rights, and make the most of the advantages at their disposal by equipping them with the knowledge and abilities needed.

1.2. Statement of the Problem

In the context of Kenya, a considerable segment of the populace experiences social disadvantage, which is marked by restricted access to assets and possibilities. This maintains the continuation of cycles of inequalities and poverty. Despite attempts to tackle these difficulties, current models and research exhibit a limited grasp of the intricate dynamics that are at play within socially disadvantaged populations in Kenya. The lack of knowledge in this area is a significant obstacle to the progress of implementing specific treatments and policies that can successfully mitigate socioeconomic disadvantage within the nation.

Current research fails to give a clear framework for predicting the level of need for social security among this demographic, making it difficult to plan and implement personalized interventions. Furthermore, the existing body of research primarily concentrates on discrete facets of social drawback, for instance discrepancies in income or levels of education, without delving into the intricate interplay of several elements that add up to the whole encounter with social disadvantage.

In order to bridge these existing gaps, the objective of this work is to construct a predictive model that effectively evaluates the extent of social protection requirements among socially marginalized individuals in Kenya. Through the incorporation of essential socioeconomic and demographic factors, our objective is to elucidate the intricate connections among income, education, employment, health metrics, geographic location, and disabilities. This endeavor aims to offer a comprehensive multifaceted dimension of social drawbacks within the specific context of Kenya.

This study is of utmost importance in providing valuable insights for the development of evidence-based policies and interventions that are specifically designed to address the distinct

needs and obstacles encountered by socially disadvantaged individuals in Kenya. The objective is to enhance our understanding of the precise determinants of social disadvantage, with the intention of making a valuable contribution to the wider conversation surrounding social protection. By doing so, we hope to establish a foundation for the development of more efficient approaches to mitigate social disparity within the nation.

1.3. Objectives

1.3.1 Main Objective

The main objective of this study is to establish a linear regression model for predicting the level of need for social protection in Kenya.

1.3.2 Specific Objectives

The specific objectives of this study are: -

i. To identify from existing literature the factors that can be used for targeting the beneficiaries of social protection in Kenya.
ii. To develop a linear regression model for investigating the need for forecasting social protection in Kenya.
iii. To test and validate the developed linear regression model.

1.3.3 Research Questions

The following research inquiries were addressed to direct this study:

i. Which factors can be discovered from existing literature and used to pinpoint Kenya's social protection recipients?
ii. How can a linear regression model be created to examine the need for anticipating the distribution of social protection in Kenya?
iii. How can the constructed linear regression model for analyzing the demand for

predicting Kenya's social protection be evaluated and validated?

1.4. Significance of the Study

The suggested linear regression architecture significantly impacts Kenya's social protection initiatives. First, it offers a more individualized and focused information distribution method, ensuring people and communities get the necessary information (Maina & Mang'ana, 2022). As a result, social protection services will be more successful, and more people will likely receive the help they are entitled to. Second, the linear regression architecture will help to lessen the obstacles that currently prevent people from receiving information on social protection. The framework enables the creation of specialized methods to overcome these obstacles by identifying the variables that affect the degree of need, including the utilization of suitable communication channels and the supply of user-friendly information formats (Staniszewska et al. (2021). Finally, the study will add to the body of knowledge on linear regression modeling and information systems in the context of social protection. With possible ramifications for similar programs and initiatives in other nations experiencing comparable issues, it will offer insightful information on using linear regression frameworks to estimate the degree of information requirement.

Notably, the suggested linear regression framework intends to solve the existing gaps and issues in the current system by forecasting the demand for social protection information in Kenya (Ulrichs et al., 2019). The framework aims to increase social protection information's usability, applicability, and efficacy by identifying the obstacles, investigating the influencing elements, and creating a precise linear regression model (Ouma & Adésínà, 2019). This study will contribute to improving social well-being and efforts to reduce poverty in Kenya by offering insightful information about the creation and application of linear regression frameworks in the context of social protection.

1.5. Motivation of the Study

Any society needs social protection to defend its members' lives and means of subsistence. Effective social protection programs are essential everywhere, but especially in emerging nations like Kenya (Pouw, et al., 2020). However, it might be difficult to make sure that these services are accessible to people who need them the most. This study tries to solve this issue by estimating the demand and need for social protection information in Kenya using a linear regression approach.

This study was inspired by the realization that timely and pertinent information is a prerequisite for people and communities to take advantage of the current social protection programs. According to Sabates-Wheeler (2019), the distribution of social safety support to underprivileged areas still faces substantial challenges, despite the efforts of the Kenyan government and several NGOs. Rare resources, ignorance, and inefficient targeted methods frequently fill this vacuum. The proposed linear regression framework offers a systematic and effective method for identifying people and communities in need of social protection information to address these challenges.

This approach seeks to precisely anticipate the demand using data-driven algorithms, allowing policymakers, public bodies, and NGOs to more effectively and economically distribute resources. This study's motivation stems from the framework's ability to support Kenya's overall development plan. From Tan’s et al. (2021) perspective, by facilitating access to social protection information, it seeks to provide vulnerable persons with the knowledge they need to make educated decisions, access accessible support services, and enhance their socioeconomic well-being. Ultimately, through lowering poverty and boosting resilience, this can result in sustainable development.

The study also recognizes the need of using technology to connect with remote and underserved areas. The suggested linear regression framework, as per Riisgaard's et al. (2022) viewpoint, may be incorporated into current systems, such as mobile platforms and community-based networks, thanks to developments in information and communication technology. This connection makes it easier to provide information about social protection in a way that is more accurate, efficient, and inclusive.

1.6. Scope of the Study

This project's scope is to create and put into use a linear regression framework to estimate Kenya's demand and need for social protection information. To ensure that vulnerable populations have access to timely and appropriate information regarding existing social protection programs, the project intends to overcome the difficulties encountered in reaching these groups. The following are some of the aspects covered under the scope. First, data consolidation and analysis (Murrey & Mutwiri, 2022). For the study, data were gathered from a variety of sources, including public records, surveys, and databases already in existence that deal with social protection programs. The essential factors and indicators that can forecast the degree of demand for social protection information was found via analysis of this data. Second, development of a linear regression model (Liu et al., 2021). Using the gathered data, a linear regression model was built to produce a methodical and effective method for forecasting the degree of need. Depending on how much information people and communities require on social protection, the model will use data-driven algorithms to divide them into several groups.

Third, framework implementation: In cooperation with pertinent governmental entities, non-governmental organizations, and community-based groups, the proposed linear regression framework will be implemented. To effectively distribute social protection information, the

framework will be integrated into existing systems and platforms, such as mobile applications or community networks. Fourth, evaluation and validation (Bender et al., 2021). The study will evaluate the linear regression framework's predicting powers to determine its efficacy and accuracy. To ascertain the validity and effectiveness of the framework, cross-validation and comparison with current targeting tactics will be used as validation methodologies. Last, policy suggestions (Doyle & Ikutwa (2021). Considering the study's results, policy suggestions will be developed to help stakeholders and decision-makers better target their social protection resources. These suggestions will improve the overall efficacy and inclusion of social protection services in Kenya.

Notably, the implementation or assessment of particular social protection programs themselves is outside the purview of this study, which From Colombino (2019) observation, is restricted to estimating the degree of informational demand. The study's findings, however, might improve the planning and execution of similar projects in Kenya.

1.7. Structure of the Research

The next chapters of this research are literature review and methodology. In literature review we look at previous studies that have attempted to investigate the problems statement from a global and local perspective. In methodology, the model used in this study will be discussed.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This section will provide a literature review of the theories and concepts related to social protection, the empirical review of the factors determining social protection in Kenya, conceptual framework of the study and the operationalization of the variables used in the study. The theories and concepts used in the study are stratification theory, intersectionality concept, cultural capital theory, institutional discrimination concept, and social exclusion concept. The empirical review entails analyzing the relationship between social disadvantage (dependent variable) and poverty, education, gender inequality, tribalism and ethnicity, land and resources, health inequalities, urban-rural split, and disability (dependent variables).

2.2 Theoretical Review

The dynamics of social disadvantage and inequality is understood in the context of a thorough analysis of five theories that explain the structures and processes that give rise to these phenomena. The theories include social stratification theory, intersectionality concept, cultural capital theory, institutional discrimination concept, and social exclusion concept.

2.2.1 Social Stratification Theory

A sociological theory called social stratification theory looks at how societies are organized hierarchically depending on things like social class, race, gender, and other social characteristics (Antonoplis, 2023). It aims to comprehend how people's standings within these social hierarchies affect their access to things like resources, opportunities, and power. The following are fundamental concepts of social stratification theory:

2.2.1.1 Social Class

According to the social stratification theory, social class plays a significant role in shaping a person's social position. According to Dahlin et al. (2023), a group of people who hold comparable economic and social positions within society are said to be in the same social class. It is frequently quantified using variables like income, wealth, employment, and education. Higher social class members often have more access to resources and opportunities, whereas members of lower social classes could experience social disadvantage and have less possibilities. A person's social status is significantly influenced by their social class. Social class is essential to understanding the processes of social disadvantage and protection in Kenya (Chakrabarti, 2022). Social stratification in this multicultural nation is impacted by several variables, including financial disparity, educational differences, and resource availability.

A sizable majority of the population of Kenya lives in poverty, putting the country at a considerable socioeconomic disadvantage. The country has a sizable wealth gap between the affluent and the poor and a high level of income inequality. Due to their restricted access to resources, Tang et al. (2022) argued that chances for education, healthcare, and work, those in lower socioeconomic classes are socially disadvantaged because of this inequality in income distribution. In Kenya, societal inequality is especially noticeable in the sphere of education. For those from lower socioeconomic groups, access to high-quality education is frequently restricted, especially in rural regions. It is challenging for people to escape the cycle of poverty because of the lack of educational possibilities.

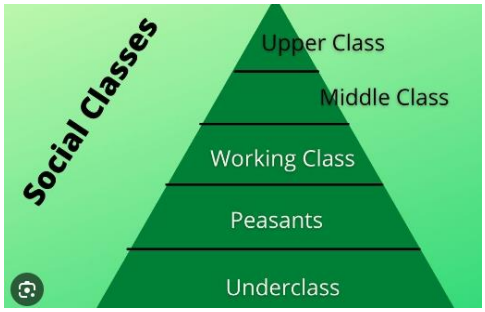

FIGURE 1

Category of how Social Class in Distributed Kenya

In Kenya, initiatives have been taken to reduce socioeconomic inequality and offer disadvantaged persons social protection. From Dahlin et al. (2023) perspective, the government has put in place several social protection programs such cash transfer programs, free primary education, and healthcare initiatives with the goal of enhancing the wellbeing of underprivileged populations. Programs for cash transfers, like the Inua Jamii program, are designed to reduce poverty and offer aid to families and people in need. These initiatives provide recurring financial transfers to elderly people, people with disabilities, and orphaned children to cover their basic requirements. Initiatives to provide free elementary education have improved access to school for kids from underprivileged homes. No matter what their socioeconomic class, all children will have equal chances and educational discrepancies will be reduced thanks to this legislation. Additionally, Hunkler et al. (2022) claims that healthcare programs like the National Hospital Insurance Fund (NHIF) aim to offer all Kenyans access to inexpensive healthcare. These initiatives seek to eliminate the social disadvantage that people from lower socioeconomic classes may experience due to lack of access to high-quality healthcare treatments.

2.2.1.2 Social Stratification Based on Race and Ethnicity

Social stratification theory considers how a person's social status is influenced by their race and

ethnicity. In Kenya, Crabtree et al. (2022) observed that where racial and ethnic minorities frequently experience discrimination and disadvantages, the social stratification hypothesis, which considers how a person's social standing is impacted by their race and ethnicity, is extremely significant. The dominant tribe is the Kikuyu, along with other ethnic groups including the Luo, Luhya, Kamba, and many others. Unfortunately, social deprivation is clearly seen among several racial and ethnic minorities.

Access to necessary goods, services, and opportunities in Kenya is hampered by prejudice and unfair treatment based on race and ethnicity. Social disparity is clearly visible when it comes to access to healthcare. According to Highlander & Jones (2022), racial and ethnic minorities frequently encounter obstacles to receiving high-quality healthcare services. Due to uneven treatment brought on by prejudice, discrimination, and cultural biases, certain communities may have difficult access to healthcare and poor health results. Racial and ethnic minorities face additional societal disadvantages related to employment prospects. Their prospects of finding steady, well-paying work may be limited by discrimination in the labor market. This impedes these groups' ability to move up the social ladder and maintains economic inequality. Initiatives have been taken to ameliorate social deprivation and safeguard racial and ethnic minorities (Raffington et al., 2023). The government has put into effect laws and programs designed to advance inclusion and equal opportunity. The Affirmative Action policy is one such endeavor that aims to give underprivileged groups fair access to resources and opportunities.

FIGURE 2

Social Stratification and Ethnicity classification in Kenya

2.2.1.3 Gender

Another crucial element in social stratification is gender. In the past, women have had societal disadvantages and had less access to resources and opportunities than males. The Social stratification concept looks at how gender norms and expectations affect people's social standing and cause social disadvantage. In Kenya, Boynton-Jarrett et al. (2021) observed that gender inequality has long been a problem since women historically face social disadvantages and have less access to resources and opportunities than males. The Kenyan society has a long history of patriarchy, with strongly embedded gender expectations and conventions that support inequality. Women have a variety of socioeconomic disadvantages, including restricted access to work, education, property ownership, and decision-making.

Gender inequality is fundamentally present in access to education. Girls have historically encountered obstacles to education, such as early marriage, cultural prejudices, and financial limitations. From Forrest et al. (2023) perspective, this restricts their options for growth on both a personal and professional level, maintaining gender inequities. For women, access to employment and economic empowerment are also obstacles. Lack of career opportunities, reduced pay, and

difficulties obtaining leadership roles are all common effects of gender-based discrimination in the workplace (Ingram & Oh (2022). The economic disadvantage worsens gender inequality and restricts women's social mobility. Kenya has developed several laws and programs targeted at improving gender equality and social protection for women to alleviate these societal disadvantages.

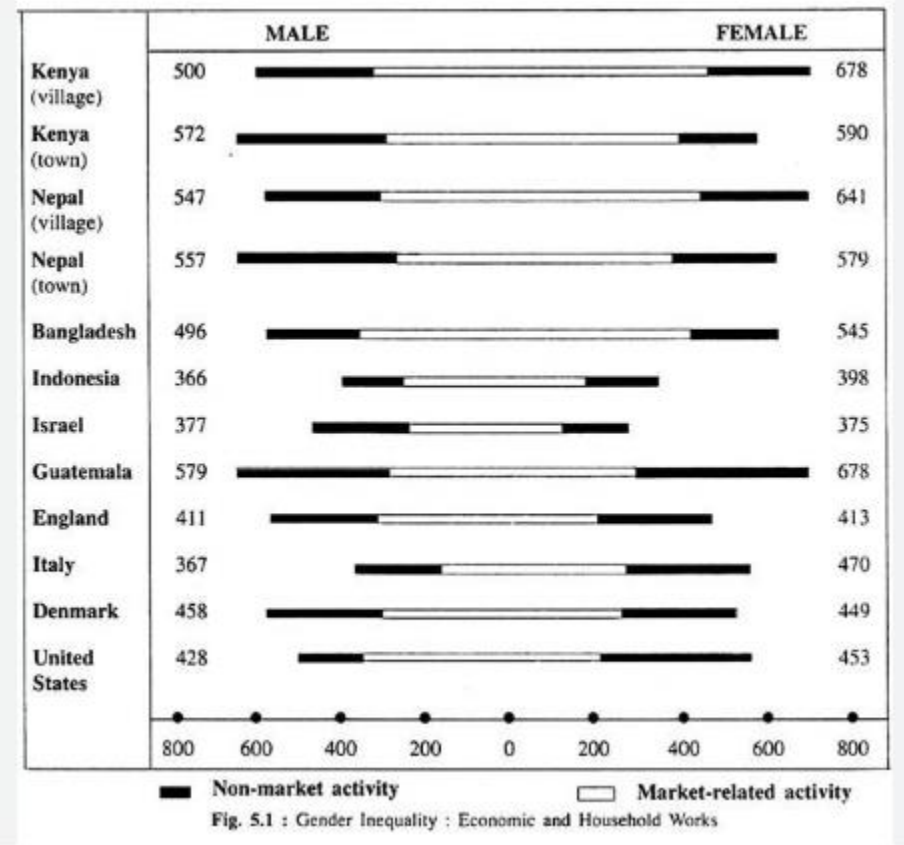

FIGURE 3

Forms of Gender Inequality

Kenya's Constitution expressly guarantees women's equality in rights and opportunities, and several laws have been passed to defend women's rights and stop gender-based violence. To monitor gender mainstreaming and promote women's empowerment, Fasang & Aisenbrey (2022) observed that the government has also set up organizations like the Ministry of Gender, Children,

and Social Development. These organizations seek to abolish discrimination against women, advance their access to opportunities and resources, and guarantee their involvement in decision-making. NGOs and members of the civil society also play a significant part in advancing social protection for women and gender equality. Through training, Kreyenfeld et al. (2023) claimed that capacity-building, and entrepreneurial programs, they empower women while also providing support services, advocating for legislative reforms, and advocating for change. NGOs and members of the civil society also play a significant part in advancing social protection for women and gender equality. Through training, capacity-building, and entrepreneurial programs, they empower women while also providing support services, advocating for legislative reforms, and advocating for change.

2.2.2 Intersectionality Concept

2.2.2.1 Intersectionality and Social Protection

The idea of intersectionality acknowledges that people who endure discrimination and disadvantage due to their overlapping identities, such as gender, race, class, sexual orientation, and ability, experience several interrelated kinds of it. According to Engida. (2023), intersectionality, a concept created by legal scholar Kimberlé Crenshaw, emphasizes how many social categories interact and intersect to influence a person's experiences and possibilities in society. Intersectionality fundamentally questions the conventional method of looking at societal issues from a single axis (Thomas et al., 2023). It underlines the need to consider how many systems of privilege, oppression, and power interact and compound to produce types of social disadvantage or advantage for people who possess several marginalized identities.

Examining how these overlapping identities affect access to resources, opportunities, and rights is necessary to grasp intersectionality in connection to social protection. From Lemkow–

Tovías et al. (2023), intersectionality aids in recognizing and addressing the unique needs and vulnerabilities of people who experience several disadvantages. It acknowledges that social policies and programs need to be customized to deal with the various intersecting types of prejudice and disadvantage that disadvantaged groups suffer. By underlining the need for an inclusive and nuanced approach that respects many dimensions of identity, intersectionality might help social protection policy. For instance, an intersectional viewpoint would consider aspects like race, gender, and disability while developing programs to alleviate poverty to pinpoint unique challenges experienced by those who identify as several oppressed identities (Misra, 2021). It would also acknowledge the necessity for solutions to be customized to fit the needs and experiences of these people.

Additionally, the idea of a "one-size-fits-all" strategy for social protection is contested by intersectionality. According to the intersections of their identities, Barron et al. (2022). Observed that it recognizes that different types and levels of disadvantage are experienced by different people. For instance, an LGBTQ+ person living in poverty may confront difficulties connected to prejudice and a lack of social support that are distinct from those faced by heterosexual people in comparable situations. Intersectionality pushes for tailored policies that specifically address the needs of marginalized people by acknowledging these distinctive experiences. In social protection systems, systemic prejudices may be found and challenged with the use of intersectionality. It reveals how the interlocking dynamics of power and privilege may cause some groups to be disproportionately excluded or disadvantaged. For instance, intersectional analysis may show that women with disabilities encounter more obstacles than women without disabilities or men with disabilities when trying to obtain healthcare or work (Moyano et al., 2022). Intersectionality draws attention to these imbalances, encouraging politicians and practitioners to address them and make

sure that social protection systems are inclusive and responsive to the needs of everyone.

The idea of intersectionality offers a critical framework for comprehending the nuanced ways in which people feel social advantage or disadvantage depending on their overlapping identities. According to Collyer et al. (2022), it underlines the need of considering the multiple, intersecting systems of privilege and power that influence how people feel and are able to participate in society. Intersectionality contributes to inclusive social protection programs and confronts systemic prejudices by identifying and addressing the difficulties experienced by people with several marginalized identities. To ensure that no one is left behind and to advance fairness and justice in social protection systems, recognizing intersectionality is crucial.

2.2.2.2 How Intersectionality Theory Relates to Social Protection in Kenya

For understanding the intricacies of social protection and disadvantage in the context of Kenya, intersectionality theory provides a useful framework. Like many other nations, Morris et al. (2023) observed that Kenya is marked by interlocking types of marginalization and discrimination based on things like gender, ethnicity, socioeconomic class, and disability. By using an intersectional lens, we can better understand how people's experiences and possibilities within the social protection system are shaped by their many different identities. The problem of gender inequality is widespread and interacts with other social constructs including socioeconomic class and race. As a result of strongly established patriarchal beliefs and behaviors, women in Kenya confront tremendous obstacles when trying to use social assistance services. Women from underrepresented ethnic groups, like the Maasai or Turkana, endure worsened prejudice and disadvantage as compared to women from more fortunate ethnic origins, according to this intersectional perspective (Marty et al., 2023). They are more likely to have restricted access to economic, medical, and educational possibilities, which increases their risk of poverty and exclusion from

social safety nets.

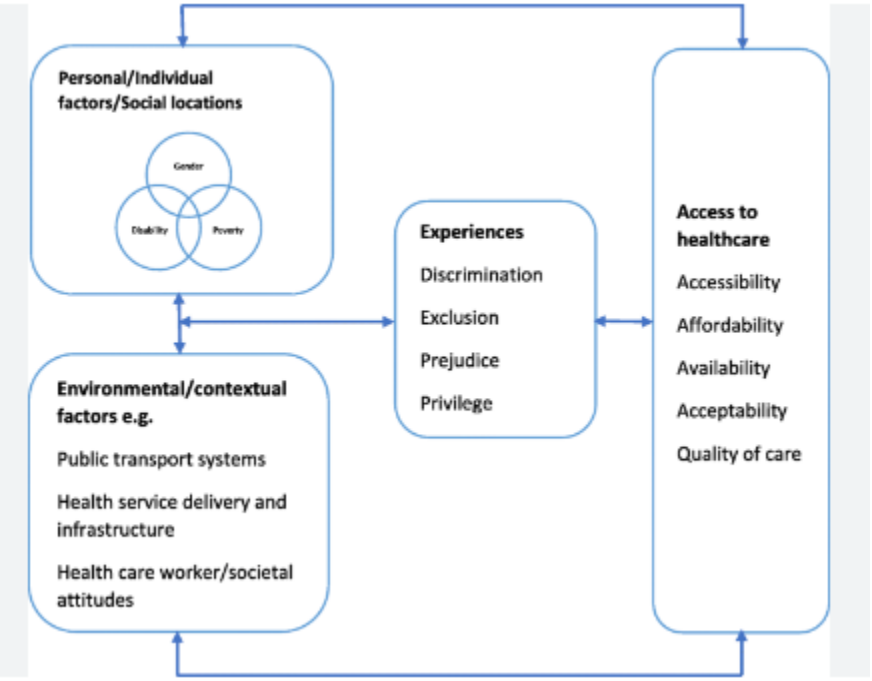

FIGURE 4

Gender and Disability Intersection in Kenya

Additionally, intersectionality illuminates the perspectives of Kenyan women who live with disability. Due to both their gender and handicap status, Yohannes et al. (2023) argued that disabled women frequently experience double prejudice. They face several obstacles, such as restricted mobility, unavailable infrastructure, and unfavorable societal views, while trying to utilize social safety services. These elements lead to their increased susceptibility to poverty and lack of participation in social safety programs. The inequities that LGBTQ+ people in Kenya experience are also made clear through the intersectionality lens. Kenya criminalizes same-sex partnerships, which leads to widespread prejudice and stigmatization of LGBTQ+ people. Since their needs and vulnerabilities are usually disregarded, this disenfranchised population frequently experiences exclusion from social protection services (Collyer et al., 2022). They lack sufficient

social safety nets due to their increased risk of homelessness, unemployment, and violence.

In Kenya, ethnicity is a crucial intersecting aspect. According to Silchenko & Murray (2022), the Luo, Luhya, or Somali populations, for example, frequently experience greater rates of poverty and exclusion from social safety programs than other ethnic groups. Their increased vulnerability and restricted access to social safety measures are caused by historical marginalization, unequal resource allocation, and systematic discrimination based on ethnicity. The Kenyan government and related stakeholders must use an intersectional approach when developing and putting into effect social protection measures to address these intersecting gaps (Abdalla et al., 2022). This strategy would entail identifying the difficulties experienced by people who hold several marginalized identities and designing solutions to meet those needs.

Designing social protection programs with the intersecting elements of gender, ethnicity, disability, and socioeconomic position would be necessary to implement an intersectional approach (Morris et al., 2023). This may entail deliberate efforts to improve marginalized communities' access to jobs, healthcare, education, and financial assistance. Additionally, it would call for the development of a welcoming and encouraging atmosphere that actively fights prejudice and encourages social inclusion for every person, regardless of their intertwined identities. The intersectionality theory, in conclusion, offers important insights into the intricacies of social protection and disadvantage in Kenya. Policymakers and stakeholders may create more effective and inclusive social protection policies by identifying the ways that diverse types of discrimination interact and compound (Nyamu, 2023). Kenya can make sure that social protection services are fair, responsive, and eventually help to demolish intersecting systems of oppression by addressing the needs and vulnerabilities of people with various marginalized identities.

2.2.3 Cultural Capital Theory

2.2.3.1 Cultural Capital Theory and Social Protection

The sociologist Pierre Bourdieu's cultural capital theory provides important insights into how cultural assets and knowledge affect social advantage or disadvantage. According to Keddell (2023), it implies that people from privileged origins have specific cultural skills, inclinations, and interests that are highly regarded in society. These cultural assets can affect a person's social mobility, access to opportunities, and general wellbeing. They are gained via parenting, education, and socializing (Lanjekar & Gaikwad, 2022). To examine how social protection programs may either reinforce or challenge existing disparities, it is essential to understand cultural capital theory.

Fundamentally, the cultural capital hypothesis contends that people from privileged origins have a variety of cultural advantages that help them in both social and professional domains. From Manan et al. (2023) perspective, these advantages include access to exclusive networks, linguistic skills, acquaintance with social customs and etiquette, and understanding of high culture. People from wealthy homes are more likely to be exposed to cultural pursuits that are linked to greater social standing, such as art, music, literature, and theater. Through this exposure, they can build a cultural repertoire that society greatly values and rewards. The cultural capital hypothesis emphasizes how cultural resources may affect a person's access to social assistance and opportunities in the context of social protection and disadvantage. Higher levels of cultural capital increase a person's likelihood of using the social safety system effectively and taking advantage of its advantages (Bindley et al., 2022). They have an advantage when applying for and getting social protection services because of their cultural competences, which include strong communication

abilities, awareness of bureaucratic procedures, and comfort navigating complicated systems.

On the other hand, people from underprivileged origins frequently lack the cultural capital needed to utilize social safety systems. Their capacity to navigate and get social help may be hampered by obstacles including insufficient education, language problems, and unfamiliarity with governmental procedures (Sledge, 2023). Their socioeconomic disadvantage is made worse by their lack of cultural capital, which further reinforces existing inequities within the social protection system. Furthermore, the cultural capital theory demonstrates how certain cultural practices and norms incorporated into social protection systems can amplify already existing disparities. Social safety systems frequently function based on presumptions about who or what qualifies as "deserving" people or families. According to Riisgaard et al. (2022), the cultural norms and beliefs that may favor one group over another have an impact on these presumptions. For instance, middle-class cultural capital, such as a commitment to hard work and personal accountability, may be given precedence when deciding eligibility for social safety payments. People from marginalized communities who have distinct cultural capital or different cultural practices and beliefs may be excluded because of this.

It is critical to create an inclusive strategy that considers people's varied cultural origins and skill sets in order to address the connection between cultural capital theory and social protection. Social protection programs should be created with the needs and specific cultural circumstances of various populations in mind (Talmage et al., 2022). This might entail supplying information and communication tools that are sensitive to cultural differences, providing language assistance services, and collaborating with neighborhood groups who are familiar with the issues and cultural dynamics encountered by disadvantaged groups.

Additionally, initiatives should be taken to broaden underprivileged people's access to

cultural resources and knowledge. According to Doyle & Ikutwa (2021), This might involve supporting projects that recognize and celebrate various cultural practices and traditions as well as encouraging cultural education programs, giving people the chance to engage in a variety of cultural activities. Thus, inequities in access to social assistance and opportunities may be decreased. Social protection institutions will also become more inclusive and sensitive to the cultural capital of varied persons. Finally, the cultural capital hypothesis emphasizes how important cultural assets and knowledge are in determining societal advantages and disadvantages. People from rich origins frequently have access to cultural capital that offers them a benefit when gaining social support, whereas people from impoverished backgrounds encounter obstacles because they lack cultural capital (Maihack, 2023). To create fair and inclusive social protection systems that consider the varied cultural capabilities and needs of people from different backgrounds, it is crucial to acknowledge and solve these gaps.

2.2.3.2 How Cultural Capital Theory Relates to Social Protection in Kenya

The sociologist Pierre Bourdieu's Cultural Capital Theory examines how access to cultural resources and knowledge may affect a person's social mobility and possibilities in society. From Maihack (2023) perspective, understanding how the theory applies to social protection in the Kenyan context is essential for tackling the problems faced by vulnerable groups and advancing inclusive development. According to the hypothesis, those who have access to cultural resources including education, skills, and cultural knowledge are better equipped to navigate social systems and seize chances (Sekabira et al., 2023). Cultural Capital Theory emphasizes the significance of resolving these gaps to improve social protection measures in Kenya, where inequalities in access to resources and education continue.

Education is one way that the cultural capital theory links to social protection in Kenya.

The level of education a person has is a key factor in determining their social and economic well-being. However, underprivileged, or isolated groups, in particular, frequently encounter obstacles to getting high-quality education. By considering the impact of cultural capital on educational results, Sledge (2023) claimed that policymakers may create policies that are specifically aimed at giving all students, regardless of their background, equal opportunity. To bridge the achievement gap, this might involve enhancing infrastructure, offering scholarships, and funding teacher preparation programs.

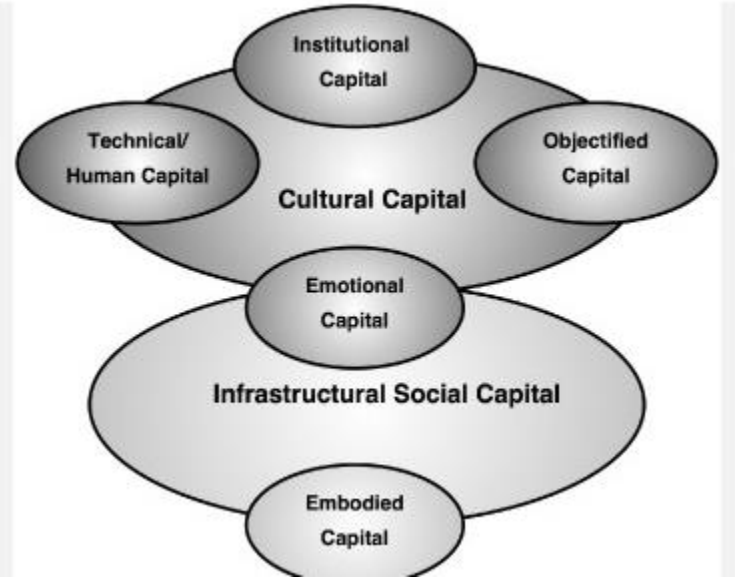

FIGURE 5

Forms of Cultural Capital in Kenya

The importance of cultural expertise and knowledge in the labor market is also emphasized by the Cultural Capital Theory. Giving people the necessary skills and cultural capital in Kenya, where unemployment rates are still high, is essential for providing social safety (Manan et al., 2023). Policymakers can enable people to build their cultural capital and increase their employability by supporting entrepreneurship and investing in vocational training programs. By giving people the resources to achieve stable livelihoods, this in turn may help reduce poverty and

promote social protection.

The theory also clarifies the significance of cultural inclusion and preservation in social protection programs. Doyle & Ikutwa (2021) observed that Kenya is a multicultural nation with many different ethnic and indigenous cultures. Promoting social cohesiveness and ensuring that no community is left behind requires acknowledging and appreciating cultural practices, traditions, and knowledge systems. Enhancing inclusion and strengthening the social fabric of society are both achieved by incorporating cultural components into social protection programs like community-based projects and cultural heritage preservation. Notably, the cultural capital theory provides important insights into how Kenya's cultural resources and social protection relate to one another (Sekabira et al., 2023). Policymakers may create social protection programs that are more successful and inclusive by understanding how cultural capital affects cultural preservation, employment, and education. This in turn may help to lessen disparities, encourage social mobility, and promote a more just and united community in Kenya.

2.2.4 Institutional Discrimination Concept

2.2.4.1 Institutional Discrimination Concept and Social Protection

Institutional discrimination refers to the organized and systematic ways that organizations, including governments, educational institutions, and businesses, perpetuate prejudice and disadvantage against particular social groups (Zastrow & Hessenauer, 2022). It includes all the laws, customs, and practices that provide disadvantaged people or groups unfair treatment and little chances. To solve social protection and disadvantage, it is essential to understand institutional discrimination since it makes clear how structural obstacles support inequality and obstruct equitable access to opportunities and resources. Institutional prejudice can appear in a variety of ways, including unfair employment practices, uneven access to educational opportunities, and

discriminatory legislation. According to Serra Mingot & Gonalez Zepeda (2023)., the disadvantage experienced by disadvantaged groups, such as women, LGBTQ+ people, people with disabilities, and other marginalized populations, is perpetuated through these discriminatory practices, which are frequently firmly anchored in historical, social, and cultural norms.

The limited access to social protection programs, services, and resources is clearly detrimental to excluded populations, as is the link between institutional discrimination and social protection. For instance, Murshed et al. (2022) observed that biased recruiting procedures may lead to uneven work prospects, which may increase the unemployment and underemployment rates in vulnerable areas. As a result, they have less access to social safety programs like healthcare, pension plans, and unemployment insurance, making them more exposed to economic and social instability. Institutional prejudice can also limit access to a good education, feeding the cycle of poverty. The educational achievement of underprivileged populations may be constrained by educational institutions due to discriminatory admissions policies, poor funding, and treatment. Poor educational opportunities have an immediate influence on future work possibilities, income levels, and eligibility for social protection programs (Ezzy et al., 2022). Higher levels of poverty and exclusion result from the increased difficulties social safety programs for those with lower educational qualifications.

Healthcare systems may present impediments to access for underprivileged populations, which is another way institutional discrimination expresses itself. According to Neighbors et al. (2023), discrimination based on a person's ethnicity, gender, sexual orientation, or disability may lead to subpar care, restricted access to medical facilities, and poorer health outcomes. Lack of access to healthcare jeopardizes disadvantaged people's health and makes it more difficult for them to receive social safety nets like disability payments or healthcare coverage, furthering their

disadvantage. Multifaceted strategies are needed to address institutional prejudice and its effects on social protection. First, decision-makers must recognize the reality of institutional prejudice and the harm it does to disadvantaged groups (Verschuren et al., 2023). To identify discriminatory components and devise methods to eradicate them, this includes undertaking extensive analyses of the current policies and practices inside institutions.

It is crucial to promote fairness, inclusion, and diversity within institutions. According to Murshed et al. (2022), affirmative action initiatives must be put into practice, diverse and representative decision-making bodies must be established, and training courses promoting cultural sensitivity and understanding must be made available. Institutions may lessen discriminatory practices and provide fair access to opportunities and resources by promoting inclusive environments. Furthermore, aggressive efforts are required to guarantee equal access to work, healthcare, and education. From Packin & Nippani's (2022) perspective, this may entail putting in place scholarship programs, helping underprivileged students, and encouraging inclusive hiring and promotion procedures. Marginalized people can have equitable access to social safety nets and career possibilities by removing structural obstacles and eliminating institutional prejudice.

Notably, institutional discrimination is a widespread problem that keeps disadvantaged groups at a socioeconomic disadvantage and under social protection. To address institutional discrimination, a holistic strategy must be used, one that includes acknowledging the presence of prejudice, fostering diversity and inclusion, and putting proactive measures in place to guarantee equitable access to healthcare, employment, and education (Birch & Carter, 2023). Societies can build a more inclusive and equitable social protection system that reduces disadvantage and fosters equal chances for everyone by tearing down structural obstacles and advancing equality.

2.2.4.2 How Institutional Discrimination Concept Relates to Social Protection in Kenya

The idea of institutional discrimination has various connections to Kenya's social protection system. Like many other nations, Torm (2023) observed that Kenya deals with issues of inequality and discrimination, which can significantly affect how easily underprivileged groups can get social protection. Unfair access to social protection services in Kenya may be caused by institutional discrimination. Ethnic minorities, women, people with disabilities, LGBTQ+ people, and other marginalized groups may encounter difficulties in getting access to social assistance, healthcare, education, and housing programs (Barford & Gray, 2022). These initiatives may not be as effective as they may be due to discriminatory behaviors, biased laws, and poor execution, which would affect underprivileged populations.

For instance, discriminatory behaviors in the healthcare system may result in restricted access to high-quality healthcare services, making it challenging for marginalized people to get the assistance and treatment they need. According to Lambin et al. (2022), this may make it harder for them to receive social protection benefits for healthcare and contribute to health inequities. It may also influence Kenya's employment prospects and social security. Disparities in salary, job stability, and access to social protection programs can be caused by discriminatory recruiting practices and unfair treatment at work. Due to prejudice based on attributes like race, gender, or disability, marginalized people may encounter obstacles while trying to acquire formal work. They may be left susceptible to economic insecurity and excluded from social protection programs because of their limited involvement in social security programs like pension plans or unemployment payments (Cookson et al., 2023). Institutional discrimination can obstruct equally accessible learning opportunities and skill building, both of which are essential for social protection.

Discriminatory practices in educational institutions, such as selective hiring procedures, a lack of funding, and uneven treatment, can prolong educational inequality and restrict chances for disadvantaged groups. Adopting inclusive policies and practices is essential for combating institutional discrimination and enhancing social protection in Kenya (Burchi et al., 2022). This involves encouraging diversity, fairness, and inclusion in institutions, putting anti-discrimination legislation into effect, and ensuring that marginalized groups have equitable access to resources and opportunities. Discriminatory behaviors should be eradicated from the healthcare, job, and educational sectors. This may entail educating medical professionals, putting affirmative action plans into place, and offering equitable chances for employment and skill advancement.

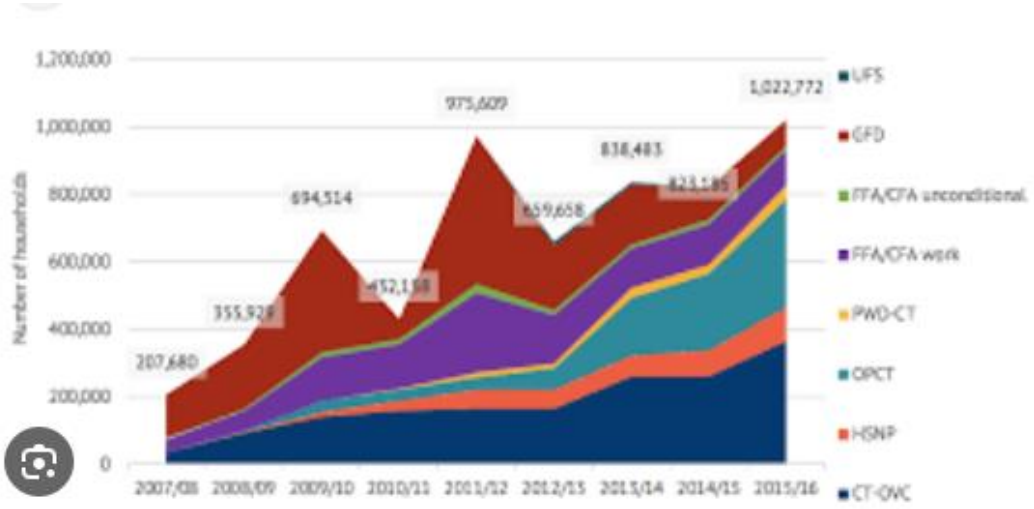

FIGURE 6

Development Pathways Showing Institutional Discrimination in Kenya

To make sure that social protection services are inclusive and successfully reach excluded populations, they must be strengthened. To guarantee that marginalized people are aware of and have access to social protection benefits, Khan (2022) observed that this may be done by undertaking outreach programs, providing accessible information, and reducing administrative obstacles, among other focused interventions. Therefore, social protection in Kenya is directly tied

to the idea of institutional discrimination. Discrimination in employment, education, healthcare, and social protection programs can exacerbate disadvantages and obstruct fair access to opportunities and resources. To guarantee that all people, regardless of their socioeconomic background or identity, have equal access to social security, combating institutional discrimination involves inclusive policies, proactive measures, and focused interventions (Lambin et al., 2022). Lack of access to high-quality education may have long-term effects on one's ability to find a job, earn a living, and participate in social safety net programs. Accessing social protection benefits for education, such as scholarships or possibilities for vocational training, may be challenging for those with lower levels of education.

2.3.5 Social Exclusion Concept

2.2.5.1 Social Exclusion Concept and Social Protection

The process through which people or groups are marginalized, disadvantaged, or excluded from full participation in the social, economic, political, and cultural sectors of society is known as social exclusion. It includes different types of prejudice, unfairness, and disadvantage that prevent people or groups from making use of the same opportunities, resources, and social safety nets as others (Torm, 2023). Economic exclusion, social isolation, restricted access to opportunities and services, and exclusion from decision-making processes are just a few ways that social exclusion can appear. These factors are interrelated and reinforce one another, perpetuating a cycle of marginalization and disadvantage in Kenya.

Economic Exclusion: A vicious cycle of poverty and social disadvantage is perpetuated through economic exclusion, which is still a major problem. According to Lambin et al. (2022), the inability to earn enough money, find work, or access sufficient resources prevents people from living up to their potential. In Kenya, poverty, which is pervasive over most of the nation, is a

major cause of economic exclusion. Economic marginalization is significantly exacerbated by unemployment, among other factors. Many Kenyans lack a reliable source of income due to the paucity of employment options, particularly in rural regions. Additionally, individuals who have jobs frequently struggle with low pay, which makes it challenging for them to satisfy their necessities and break the cycle of poverty. Limited access to financial services and credit exacerbates Kenya's economic isolation (Mulugeta Woldegiorgis, 2022). Many people, especially those who live in marginalized groups, have difficulty getting loans or using banking services, which makes it difficult for them to save money, make investments, or launch their own enterprises.

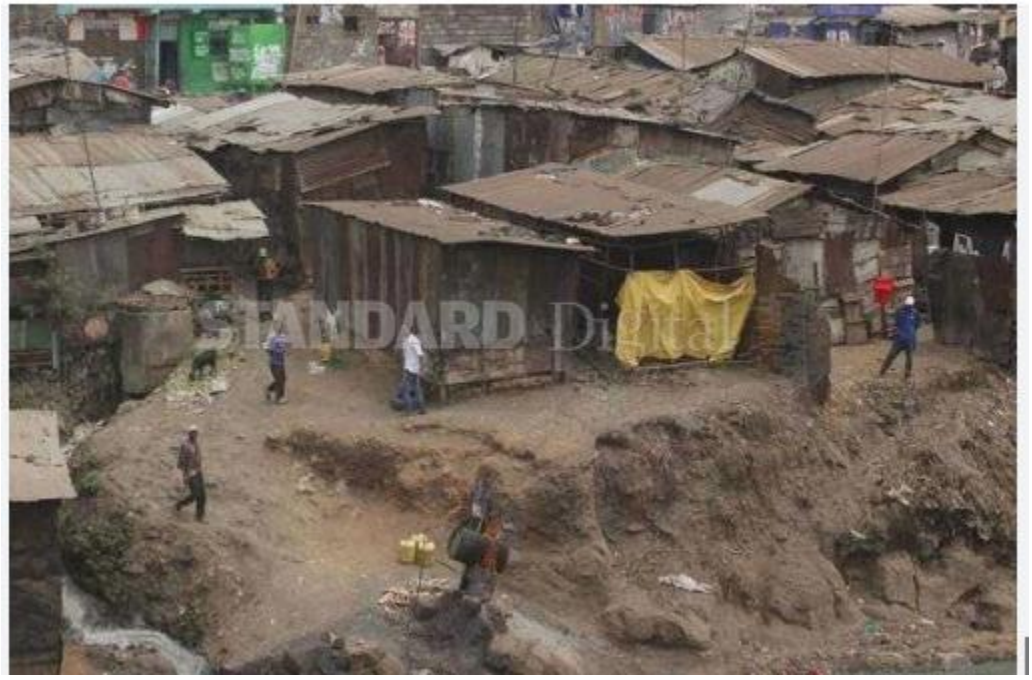

FIGURE 7

Photo Showing how Many Kenyans are Trapped in Poverty Despite Increasing Growth

The effects of economic marginalization go beyond money concerns. Additionally, it results in limited access to social safety net programs including healthcare, education, and social

assistance. According to Aleksandrova & Costella (2021), this lack of access disproportionately affects vulnerable groups in the nation, including children, the elderly, and those with disabilities, exacerbating socioeconomic gaps. A comprehensive strategy that prioritizes reducing poverty, creating jobs, raising salaries, and enhancing access to credit and financial services is needed to address economic marginalization in Kenya. Additionally, efforts should be taken to guarantee that social protection programs are available to everyone, acting as a safety net for those who are most negatively impacted by economic exclusion (Costella et al., 2023). By addressing these problems, Kenya may endeavor to create a society that is more inclusive and equitable for all its residents.

Social Isolation: Social networks, community engagement, and meaningful social contacts all suffer because of social isolation, which is still an alarming problem that affects both people and organizations. Shibairo, P., Ngaruko, D., & Wawire, N. (2023) observed that the incidence of social isolation in Kenya is mostly attributed to prejudice, stigmatization, and discrimination based on features like race, ethnicity, gender, sexual orientation, or handicap. Social exclusion based on these criteria can result in the marginalization of groups in a multicultural nation like Kenya, where many ethnicities and traditions coexist (Shibairo et al., 2023). People from various ethnic origins may be excluded from social networks and community events due to discrimination and prejudice, which reduces their prospects for connection and engagement.

Due to the stigma and persecution, they experience, the LGBTQ+ population also struggles with social isolation. Further, ascribed to homophobia and transphobia, people may be excluded from social situations because of their sexual orientation or gender identity, which prevents them from fully participating in society (Roelen et al., 2022). Additionally, people with disabilities frequently endure social isolation because of the structural and psychological hurdles they face.

Their participation in social activities and relationships is hampered by poor accessibility and prejudiced attitudes. The general wellbeing and mental health of people are negatively impacted by social isolation (Lowe, 2022). Individuals' mental and emotional resilience can be severely hampered by feelings of isolation, despair, and anxiety brought on by a lack of social support systems.

Limited Access to Opportunities and Services: Limited access to basic services in Kenya continues to be a major sign of social exclusion, especially for disadvantaged people and groups. From Nyamu's (2023) perspective, access hurdles to essential services including healthcare, education, housing, transportation, and legal protection are a result of discrimination, uneven resource distribution, poor infrastructure, and inefficient regulations. Vulnerable people frequently struggle to get access to high-quality healthcare services. This may be the result of financial hurdles, where people cannot pay the expense of treatment, or geographic barriers, where distant locations lack basic healthcare services. Certain groups, such racial or ethnic minorities or those with impairments, may be subject to prejudices and discrimination, which results in uneven access to healthcare services (Eboh et al., 2022). Marginalized groups frequently have inadequate access to high-quality education, particularly those living in rural and informal settlements. The issue is made worse by inadequate infrastructure, such as a lack of classrooms or schools. Unfair educational prospects for some groups can also be the result of prejudice and discrimination, which limits their ability to advance socially.

Another issue that underprivileged populations in Kenya confront is getting access to decent housing. Urban regions are rife with informal settlements that frequently lack essential services like power, potable water, and sanitary facilities. Access to secure and affordable housing alternatives may be restricted for some people and groups due to discrimination and financial

constraints (Hujo, 2021). Another place where social isolation shows up is in transportation. Poor road infrastructure in rural regions restricts access to essential services, making it challenging for marginalized groups to reach healthcare facilities, educational institutions, and employment prospects. People become even more isolated and have less social mobility when there are few public transit choices available, especially in rural areas. Last, it may be difficult for marginalized people and groups in Kenya to get legal protection (Mokomane et al., 2023). They may not receive fair and equitable treatment in the court system due to prejudice and discrimination. Their capacity to seek justice and protection is further hampered by insufficient legal aid services and a lack of knowledge of their legal rights.

Exclusion from Decision-Making Processes: Social exclusion has a large component that has been excluded from decision-making processes. Marginalized people and groups frequently have restricted access to political, social, and economic decision-making, which has a significant impact on their rights and well-being. Political exclusion has traditionally had an impact on disadvantaged groups in Kenya, such as women, people of color, and those who are disabled. According to Ozili (2023), their needs, interests, and views have not been adequately considered as a result of their lack of representation and participation in important decision-making organizations, such as the parliament and local government. Due to this exclusion, laws, rules, and regulations that uphold injustice, prejudice, and disadvantage have been created.

Marginalized groups in Kenya frequently participate insufficiently in social decisions that have an impact on their community. This might involve selecting policies for the advancement of the community, social welfare, healthcare, and education. According to Lowe (2022), these groups' social isolation is exacerbated by the policies and programs that fail to appropriately address the unique difficulties and demands of these groups because of a lack of representation and influence.

Economic obstacles prevent poor people and communities in Kenya from meaningfully participating in decisions about resource allocation, economic growth, and job prospects. Their absence from economic decision-making is a result of their restricted access to financial resources, lack of representation in business and industry groups, and discriminatory policies (Eboh et al., 2022). Their incapacity to raise their socioeconomic level and the perpetuation of economic inequity are both hampered by this exclusion.

To combat social exclusion in Kenya, inclusive and participatory decision-making procedures must be encouraged. It entails making sure disadvantaged populations are adequately represented in political institutions, encouraging communication and engagement with these groups throughout the formation of policies, and developing forums for their substantive involvement. According to Shibairo et al. (2023), addressing the underlying issues that prevent their participation, such as discriminatory behaviors, a lack of resources, and restricted information access, is crucial. Kenya may work toward fairer and just laws, regulations, and resource distribution that promote inclusion and lessen social exclusion by actively including disadvantaged people and groups in decision-making processes.

2.3 Empirical Review

2.3.1 Application of Machine Learning Approaches for Social Classification and Prediction

Social categorization and prediction challenges have seen widespread use of machine learning algorithms across a variety of areas. These methods use algorithms and data analytic tools to glean insights from social data and create precise forecasts. We will explore many methods that have been employed for social categorization and prediction in this part, and we'll include recent citations to back up our comments.

2.3.1.1 Support Vector Machines (SVMs)

The popular machine learning approach known as Support Vector Machines (SVM) is utilized for categorization problems. The ideal hyperplane that divides several classes in the feature space is what SVM seeks to identify. Sentiment analysis, spam identification, and false news detection are a few examples of social categorization and prediction problems where it has been effectively used (Styawati et al., 2022). SVM has demonstrated strong performance when working with high-dimensional data and is capable of tackling both linear and non-linear classification issues. Widely used in a variety of social categorization and prediction applications, SVM is regarded as a potent machine learning method. Its widespread use results from its capacity to identify the best hyperplane that optimally divides various classes in the feature space. SVM's adaptability in processing high-dimensional data is one of its main benefits. In social categorization tasks where the input data may contain a variety of characteristics, this makes it very helpful. SVM can efficiently handle these complicated datasets and spot patterns that other algorithms might miss.

Additionally, SVM is not just applicable to linear classification issues. According to Zhang et al. (2023), the radial basis function (RBF) is one of the several kernel functions that may be used in SVM to tackle non-linear classification Due to its adaptability, SVM can capture complex correlations between data and classes, making a wide range of social categorization and prediction problems viable for it. SVM has been effectively used in the field of sentiment analysis to categorize text data into positive, negative, or neutral feelings. SVM may be taught to correctly estimate the sentiment of fresh, unseen text inputs by training on huge datasets containing labeled sentiments. Numerous industries, including customer feedback research, brand reputation management, and social media monitoring, can benefit from this (Wu et al., 2022). SVM has also been used to discriminate between harmful and authentic emails in spam detection. SVM

successfully categorizes incoming messages and detects probable spam by removing important aspects from email text. This lessens the clutter in users' inboxes and enhances email security generally.

2.3.1.2 Random Forest

An ensemble learning technique called Random Forest uses many decision trees to provide predictions. Due to its capability to handle complicated data structures, manage missing values, and offer feature priority rankings, it has been extensively employed in social categorization and prediction problems. According to Zarei. (2023), numerous social fields, including illness diagnosis, consumer segmentation, and fraud detection, have used Random Forest. The field of social categorization and prediction problems has seen tremendous growth in the use of Random Forest, a potent ensemble learning technique. To produce precise and dependable forecasts, it integrates the predictions of many decision trees. Random Forest's resilience in handling complicated data structures is one of its main features. It is useful for social categorization problems that entail complex interactions between factors since it can handle data with a lot of characteristics and variables. Random Forest can capture the intricate relationships and interactions between variables, producing predictions that are more accurate (Meghana, 2023). Furthermore, the dataset's missing values may be handled via Random Forest.

This is very helpful in social categorization jobs where it is frequent to have missing data. The prediction model is not harmed by partial data since Random Forest deftly imputes missing values based on the existing data. Ranking the relevance of features is another advantage of Random Forest. This is essential in social categorization assignments as it aids academics and industry professionals in determining the traits that have the most predictive power. It is possible to get important insights by studying the feature importance rankings, which will improve

knowledge and interpretation of the underlying social processes. Several social domains have effectively used Random Forest (Nyanjara et al., 2023). Based on a consolidation of symptoms and a person's medical history, it has been used to diagnose illnesses by estimating the chance of developing particular conditions. Random Forest can help in early detection and treatment by identifying significant predictors by studying vast volumes of patient data.

2.3.1.3 Neural Networks

Recent years have seen a huge increase in the popularity of neural networks, particularly deep learning models, because of their capacity to identify intricate patterns from vast volumes of data. For social categorization and prediction tasks, recurrent neural networks (RNNs) and convolutional neural networks (CNNs) are often employed architectures (Wang & Zhao, 2023). While RNNs are better suited for sequence data processing tasks like sentiment analysis and stock market prediction, CNNs excel at classifying images and texts. CNNs have demonstrated to be quite good at tasks like text and picture categorization. Convolutional layers allow CNNs to automatically extract features from unprocessed data and recognize intricate patterns that are essential for social categorization tasks. CNNs are capable of recognizing minute characteristics and spatial correlations in pictures, which enables precise categorization and recognition in the context of image classification. According to Mulumba et al. (2023), RNNs, on the other hand, excel in analyzing sequential data, which makes them the perfect choice for projects like sentiment analysis and stock market forecasting. Because of their exceptional capacity to remember previous inputs, RNNs can recognize temporal connections and patterns within sequences.

By considering the word order, RNNs can comprehend the context and sentiment of text in sentiment analysis. This makes sentiment categorization more accurate and sophisticated. To anticipate future market behavior, RNNs may evaluate previous price movements and extract

significant patterns. This helps analysts estimate how the market will behave in the future. Neural networks are a useful tool in a variety of social domains because of their adaptability and versatility. From Ye's et al. (2023) perspective, their power to handle complicated patterns and learn from big datasets has enabled them to make substantial strides in industries like healthcare, marketing, and finance. In activities ranging from illness diagnosis and patient prediction to consumer behavior analysis and fraud detection, neural networks have been used. The way social categorization and prediction problems are conducted has undergone a radical change because of their capacity to reveal hidden patterns and make precise forecasts.

2.3.1.4 Naive Bayes

Based on Bayes' theorem, Naive Bayes is a statistical machine learning method. The computation is made simpler by supposing that the characteristics are conditionally independent provided the class label (Siregar et al., 2023). In social classification applications including spam detection, sentiment evaluation, and document categorization, naive Bayes has been used. It is renowned for its effectiveness, simplicity, and strong performance on tasks involving text classification. One clear benefit of Naive Bayes is its simplicity. It is an appealing option for applications where interpretability is essential because it is reasonably simple to comprehend and apply. Additionally, Naive Bayes performs superbly in problems requiring text categorization. It has a long history of successful application in fields including spam detection, sentiment analysis, and document categorization (Ding et al., 2022). To distinguish between legitimate emails and spam, Naive Bayes may assess the content and structure of emails.

Naive Bayes can effectively categorize emails by considering the frequency of particular words or phrases, assisting in the maintenance of clutter-free inboxes free of unwelcome communications. Like this, Naive Bayes sentiment analysis may examine the sentiment included

in text, such as postings on social media or client evaluations. Naive Bayes can categorize the sentiment of the text by considering the frequency of specific words or phrases linked to positive or negative sentiment, giving companies insights into client opinions and preferences (Yilmaz et al., 2022). Another use of Naive Bayes that has been successful is document classification. Naive Bayes can categorize documents into predetermined categories, including news items, academic papers, or legal documents, by looking at their content and structure. This capacity offers effective information organization and retrieval, assisting with activities like document management and information retrieval.

2.3.1.5 Linear Regression

A straightforward and popular machine learning approach for regression applications is linear regression. When the objective variable is binary or ordinal, it may also be utilized for social categorization problems, while its main usage is for continuous variable prediction. In social science research, Auerbach (2022) observed that linear regression has been used to forecast outcomes including educational achievement, income level, and life satisfaction. Recent research has demonstrated that linear regression may produce findings that are easy to understand and can include significant social aspects in the prediction process. In social sciences studies, linear regression has proven to be more useful than other ML models in predicting outcomes like educational attainment, income level, and life happiness. As a result, it is the best. Researchers may learn a lot about the connections between various social factors and the projected results by using linear regression to examine pertinent components and their effects on the target variable (López & Arboleya, 2022). Its interpretability further increases its usefulness by allowing researchers to comprehend the variables influencing the predictions and confirm the findings.

The appropriateness and interpretability of linear regression in social categorization tasks

was demonstrated in research by James et al. (2023) that used linear regression to predict political inclination based on social media data. Based on social media data, this study used linear regression to predict political inclination, demonstrating how this algorithm may effectively capture key social aspects and offer insightful data. Linear regression effectively predicted political orientations by considering a variety of variables and patterns in the social media data, revealing insight on the impact of social media on political attitudes. Linear regression is a useful tool for social categorization tasks as well as regression problems due to its clarity and interpretability. Its use in social science research has made it easier to anticipate different outcomes, and recent studies have shown how successful it is in capturing key social aspects (López & Arboleya, 2022). Linear regression is a fundamental and adaptable approach for comprehending and forecasting social phenomena as machine learning develops further. Notably, various machine learning techniques have been used for social categorization and prediction problems. Even though each method has advantages and disadvantages, it has been demonstrated that linear regression is a good option for social categorization tasks due to its interpretability and capacity to capture significant social aspects (James et al., 2023). However, the job, data qualities, and intended results ultimately determine which method is used.

2.3.2 Factors that Determine Social Disadvantage in Kenya as Identified in Previous Literature

This empirical review entails analyzing the relationship between social disadvantage (dependent variable) and poverty, education, gender inequality, tribalism and ethnicity, land and resources, health inequalities, urban-rural split, and disability (dependent variables). To determine the causes of socioeconomic disadvantage in Kenya, a thorough investigation has already been carried out. According to Keddell (2023), this study has illuminated several social, economic, and cultural

traits that contribute to the marginalization and vulnerability of groups within Kenyan culture. The ability to establish targeted policies and programs that successfully reduce socioeconomic disadvantage is provided by this insight, which is essential for policymakers and stakeholders. According to previous study, several factors have been recognized as key contributors to socioeconomic deprivation in Kenya (Ezzy et al., 2022). As a starting point, it has been determined that a significant impact is the lack of access to high-quality education. Social mobility is hampered, and the cycle of poverty is perpetuated by the lack of educational possibilities, particularly for underprivileged people.

Individuals are unable to gain the skills and information required to raise their socioeconomic level without access to high-quality education. Second, a significant factor contributing to socioeconomic inequality in Kenya is the country's restricted access to healthcare services. Many Kenyans lack access to basic treatment due to inadequate healthcare facilities and budgetary constraints. According to Sekabira et al. (2023), this not only has an impact on their physical health but also makes their financial struggles worse because medical costs frequently cause families to fall farther into poverty. Thirdly, socioeconomic disadvantage has been demonstrated to be significantly influenced by the uneven distribution of opportunities and resources. Income and employment discrepancies result from the concentration of wealth in urban regions and the dearth of economic possibilities in rural areas.

Cultural behaviors and norms can contribute to the persistence of socioeconomic inequality. Opportunities for some social groups, notably women and underprivileged populations, might be restricted by gender inequality, conventional wisdom, and societal stigmas. Notably, it is critical for stakeholders and policymakers to comprehend the numerous factors that lead to socioeconomic inequality in Kenya (Bindley et al., 2022). It is feasible to lessen the

marginalization and vulnerability felt by groups within Kenyan society by addressing these concerns via focused policies and initiatives. A more egalitarian and prosperous future for all Kenyans may result from this.

2.3.2.1 Poverty

It is well acknowledged that poverty is a key factor in predicting socioeconomic disadvantage in Kenya. Numerous studies have shown how poverty disproportionately impacts certain areas and communities, leading to limited access to necessities including food, clean water, education, healthcare, and employment opportunities (Marty et al., 2023). This section examines the complex effects of poverty on people and communities, emphasizing how it worsens social isolation while impeding social, economic, and political engagement. Income poverty and multidimensional poverty are only two examples of the many ways that poverty presents itself in Kenya. Income poverty is the inability to obtain enough money to satisfy necessities, whereas multidimensional poverty refers to a wider range of disadvantages such lack of access to social security, healthcare, and education. Both types of poverty considerably worsen the nation's socioeconomic situation.

The effect of poverty on education is one of the main mechanisms through which socioeconomic disadvantage is sustained. Particularly in underprivileged populations, limited access to excellent education is frequently caused by a lack of financial means (Talmage et al., 2022). Children from poor homes must overcome obstacles such a lack of school supplies, resources, and facilities. As a result of this educational disadvantage, people are unable to get the skills and information needed to raise their socioeconomic level, which perpetuates the cycle of poverty. Additionally, the lack of educational possibilities prevents social mobility and reinforces societal inequities already in place. Poverty limits access to healthcare services in addition to restricting access to education. According to Zastrow & Hessenauer (2022), many Kenyans lack

access to adequate healthcare due to the high cost of healthcare and the inadequate healthcare infrastructure in rural regions. Malnutrition and other disorders that may be prevented add to the burden that poverty has on people and communities. Lack of access to healthcare has an impact on one's physical health as well as their financial stability because of the possibility that medical costs may further impoverish families.

In addition, poverty limits employment possibilities and economic growth, which exacerbates social disadvantage. Income disparities in Kenya are sustained by the unequal distribution of resources and the lack of employment possibilities, particularly in rural regions (Neighbors et al., 2023). The disparity is made worse by the concentration of wealth and economic opportunity in metropolitan areas. As a result, those who are poor find it difficult to find steady employment, which keeps them stuck in a cycle of poverty. Another effect of poverty that worsens socioeconomic disadvantage is social isolation. Due to marginalization and stigmatization of people and communities, poverty frequently causes social exclusion. According to Birch & Carter (2023), this isolation restricts chances for networking, cooperation, and group action while preventing meaningful engagement in social, economic, and political spheres. Because of the ensuing isolation, the cycle of poverty is further exacerbated, making it difficult for people to leave their unfortunate situations.

In Kenya, efforts to combat poverty and lessen its negative effects on socioeconomic disadvantage have primarily concentrated on social safety programs. With the help of these programs, underprivileged people and communities will have better access to healthcare, education, and economic opportunities. Although there has been progress, there are still difficulties in putting permanent measures into place to successfully combat poverty and its drawbacks. Notably, socioeconomic disadvantage in Kenya is significantly predicted by poverty. Its effects

are extensive, impacting social inclusion, employment opportunities, and access to healthcare and education (Cookson et al., 2023). To build a more equitable society where people and communities have equal opportunity for social, economic, and political engagement, efforts to reduce poverty and treat its effects are essential. Kenya may work to lessen socioeconomic disadvantage and promote inclusive growth for all its residents by putting in place comprehensive poverty alleviation initiatives and social protection measures.

The efficiency of social protection programs is hampered by the absence of access to basic services, making it difficult for the government to elevate the most vulnerable groups in society. The funding of social protection programs is significantly hampered by Kenya's high rate of poverty. Due to conflicting objectives, Khan (2022) observed that the government frequently struggles to provide money to these initiatives. The breadth and reach of social protection projects are constrained by a lack of funding, leaving many people without the safety nets they need to get through difficult times. As long as poverty exists, social security systems are under more stress, which further reduces their effectiveness. Social isolation is a common consequence of poverty, which makes Kenya's system of social protection less effective. People who are poor frequently experience marginalization, prejudice, and limited access to opportunities (Lowe, 2022). It becomes more difficult for people to escape the cycle of poverty because of this exclusion. Furthermore, because the concerns of excluded people are frequently disregarded or neglected, social exclusion makes it difficult to enact comprehensive social protection measures.

In Kenya, poverty has a significant effect on social protection and the capacity of the government to offer suitable support systems for its residents. According to Mokomane et al. (2023), a few of the difficulties that poverty creates in social safety include restricted access to necessary services, insufficient financing, and social marginalization. It is essential to address

poverty and its repercussions to prevent vulnerable people and communities from falling behind.

2.3.2.2 Education

A further significant aspect in Kenya's social disadvantage is the country's limited access to high-quality education. Social inequality is maintained by disparities in educational chances, especially for underrepresented groups like girls, children from low-income households, and those who live in rural areas (Nyamu, 2023). Lack of education prevents social mobility, reduces career opportunities, and keeps families in poverty for generations. Societies are shaped through education, which also fosters social mobility. However, in Kenya, a lack of access to high-quality education has significantly exacerbated socioeconomic inequality, with unequal educational prospects for underrepresented groups including girls, children from low-income homes, and those living in rural regions. The goal of this literature review is to investigate the effects of this educational imbalance, particularly how it affects possibilities for employment, social mobility, and generational poverty.

Kenya's social disadvantage is exacerbated by unequal access to education, according to Nyamu (2023). Girls and other marginalized groups frequently encounter social and cultural hurdles that restrict their access to educational opportunities. Young girls may not have the opportunity to pursue an education because of traditional gender roles and expectations that might result in early marriage or forced labor. As a result, this continues a cycle of constrained chances, adding to these people's socioeconomic disadvantage. Children from low-income families also have a difficult time getting a good education. Their inability to afford school fees, uniforms, and instructional supplies is sometimes hampered by a lack of financial means (Moyano et al., 2022). This financial load, together with the limited facilities and resources in schools situated in underdeveloped areas, worsens the achievement gap. Due to their inability to acquire the

information and skills needed to escape the cycle of poverty, young kids continue to live in a socially disadvantageous situation together with their families.

Kenya's rural communities also struggle with a lack of educational options. Children living in these rural communities find it challenging to obtain education due to the physical distance between the villages and schools and the lackluster transportation infrastructure. From Engida (2023) perspective, the quality of education is further lowered by a lack of skilled teachers and adequate facilities. As a result, people from rural regions have a harder time gaining the information and skills needed to compete on the job market, which reduces their prospects of moving up the social ladder. There are significant ramifications from Kenya's restricted access to high-quality education. The restriction of social mobility is one of the most important effects. Additionally, the restricted access to education for vulnerable communities in Kenya has an impact throughout generations (Misra, 2021). When parents lack access to high-quality education, they find it difficult to provide their children with the encouragement and direction they need to thrive in school. As a result, the loop of restricted chances persists, and younger generations continue to struggle to obtain high-quality education, which feeds the vicious cycle of poverty.

Any country's social protection system is greatly influenced by education. Education becomes a powerful weapon for promoting equality, eradicating poverty, and guaranteeing sustainable development in Kenya, where socioeconomic inequities are pervasive. This research explores the relationship between education and social protection in Kenya, emphasizing the transformational nature of education and the many ways it benefits people individually and collectively (Highlander & Jones, 2022). Second, breaking the poverty cycle. With the right information, abilities, and chances, anyone may escape the cycle of poverty. Kenya can enable its residents to find better occupations, earn more money, and enhance their general well-being by

providing them with access to high-quality education. In turn, this lessens their need for social security programs, resulting in a society that is more self-sufficient.

Also, enhancing social inclusion. By bridging the divide between various social groupings, education serves as a catalyst for social inclusion. According to Tang et al. (2022), Kenya may promote a more united and peaceful community by encouraging equitable access to education for all, regardless of gender, ethnicity, or socioeconomic status. Education gives people a place to practice empathy, comprehension, and tolerance, which lowers social exclusion and fosters social cohesiveness. Furthermore, empowering vulnerable groups. For vulnerable groups including children, women, and disadvantaged communities, education is especially important. Kenya can give these communities the tools they need to participate fully in society by offering them education options that are especially suited to their requirements. They get the information and abilities they need via education to better their lives, defend their rights, and fight for their own social security. Last, building resilience. Education is essential for fostering community resilience (Boynton-Jarrett et al., 2021). Kenya can provide its people the skills they need to adapt to changing conditions, such as economic shocks and natural catastrophes, by offering high-quality education that places an emphasis on critical thinking, problem-solving, and creativity. People with higher levels of education are more likely to bounce back quickly from setbacks and actively participate in the growth of their communities.

Notably, the lack of high-quality educational opportunities in Kenya has a major negative impact on social disadvantage, especially for underrepresented groups including girls, children from low-income families, and those living in rural regions. This educational gap prevents social mobility, restricts professional options, and keeps people in poverty for a long time. It takes a multifaceted strategy to solve these issues, one that includes removing cultural obstacles,

enhancing educational facilities and resources, and giving underprivileged populations financial assistance (Kreyenfeld et al., 2023). Kenya may strive toward lowering socioeconomic disparities and establishing a more inclusive society by placing a high priority on fair access to high-quality education.

2.3.2.3 Gender Inequality

In Kenya, gender inequality continues to be a key barrier to providing social security to everyone. Discrimination against women and girls takes many different forms, such as limiting their access to opportunities in employment, healthcare, education, and decision-making. Kenyan gender inequality factors include:

First, stereotypes and cultural norms. Cultural expectations and traditional beliefs are key factors in Kenya's ongoing gender disparity. Women's possibilities for work, financial freedom, and social mobility are limited by ingrained assumptions that they will be caregivers and males will be the primary wage earners (Chakrabarti, 2022). The idea that women are less suited for leadership jobs is reinforced by stereotypical gender roles, which prevents them from participating in decision-making. Second, gender-based violence. Gender inequality in Kenya is further exacerbated by gender-based violence, which includes domestic abuse, sexual assault, and damaging cultural practices. Such abuse prevents women from fully participating in society and causes them bodily and psychological pain. Women's vulnerability is maintained because they are frequently prevented from obtaining education, work, or access to social support programs out of fear of violence.

Third, limited access to work and economic opportunities. Since gender inequality, women have less access to jobs and other economic opportunities, which lowers their income levels and increases their likelihood of living in poverty (Raffington et al., 2023). Women who experience

this economic disadvantage may find it difficult to pay for proper housing, insurance, or medical treatment, which has a direct impact on their access to social assistance. In addition, the gender wage gap still exists, with women receiving less than males for same labor, hence escalating the discrepancy in income. Fourth, poor health care and education. In Kenya, gender inequality has a negative influence on women's access to health care and education. According to Ingram & Oh (2022), reduced access to healthcare, especially reproductive healthcare, raises maternal death rates and makes people more susceptible to illness. Women's capacity to gain information, skills, and qualifications is hampered by inadequate access to education, which limits their employability and prolongs their reliance on social assistance programs.

Fifth, addressing gender inequality in social protection. Gender mainstreaming. Gender equality in social protection must be addressed by incorporating a gender viewpoint into all institutions, policies, and programs. The distinctive needs and experiences of women are considered in the design and execution of programs thanks to gender mainstreaming (Crabtree et al., 2022). This includes encouraging women's economic empowerment, making sure all people have equal access to healthcare, education, and decision-making, and preventing violence against women. Sixth, reforms to the law. To address gender disparity, legal structures must be strengthened and laws requiring gender equality must be enforced. With the adoption of the 2010 Constitution, which upholds gender equality and forbids discrimination, Kenya has achieved tremendous progress in this area. To end discriminatory practices and advance social protection for everyone, these laws must be implemented and enforced effectively. Last, education as a means of empowering women. Investing in the education of women and girls is a potent means of combating gender inequality and advancing social protection. From Forrest’s et al. (2023) perspective, Kenya can empower women with the information and skills necessary for economic

independence, decision-making, and leadership roles by offering high-quality education that questions conventional gender norms. Women who have access to education are more equipped to fight for their rights, expose discriminatory behaviors, and actively contribute to the development of social protection programs.

Notably, gender inequality still poses a serious obstacle to receiving social assistance, sustaining disadvantages for women and girls in a variety of areas of life. This pervasive problem is exacerbated by cultural norms, prejudices, and gender-based violence. Kenya can seek to reduce gender inequality and guarantee that everyone has equal access to social security, nevertheless, by integrating gender equality into legislative changes and empowering women via education (Antonoplis, 2023). To develop a society that promotes gender equality and supports inclusive social protection systems, efforts must be collaborative and involve the government, civil society groups, and communities. Kenya won't be able to attain its full potential or ensure the sustained development of all its population until then.

2.3.2.4 Tribalism and Ethnicity

Tribalism and ethnicity are well-known to be serious problems for many countries, including Kenya. Tribalism and ethnicity share several traits that affect social dynamics: group identity comes first. According to Tang et al. (2022), tribalism and ethnicity provide people with a sense of identification and belonging within a particular group or tribe. This group identity frequently affects both individual and group decision-making as well as social interactions. Ingroup-Outgroup prejudice is the second. Tribalism and ethnicity have the potential to create in and out groups and promote a "us vs. them" mindset. This prejudice may lead to discrimination or antagonism toward other groups while favoring one's own group (Fasang et al., 2022). Lastly, cultural customs. The promotion and preservation of cultural traditions, including language, art, rituals, and customs, is

greatly aided by ethnicity and tribalism. The distinctive identities and variety of many tribes and ethnic groups are influenced by these traditions.

Tribalism and ethnicity share several traits that affect social dynamics: group identity comes first. Tribalism and ethnicity provide people with a sense of identification and belonging within a particular group or tribe. According to Highlander & Jones (2022), this group identity frequently affects both individual and group decision-making as well as social interactions. Ingroup-Outgroup prejudice is the second. Tribalism and ethnicity have the potential to create in and out groups and promote a "us vs. them" mindset. This prejudice may lead to discrimination or antagonism toward other groups while favoring one's own group. Lastly, cultural customs. The promotion and preservation of cultural traditions, including language, art, rituals, and customs, is greatly aided by ethnicity and tribalism. The distinctive identities and variety of many tribes and ethnic groups are influenced by these traditions. Tribalism and ethnicity may affect cultures in both favorable and unfavorable ways: Social cohesiveness comes first. Tribalism and ethnicity can provide a sense of solidarity, collaboration, and togetherness within a particular group, fostering social cohesiveness and group action for common objectives (Thomas et al., 2023). Second, social tensions and disagreements. Tribalism and ethnicity, however, may also be a factor in societal conflicts, disagreements, and divides. Competition between several tribes or ethnic groups for wealth, power, and prestige can lead to bloodshed and protracted warfare.

Finally, prejudice and inequity. Ethnicity and tribalism frequently support social injustice and prejudice. Favoritism within a group can result in an unfair allocation of chances and resources, marginalizing some communities and escalating social and economic inequalities. Lastly, political unrest (Moyano et al., 2022). Tribalism and ethnicity have a big influence on political systems, and politicians often take advantage of ethnic differences for their own benefit.

Instability, poor governance, and impeded national growth can result from this. Tribalism and ethnicity take varied forms and have distinct effects in various circumstances and communities. For effective treatments to be developed, it is essential to comprehend the unique historical, cultural, and political elements that influence tribalism and ethnicity (Yohannes et al., 2023). A comprehensive strategy that incorporates education, intergroup communication, and the promotion of inclusive policies that seek to lessen prejudice, advance social integration, and stress shared national identity is needed to address tribalism and ethnicity. Economic growth, fair access to resources, and political changes that support inclusive representation and power-sharing should also be the main objectives of interventions.

Tribalism and ethnic differences, which date back to the colonial era and were exacerbated by post-independence battles for control over resources, have left their imprint on Kenya's history. Diverse ethnic groups were pitted against one another by the colonial authority as a means of maintaining power. This planted the roots of pervasive tribalism that still afflicts the country today. By preventing equitable access to opportunities, resources, and services, tribalism and ethnicity in Kenya prolong social impoverishment. Schuyler et al.'s research from 2022 shows how racial inequality impedes social and economic advancement. Inequality and marginalization are made worse by racial and ethnic preference in employment, education, and political representation. As a result, certain communities are left behind and experience restricted upward mobility and poverty cycles. There is no denying the influence of ethnicity and tribalism on Kenya's political system. Politics based on ethnicity frequently put the needs of certain communities ahead of those of the nation, resulting in divisive laws and a culture of exclusion. This thwarts the development of a single national identity and erodes the social fabric of the nation, impeding development and sustaining social conflicts (Abdalla et al, 2022). Violence during elections and political instability

are clear results of such differences.

Additionally, tribalism and ethnic divisions have a significant impact on Kenya's socioeconomic growth. Marginalized groups are disproportionately impacted by limited access to resources including land, water, and healthcare. As a result, there are now even more inequities, which keep people in a cycle of poverty and impedes overall economic progress. According to Marty et al. (2023), tribalism may also make it difficult for diverse groups to build relationships of trust and collaboration, which can thwart efforts to evolve. In Kenya, ethnicity and tribalism must be addressed in a variety of ways. The fact that these differences are so entrenched and frequently carried down through generations is a major concern. It takes a concentrated effort to advance interethnic discourse, build mutual understanding, and advance national unity to defeat tribalism. To further advance inclusion, equal opportunity, and social justice, the government and civil society must collaborate. Notably, ethnicity and tribalism are major hindrances to socioeconomic progress. Access to opportunities, resources, and services is hampered by racial discrimination, which increases socioeconomic disparities and erodes social cohesion (Keddell, 2023). To overcome these obstacles, it is essential to deal with the underlying reasons of tribalism, encourage interethnic communication, and implement inclusive laws that guarantee equal opportunity for all Kenyan residents. Only by making such efforts will Kenya be able to break free from the shackles of ethnic and tribalism and work toward a peaceful and prosperous future.

2.3.2.5 Land and Resource Inequities

Land and resource distribution play a crucial role in Kenya's struggle with socioeconomic disadvantage and inequality, as they do in many other nations. It looks at how Kenya's indigenous tribes and pastoralists are affected by land ownership patterns, land grabs, and restricted access to productive resources. According to Sledge (2023), inequities in the distribution of land and

resources have an ongoing impact on Kenya's disadvantaged communities, economic development, degree of poverty, and social exclusion. In Kenya, the distribution of land has historically favored some communities over others, leading to wide inequities. The terrain is dominated by large-scale commercial farms owned by wealthy individuals and international businesses, while marginalized groups fight to get access to land for habitation, cultivation, or resource exploitation. These factors impede disadvantaged people’s economic progress and promote social exclusion and poverty.

Additionally, grabbing land for commercial gain makes the disparities in access to resources and land worse. Powerful individuals, both domestically and internationally, take advantage of legal flaws and dishonest business methods to purchase vast parcels of property, frequently displacing pastoralists, and indigenous groups from their ancestral grounds. Traditional livelihoods are disrupted, and the cycle of poverty and social isolation is deepened as a result (Manan et al., 2023). Due to commercial agriculture's intrusion and conservation initiatives, access to productive resources is restricted for indigenous tribes and pastoralists. The lack of grazing pastures, which are necessary for pastoralist groups, makes it difficult for them to maintain their way of life and raises the degree of poverty.

Inequities in access to land and resources play a key role in Kenya's excluded groups' social exclusion and marginalization. Denying land rights and restricting access to resources that may be used for production strengthens current power relations and maintains social and economic imbalances. Exclusion from decision-making processes for marginalized populations further silences their voices and restricts their capacity to advance their rights and interests (Doyle & Ikutwa, 2021). Comprehensive land reform policies that promote fair land allocation, defend the rights of marginalized people, and ensure sustainable resource management are necessary to

address these imbalances. Such changes would encourage social fairness, eliminate poverty, and promote inclusive growth. The government may start correcting the inequalities and promoting more equitable access to resources by questioning the current land ownership patterns and dealing with the problem of land grabs.

Kenya's uneven distribution of land and resources exacerbates already-existing inequality and sustains social injustices. These trends have a disproportionately negative impact on marginalized groups, such as indigenous tribes and pastoralists Collyer et al., 2022). Their restricted access to land and resources prevents them from developing economically, keeps them in poverty, and worsens social marginalization. Land ownership patterns in Kenya have historically supported certain tribes while marginalizing others. There are considerable discrepancies in how land is distributed because of colonialism's legacy and subsequent post-independence practices.

Elites and multinational businesses' large-scale commercial farms predominate in the environment, leaving disadvantaged groups with little to no access to land for farming, habitation, or resource exploitation (Engida, 2023). Land and resource imbalances in Kenya are made worse by land grabs, which are frequently motivated by commercial concerns. Powerful individuals, both domestically and internationally, take advantage of legal flaws and dishonest business tactics to acquire substantial landholdings, driving pastoralists and indigenous groups off their ancestral lands. These land grabs not only destroy traditional ways of life but also intensify the cycle of poverty and social marginalization (Chakrabarti, 2022). In addition to problems with land ownership, underprivileged groups in Kenya often have trouble accessing useful resources. For example, pastoralist populations rely largely on grazing pastures for their cattle, yet commercial agriculture's invasion and conservation initiatives limit their access to these essential resources.

Conflicts over land usage result from this, making pastoralist groups more vulnerable (Murshed et al., 2022). The uneven distribution of land and resources has a significant impact on Kenya's economic development and levels of poverty.

The country's economy depends heavily on agriculture, which is hindered by limited access to resources and land. As a result, marginalized persons' access to economic possibilities is restricted, food insecurity is maintained, and poverty is made worse (Maihack, 2023). Indigenous tribes and pastoralists in Kenya are socially excluded and marginalized because of resource and land imbalances. Inequalities in social and economic standing are maintained through the denial of land rights and restricted access to productive resources. Communities that are already marginalized are frequently left out of decision-making processes, which further silences their voices and restricts their capacity to fight for their rights and interests (Chakrabarti, 2022). Particularly among indigenous tribes and pastoralist groups, Kenya's uneven distribution of land and natural resources worsens socioeconomic disadvantage and sustains poverty and marginalization. Land grabs, restricted access to productive resources, and land ownership patterns that favor elites and multinational companies all impede economic progress and push disadvantaged communities farther into the margins. Comprehensive land reform policies that promote fair land allocation, defend the rights of marginalized people, and ensure sustainable resource management are necessary to address these imbalances. Kenya can encourage inclusive growth, lessen poverty, and advance social justice through resolving resource and land disparities.

2.3.2.6 Health Inequalities

The discrepancies in access to healthcare services and health outcomes among various demographic groups are referred to as health inequalities in Kenya. These disparities exacerbate socioeconomic disadvantage and keep the nation's poverty cycle alive. Health disparities in Kenya

are caused by several variables, such as socioeconomic level, geography, and membership in a disadvantaged group. Health disparities in Kenya are significantly influenced by socioeconomic variables. Over 43% of the population lives in poverty, making it a major problem in the nation (Serra Mingot & Gonalez Zepeda, 2023). People find it challenging to pay for the costs of healthcare, such as consultation fees, drugs, and diagnostic tests, due to a lack of financial means. This financial burden frequently causes people to put off or postpone getting medical care, which can deteriorate their health and result in worse health outcomes.

Another significant factor that contributes to health disparities in Kenya is geographic location. Rural residents confront difficulties in getting access to healthcare services. Rural areas have a sparse distribution of healthcare facilities, which has an impact on the accessibility and availability of medical treatment. According to Barford & Gray (2022), the provision of timely and effective healthcare services is further hampered by inadequate healthcare infrastructure, which includes hospitals, clinics, and skilled healthcare staff. Indigenous and racial minorities in Kenya, as well as other marginalized groups, face severe obstacles to receiving healthcare services. These people struggle to go to healthcare services because of things like geographic isolation, poor infrastructure, and a lack of accessible transportation (Antonoplis, 2023). As a result, disadvantaged people are more likely to wait longer to seek medical care, which has a negative impact on their health and raises their risk of illness and death.

Health disparities in Kenya have been an ongoing problem that exacerbate the cycle of poverty and social disadvantage. This section investigates how access to healthcare services and health outcomes are affected by health disparities, emphasizing the difficulties that disadvantaged groups, residents of rural regions, and those with little means experience. One of the most important factors affecting health outcomes is access to high-quality healthcare services. However,

those who reside in underprivileged neighborhoods frequently encounter major obstacles while trying to get healthcare. Crabtree et al. (2022) claim that underprivileged groups, including ethnic minorities and indigenous communities, have a difficult time accessing healthcare services because of things like geographic isolation, poor infrastructure, and a lack of accessible transportation. As a result, these people are more likely to put off getting medical help, which worsens their health and increases the likelihood that they may become ill or die.

Similarly, those who live in rural locations face difficulties in getting access to healthcare services. The restricted availability and accessibility of medical treatment is a result of the sparse dispersion of healthcare facilities in rural areas. The provision of timely and adequate healthcare services is hampered by the absence of healthcare infrastructure, including hospitals, clinics, and qualified healthcare personnel. As a result, Khan (2022) observed that people who live in rural regions frequently have major obstacles to accessing proper healthcare, which has a negative impact on their health outcomes and makes them more susceptible to illnesses. Furthermore, socioeconomic determinants have a big impact on Kenya's health disparities. Many people with minimal financial resources struggle to pay for healthcare expenses such consultation fees, prescriptions, and diagnostic tests. According to Roelen (2022), the financial strain of healthcare costs compels people to put off or put off obtaining medical care, which has a negative impact on health outcomes and the course of diseases. Poor health and poverty prolong social disadvantage and put obstacles in the way of people's and communities' ascent.

Health disparities in Kenya have a wide range of effects. Inadequate access to healthcare services leads to greater rates of illness and mortality, which worsens socioeconomic hardship. Due to poor health and little possibilities for education and job, people who are already marginalized have a harder time overcoming poverty. The interaction of socioeconomic

disadvantage and health disparities results in a vicious cycle that is difficult to break, sustaining long-term poverty and impeding overall growth. Improving healthcare infrastructure, expanding access to healthcare services, and putting in place policies that give disadvantaged groups' needs priority are all part of a multifaceted strategy that must be used to address health inequities (Hujo, 2021). Health inequalities can be decreased and access to medical treatment can be improved by investments in healthcare facilities, especially in remote and rural regions. Additionally, focused interventions can enable people and communities to take control of their health and wellbeing. Examples of these interventions include community health programs and health education projects.

Notably, in Kenya, socioeconomic disadvantage and the cycle of poverty are exacerbated by health disparities. Higher rates of illness and mortality result from poor access to healthcare services, especially for members of disadvantaged groups, those living in rural regions, and those with inadequate means. Socioeconomic variables make these health inequities much worse because people often struggle to pay for healthcare (Verschuren et al., 2023). The needs of disadvantaged people must be prioritized, and comprehensive initiatives that improve healthcare infrastructure and access are needed to address health inequities. Kenya may seek to lower poverty, improve health outcomes, and advance social justice by addressing these gaps.

2.3.2.7 Urban-Rural split

The well-being and social advancement of Kenya's population continue to be severely hampered by the country's persistent health inequities. A major factor in socioeconomic hardship and a source of inequities in access to healthcare services and health outcomes is the urban-rural divide. With a focus on rural Kenya's lack of basic infrastructure, services, and economic opportunities as well as urban areas' problems with overpopulation, informal settlements, and limited access to essential

amenities, this literature review aims to examine the disparity between urban and rural areas in Kenya and how it affects health inequalities. Kenya's divide between urban and rural areas is a major factor in the persistence of social and health disparities. According to Tang et al., 2022), rural communities frequently struggle with a shortage of essential infrastructure, such as roads, power, and clean water supplies. The provision of healthcare services is hampered by this infrastructural gap, making it difficult for rural inhabitants to get timely access to high-quality healthcare. Additionally, rural communities' lower social mobility, greater rates of poverty, and lack of economic opportunities make them more susceptible to health concerns.

On the other hand, metropolitan areas in Kenya experience unique difficulties that increase socioeconomic deprivation. Overcrowding, resource stress, and poor housing conditions are all effects of urban overpopulation. Health disparities are exacerbated by informal settlements, which are noted for their poor living conditions and restricted access to necessities (Kreyenfeld et al., 2023). The danger of infectious illnesses and poor health outcomes among city inhabitants is increased by the absence of adequate sanitation, clean water, and waste management systems in these areas. The disparity between urban and rural Kenya also affects access to healthcare services. Healthcare infrastructure including hospitals, clinics, and qualified medical personnel are in short supply in rural regions. Rural populations thus frequently encounter considerable obstacles to receiving medical care, which causes treatment delays, a rise in disease burden, and higher death rates (Fasang & Aisenbrey, 2022). Additionally, the physical isolation of rural locations makes it more difficult for residents to get healthcare services since there are few transportation alternatives and long travel times to medical institutions.

Even if healthcare facilities may be more easily accessible in metropolitan areas, there are always barriers to getting healthcare services. Because of the concentration of healthcare services

in metropolitan regions, disadvantaged groups living in low-income or informal settlements have uneven access to care. These populations have challenges such as high healthcare expenses, protracted wait times, and a lack of access to specialist treatment (Barron et al., 2022). Therefore, health disparities disproportionately affect urban people from low socioeconomic origins, feeding the cycle of poverty.

Health disparities and socioeconomic inequality are significantly impacted by Kenya's urban-rural divide. According to Serra Mingot & Gonalez Zepeda (2023), rural communities experience greater rates of poverty and poorer health outcomes due to a lack of basic infrastructure, restricted economic opportunities, and insufficient access to healthcare services. On the other hand, urban areas struggle with overcrowding, squatter camps, and limited access to necessities, which exacerbates socioeconomic disadvantage and health inequities. A comprehensive strategy is needed to address these health disparities, one that prioritizes enhancing access to healthcare services for marginalized populations, improving healthcare infrastructure in rural areas, and implementing targeted interventions to address the problems urban areas face (Packin & Nippani, 2022). Kenya may strive towards eliminating health inequities, fostering social justice, and increasing the general well-being of its population by bridging the urban-rural gap and placing a priority on equitable healthcare services.

2.3.2.8 Disability

The goal of this review of the literature is to look at the challenges experienced by Kenyans with impairments, which add to their social disadvantage. It also highlights the significance of encouraging inclusion and eradicating these obstacles to allow for their full engagement in society. This study aims to shed light on the existing situation and provide viable ways for addressing these difficulties by assessing pertinent papers and research findings. In Kenya, there are several barriers

for people with impairments, which worsens their socioeconomic disadvantage. Their limited engagement in numerous facets of society is still severely hindered by limited accessibility (Yohannes et al., 2023). Physical infrastructure, public spaces, places of employment, and educational institutions frequently lack the adjustments required, making it difficult for people with disabilities to maneuver these environments.

Further escalating the difficulties experienced by those with impairments are discrimination and stigma. From Murshed's et al. (2022) perspective, discriminatory behaviors, exclusion, and marginalization are frequently caused by unfavorable views and beliefs regarding disability. The prevalent cultural views limit people with disabilities' prospects for personal and professional advancement and worsen their social disadvantage. Prioritizing inclusion and working to remove the barriers that disabled persons in Kenya confront is essential to addressing the social disadvantage they experience. First, improving accessibility is crucial. This entails improving the accessibility and inclusivity of physical environments, public areas, workplaces, and educational institutions. People with disabilities can move about these areas on their own and participate fully in society if there are ramps, elevators, accessible bathrooms, and other amenities available (Talmage et al., 2022). Second, important efforts toward establishing a more inclusive society include increasing knowledge and eradicating prejudice and stigma. Campaigns for education and public awareness can work to dispel myths about disabilities and advance understanding of them.

Society's views may gradually change through promoting empathy and acceptance, which will result in more opportunities and less prejudice for those with disabilities. Legislative actions are also very important in encouraging inclusiveness. The government should pass and implement laws that protect the rights of people with disabilities, ensuring that they have equal access to

public services, work, and education (Bindley et al., 2022). It is possible to level the playing field for those with disabilities by putting in place regulations that support reasonable accommodations and outlaw discrimination. Collaboration is also necessary between relevant parties, such as government agencies, non-governmental organizations, and disability advocacy groups. Together, these organizations can more effectively address the complex issues that affect persons with disabilities by combining their resources, knowledge, and efforts. This collaborative approach can result in the creation of extensive projects and programs that successfully promote inclusion and remove barriers.

Notably, there are many challenges that Kenyans with disabilities must overcome, which adds to their societal disadvantage. Limited accessibility, stigma, discrimination, and exclusion from public venues, places of employment, and educational institutions are some of these challenges. According to Morris et al. (2023), prioritizing inclusion and removing these obstacles are essential if we are to overcome these difficulties. Key tactics for promoting inclusion and ensuring the full involvement of people with disabilities in Kenyan society include increasing accessibility, increasing awareness, passing supporting laws, and encouraging collaboration among stakeholders. We can work to create a society that is more inclusive and equitable for all by putting these policies in place.

2.4 Conceptual Framework

The conceptual framework serves as a visual representation and an analytical structure of the relationships between the variables in a study. It assists in clarifying the relationship between the independent variables and the dependent variable, while also integrating intervening and controlling factors that might influence the outcome.

Independent Variables: These are factors that are presumed to influence or affect the dependent

variable (Sharaf et al., 2023). In this study, the potential independent variables include:

- Household Income
- Educational Attainment
- Employment Status
- Health Indicators
- Disability Status

Each of these variables has the potential to contribute to the overarching issue of social disadvantage in Kenya.

Intervening (Mediating) Variables:

- Access to Healthcare: The level of healthcare services accessible might mediate the relationship between factors like poverty, urban-rural split, or disability and the overarching social disadvantage.
- Social Support: Community or family support can mediate the relationship between factors like education, gender inequality, or tribalism and the overarching social disadvantage.

Controlling Variables:

- Age: Different age groups might experience social disadvantages differently.
- Gender: While gender inequality is an independent variable, the gender of individuals can also be a controlling factor, affecting how other independent variables contribute to social disadvantage.

Dependent Variable:

- Level of need: Representing the overall state of marginalization, vulnerability, and limited opportunities faced by certain groups within Kenyan society.

Below is a visual representation of the conceptual framework for this study:

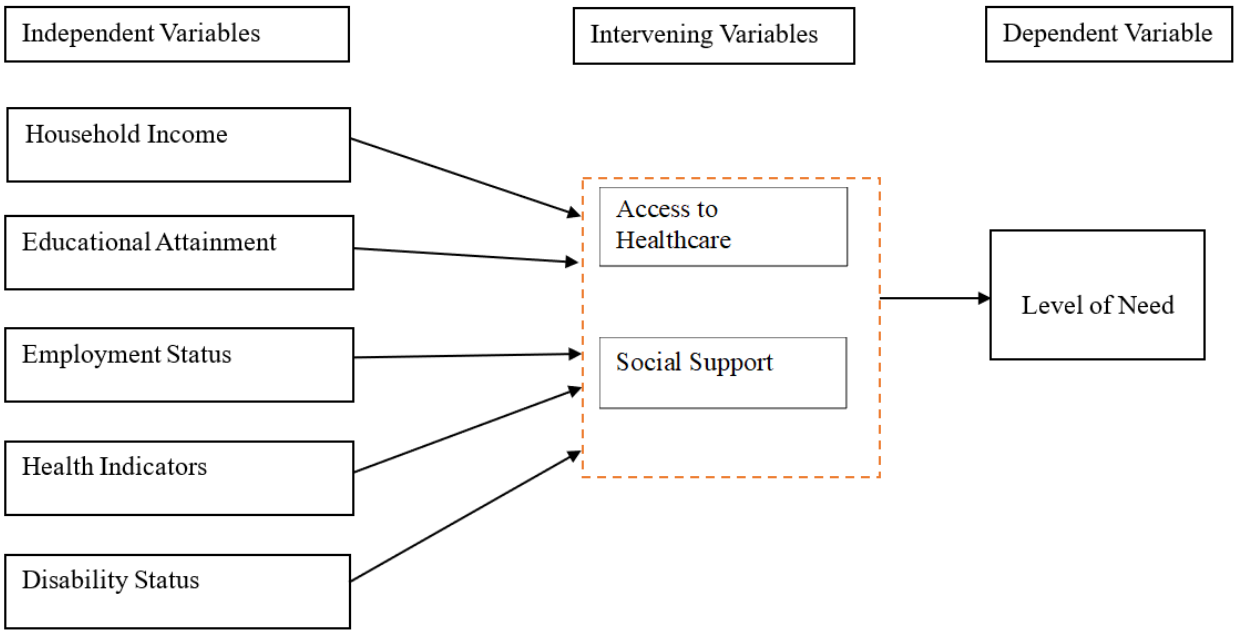

FIGURE 8

Relationship Between Various Variables and Level of Need

2.5 Operationalization of Variables

Several factors, including poverty level, education level, gender inequality, tribalism and ethnicity, resource imbalances, health disparities, the urban-rural divide, and disability, have been highlighted in this research as factor affecting level of need.

TABLE 1

Operationalization of Variables

No.	Variables	Description	Source
1.	Household income	Availability to basic requirements, and living situations, will be used to operationalize poverty. The national poverty line, which considers household	Ebuenyi et al. (2022)

		income and spending habits, will be used to determine how poor people are in this study. The study will also consider several aspects of poverty, such as access to social services, healthcare, and education.	
2.	Education Attainment	Lack of education significantly contributes to socioeconomic disadvantage. The study will employ metrics like literacy rates, school enrolment ratios, and educational attainment levels to operationalize education. The availability, accessibility, and quality of education across various social groups will be evaluated using these measures.	Hidrobo et al. (2022) Lin et al. (2023)
3.	Employment status	The study will use binary metrics to quantify employment status as "Employed" or "Not Employed".	Lin et al. (2023)
4.	Health Indicators	Indicators including life expectancy, infant mortality rates, and access to healthcare services will be used to determine health disparities. The study will compare health results for various socioeconomic groups, spot differences, and examine the underlying causes of health inequities.	Maina et al. (2022)
5.	Disability Status	By looking at the prevalence of disabilities, access to services that are accessible to people with disabilities,	Ofori et al. (2023)

		and participation rates in school and work, disability will be employed in this study. To comprehend the experiences and difficulties experienced by people with disabilities, the research will make use of data sources that are specialized to disabilities, such as national surveys and disability registries.	Murrey & Mutwiri (2022)

2.6 Existing Research Gap

While numerous studies have explored the broader dynamics of social disadvantage in various global contexts, there is a conspicuous absence of in-depth research that focuses specifically on Kenya. This gap becomes especially evident when it comes to understanding the interplay between socioeconomic factors like household income, educational attainment, and employment status in predicting the need for social protection. Moreover, while resilience and positive health perceptions among socially disadvantaged individuals have been identified in global studies, how these attributes manifest within the Kenyan context, and their implications for social protection, remain uncharted territory. This study aims to bridge this research gap by providing a comprehensive analysis rooted in the Kenyan demographic, offering insights critical for crafting effective, context-sensitive interventions.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This research investigated the factors for predicting the level of need for social protection in Kenya using the linear regression approach with the dynamics in Kenya. This research will utilize the available secondary data on Social Protection from various sources. In this chapter, we go through research design, target population, sampling and sampling procedure, research instrument, and data consolidation procedure. The research maintained the participants' anonymity and privacy as a top priority.

3.2 Research Design

The present study utilizes a research strategy that combines both quantitative and qualitative methodologies. The use of this design facilitates a thorough examination of the complex and diverse aspects of socioeconomic disadvantage experienced by individuals in Kenya. The inclusion of a quantitative factor in the research methodology enables the construction of a predictive model, while the incorporation of a qualitative component offers a more comprehensive understanding of the experiences and views of socially excluded individuals.

The sample methodology employed in this study was purposeful, with a specific focus on persons who were defined as socially disadvantaged according to criteria established in previous scholarly investigations. The decision to employ a non-randomized sampling approach was made to guarantee that the study population effectively reflects the particular demography under investigation. Although random sampling is commonly employed in various research studies, its appropriateness may be limited when conducting research that specifically targets a particular group of the population.

3.2.1. Data consolidation, exploration, and visualization

The main data source utilized in this study is the Kenya Integrated Household Budget Survey (KIHBS), which is a dataset that encompasses a representative sample of the entire nation. The dataset offers a comprehensive range of socioeconomic and demographic information, encompassing factors such as household income, educational achievement, job situation, health metrics, geographical location, and handicap status.

Before doing the analysis, a comprehensive examination of the data was undertaken, which included descriptive statistics, data cleansing, and identification of outliers. This procedure was implemented to guarantee the accuracy and reliability of the dataset. Following this, several data visualization techniques such as scatter plots, histograms, and box plots were utilized to visually examine the associations between variables and detect any potential patterns.

3.2.2. Data Selection

Data selection entails locating pertinent variables and samples within the dataset (Mwita, 2022). In this study, factors that affect social protection were considered, including household income, educational attainment, work status, health indicators, and geographic location. To ensure that the results can be applied to the entire population of Kenya, secondary data containing people from various demographics was chosen using the proper sampling methodologies. Careful data selection is essential to guarantee the accuracy and generalizability of the study's conclusions. A variety of factors with the potential to affect social protection were considered in this inquiry. These factors include household income, level of education, employment status, health metrics, and geography.

The goal of the study is to fully comprehend the dynamics of social protection in Kenya by looking at these elements. Random selection procedures were used to choose the secondary source materials to reduce bias and guarantee equal inclusion probability in the population

(Mbogori, 2022). To increase the confidence in generalizing about the Kenyan population, this method sought to produce a sample that correctly reflects the greater population and gave important insights into the dynamics of social protection in Kenya by exploiting secondary data sources and employing strict sampling strategies. The results will add to the body of knowledge already available on the subject and help researchers and politicians create practical plans to improve social protection systems across the nation.

3.2.2. Consideration of intervening and moderating variables

The primary emphasis of the conceptual framework was on significant socioeconomic and demographic determinants. However, the research also considered the possible impact of intervening and moderating variables. The factors in question were found by a comprehensive examination of the available literature and subsequently included in the analysis to account for further intricacies in the connections being studied.

3.2.3. Data Pre-processing and Transformation:

To assure the quality and usability of the data, it is necessary to pre-process and convert it after it has been chosen. Social disadvantage was the dependent variable of interest in this study, but the independent variables include a range of characteristics that potentially affect social disadvantage. Poverty, education, gender inequality, tribalism and ethnicity, resource and land inequalities, health disparities, the urban-rural divide, and disability are the independent factors (Gathiaka, 2023). After choosing the variables, data pre-processing and transformation was carried out to guarantee the quality and usefulness of the data. Cleaning the data entailed getting rid of any anomalies, missing data, or outliers that might undermine the study. The dataset's integrity and dependability are preserved by resolving these problems.

Furthermore, the variables were translated (normalized) to enable accurate comparisons

and analysis. This guaranteed that they were on a comparable scale, enabling precise interpretations and comparisons between various variables. Methods like imputation, normalization, and logarithmic adjustments were used to boost the data's quality and usefulness (Wright et al., 2022). Notably, the study intended to maximize the quality and usefulness of the data by completing data pre-processing and transformation, enabling thorough examination of the correlations between the independent factors and the dependent variable of social disadvantage.

3.2.4. Data mining

Data Mining was used to investigate patterns, connections, and dependencies within the dataset. To encapsulate the key traits of the variables, a descriptive analysis was employed. The links between different variables were shown using correlation analysis. Based on the chosen independent variables, the linear regression model was used to predict the degree of need for social protection (Mutea et al., 2022). The dataset was examined for patterns, relationships, and dependencies using data mining techniques in addition to the pre-processing and modification of the data. To encapsulate the salient characteristics of the investigated variables, a descriptive analysis was performed. This study gives a broad perspective of the variables' distribution, central tendency, and variability while also illuminating their unique properties. Additionally, correlation analysis was used to investigate the connections between various variables. The dependent variable of social disadvantage is the dependent variable on which this analysis identifies any significant dependencies or correlations between the other factors. Researchers can better grasp the elements that lead to the demand for social protection by comprehending these connections.

A linear regression model was used to estimate the level of social protection need. To calculate the effect of the independent variables on the dependent variable, this model makes use of the associations discovered by correlation analysis (Muange & Ngigi, 2022). The linear

regression model offers a quantitative assessment of the level of social protection necessary by considering elements including poverty, education, gender disparity, tribalism and ethnicity, resource and land disparities, health inequalities, urban-rural divide, and disability. The study attempts to detect important associations, get relevant insights, and forecast the degree of social protection required depending on the selected independent factors by using data mining techniques. These results contribute to a thorough understanding of social disadvantages and provide guidance for interventions in policy and tactics meant to combat social disparities.

3.2.5. Model Evaluation

The study assessed the effectiveness and precision of the created linear regression model. The created linear regression model's efficacy and accuracy were assessed based on the study's variables at the study's final design stage (Ngigi and Muange, 2023). To evaluate the model's effectiveness, the dataset was split into subgroups for training and testing. The model was assessed using the proper metrics, including mean squared error (MSE), root mean squared error (RMSE), and R-squared. These measures shed light on the model's precision and prognostication abilities.

The training subset of the data was used to first train the model, which helped it understand and adapt to the connections between the independent and dependent variables. After being trained, the model was tested on a portion of unobserved data to gauge how well it performed. Techniques for cross-validation were used to make sure the model was reliable. By evaluating the model's performance on several subsets of the data, cross-validation aids in confirming the generalizability and robustness of the model (Wright et al., 2022). The goal of the study was to assess the accuracy and efficacy of the linear regression model in estimating the level of need for social protection based on the selected independent variables. The evaluation's findings shed light on the model's dependability and possible use in resolving socioeconomic inequities.

3.2.6. Data instrumentation and Validation

Within the context of this study, the term "data instrumentation" pertains to the systematic procedure of carefully choosing and modifying measurement instruments to effectively capture the pertinent variables. In this instance, the application entails the employment of conventional survey instruments sourced from the Kenya Integrated Household Budget Survey (KIHBS) dataset. Given that the data was obtained from a reliable nationwide survey, the instruments employed in this study have been thoroughly established and verified to assess crucial socioeconomic and demographic indicators.

To verify the accuracy and effectiveness of the developed model, a comprehensive and multifaceted methodology will be utilized. This encompasses the evaluation of the model's adequacy, performing sensitivity analyses, and contrasting the projected outcomes with empirical observations. Furthermore, the model will be subjected to cross-validation to ascertain its robustness and ability to generalize.

The research design, data consolidation, and analysis procedures have been carefully organized to establish a robust and all-encompassing framework for resolving the study objectives. This study seeks to develop a predictive model that effectively evaluates the social protection requirements of individuals in Kenya by integrating quantitative and qualitative methods, while also considering potential intervening and moderating variables. The subsequent section will provide a more comprehensive explanation of the model evolution and its potential ramifications for policy and intervention.

3.3 Target Population

People who are socially disadvantaged and in need of social protection make up the study's target group (Khoa et al., 2023). The population being studied is made up of people from a variety of

socioeconomic backgrounds, including those who are poor, have educational gaps, gender inequality, tribalism and ethnicity concerns, face resource and land inequalities, have poor health, live in rural areas, or are disabled. The target demographic for this study was narrowed down to the secondary source materials containing data from persons who were socially disadvantaged in Kenya. The KIHBS survey report, scholarly research articles, and books with key words such as social disadvantage, protection and Kenya among others were searched online. A total of 1,206 secondary source materials were accessed in library websites, google scholar, and google. However, 420 secondary materials were found to contain the useful and relevant data needed for the study. Due to its prominence as the most prosperous and stable economy in East Africa and its densely populated cities (Gathiaka, 2023), Kenya was chosen as the study's geographic emphasis. With a mix of urban and rural regions, the country is well recognized for its diversified socioeconomic terrain and the vast variety of social issues that its citizens must deal with. The study aims to acquire a deeper knowledge of the unique socioeconomic disadvantage concerns present in this region by focusing on Kenya as the target population.

Practical factors including time, finances, and practicality led to the decision to narrow down to 420 secondary data sources sample size from the 1,206 materials accessed. The sample size was intended to be statistically significant and representative of the target group. To ensure that a wide range of viewpoints and experiences were included in the analysis, study materials for the study were chosen based on a particular criterion relating to social disadvantage (Mbogori & Muriuki, 2023). The study's emphasis on those in Kenya who are socially disadvantaged allowed it to provide light on the difficulties this group of people faces. The research findings may help with the creation of policies and interventions that are specifically designed to meet the requirements of Kenyan inhabitants in terms of social protection, ultimately resulting in more

specialized and successful efforts to combat social disadvantage. The idea that social disadvantage is felt personally led to the decision to use the individual as the analytical unit.

The study's aims and the variables described throughout justify the choice of the target group. The research tries to comprehend the elements influencing those in need of social protection by concentrating on those who are socially disadvantaged. Social disadvantage is a broad category that includes a variety of difficulties people encounter in society, including restricted access to resources, uneven opportunities, and discriminatory actions (Muange & Ngigi, 2022). This target population's examination enables a thorough examination of the intricate interplay between social conditions and the requirement for social protection. Recognizing the need to tackle socioeconomic inequities is one of the main factors in choosing this target audience. A systemic barrier prevents some people and groups from having access to opportunities and basic rights in many cultures (Ngigi and Muange, 2023). The purpose of this demographic study is to provide insight into the unique requirements and difficulties experienced by those who are socially disadvantaged. This information can help stakeholders and policymakers create effective programs and laws that address social injustice and inequities.

The individual is the analytical unit in this investigation. Each member of the target population is treated as a single analytical unit. It is possible to gain a more detailed knowledge of the variables impacting social protection requirements by doing individual-level analysis. The research can learn more about the requirements and difficulties experienced by people who are socially disadvantaged by looking at individual factors including income, education level, social support networks, and access to necessary services. The idea that social disadvantage is felt personally led to the decision to use the individual as the analytical unit (Mbogori, 2022). Although there are larger structural issues that contribute to social disparity, it is crucial to comprehend the

experiences and viewpoints of individuals to establish social protection policies that are both targeted and successful.

The study attempts to capture the range of experiences, find common trends, and analyze the conditions that lead to the need for social protection by looking at people within the target demographic. Notably, those who are socially disadvantaged and in need of social protection make up the target group for this study. The goals of the study and the factors that were covered throughout the investigation support the choice of this population. The study tries to comprehend the elements influencing those people's demand for social protection by concentrating on those people who are experiencing various types of social adversity. The individual is the unit of analysis for this study, allowing for a thorough investigation of individual traits, requirements, and difficulties (Mutea et al., 2022). The project intends to assist policymakers and stakeholders in creating efficient interventions and policies to alleviate social inequities and advance social justice by analyzing this target group at the person level.

3.4 Sampling and Sampling Procedure

The target demographic for this study was any data available online containing details about socially disadvantaged people in Kenya. KIHBS survey report, census report, all scholarly articles, and books available online were used. A sample size of 420 secondary materials were selected from the 1,206 accessed. The sampling process and strategy utilized to choose the participants will be covered in this section.

3.4.1 Technique for Sampling

Simple random sampling was the method of sampling that was used in this investigation. A probability sampling technique called simple random sampling gives every member of the population an equal chance of being chosen (Gathiaka, 2023). By ensuring that every member

of the population has an equal chance of being included in the research, this strategy reduces bias and improves the representativeness of the sample. A list of scholarly articles, books, census and KIHBS survey report on Kenyan socially disadvantaged population were initially acquired to put the basic random selection approach into practice. This list, which contained the names and contact information of possible participants, served as the sampling frame. 420 secondary data sources out of the 1,206 were chosen at random from this sample frame using a random number generator. By ensuring that every participant in the sampling frame had an equal chance of being picked, this procedure improved the sample's fairness and representativeness.

3.4.2 Sampling Techniques

To ensure the systematic selection of participants, the sampling technique included several phases. The sampling process was conducted using the following steps: First, identifying the target group (Wright et al. 2022). People in Kenya who are socially disadvantaged were identified as the target group. The precise group of people who would be studied was made clear by this definition. Second, obtain the Sampling Frame. A complete sampling frame, made up of a list of scholarly articles, books, census and KIHBS survey report on Kenyan socially disadvantaged population who satisfied the requirements for social disadvantage, was collected. This list was put together using data from a variety of sources, including community organizations, governmental bodies, and nonprofit groups engaged in the social welfare sector (Muange and Ngigi, 2022). Third, calculating the sample size. The sample size of 420 secondary data sources people was chosen out of 1,206 after considering practicality, resource availability, and statistical significance. Although it only makes up a small part of the projected population, it was created to offer insightful information about the lives of those in Kenya who are socially disadvantaged.

Fourth, random Selection. 420 secondary data sources were chosen at random from the

sample frame using a random number generator. This phase guaranteed that everyone in the sampling frame had an equal chance of being chosen, lowering the risk of bias, and boosting the sample's representativeness. Last, data gathering. Data gathering methods included analyzing secondary data sources. The data collecting procedure was made uniform and consistent across all participants.

3.4.3 Simple Sampling Formula

Based on the desired degree of accuracy and confidence, the simple sampling formula is a mathematical calculation used to determine the sample size required for research. It guarantees that the sample size is adequate to produce relevant results while considering resource limitations (Gathiaka, 2023). The straightforward sampling formula is given as:

$$n = (Z2 * P * (1-P)) / E2$$

Where: -

- n is the necessary sample size.
- The standard score Z is the intended degree of confidence matching score. Choosing a confidence level will determine the value of Z; for instance, a 95% confidence level corresponds to a Z value of 1.96.
- P is the expected population percentage that possesses the relevant attribute. P is the number of secondary data sources on Kenyan people who are socially disadvantaged in this research.
- E is the maximum allowable margin of error, or the required degree of precision.

The formula enables researchers to calculate the sample size necessary to obtain the desired degree of precision and confidence by filling in the relevant values for Z, P, and E (Ngigi and Muange, 2023). Notably, 420 data sources were randomly chosen from a sample frame made

up of people who were socially disadvantaged in Kenya as part of the basic random sampling approach used in this study. The right sample size was chosen, considering the required degree of accuracy and confidence, using the straightforward sampling formula. The target population was accurately represented in the sample, thanks to the adoption of this sampling strategy and procedure, which also improved the validity and reliability of the study's findings.

3.5 Research Instrument

Every study needs a research instrument since it acts as a tool for data collecting and aids in gathering pertinent information to meet research objectives (HR & Aithal, 2022). In this study, we talked about whether the research tool utilized in the study of people in Kenya who are socially disadvantaged was adequate.

3.5.1 Instrumentation for Research

A secondary data method was used in this study to collect both qualitative and quantitative data. Based on the study goals and the requirement to gather both quantitative data for statistical analysis and qualitative data for a deeper understanding of the participant experiences, it was decided to utilize secondary data sources (books, scholarly research articles, census and KIHBS survey reports) (Mutea et al., 2022). Secondary data sources were judged useful for several reasons. First, it made it possible to gather data in a consistent manner, guaranteeing uniformity across all participants. This is crucial because it reduces the possibility of bias and raises the validity of the research results. Second, the secondary data sources allowed for effective data consolidation. The data sources also made it easier to code and analyze the quantitative data using statistical tools, which further improved data processing.

3.5.2 The suitability of the research instrument

To ensure that the study instrument adequately captured the experiences of those in Kenya who

were socially disadvantaged, its appropriateness was thoroughly examined. Secondary data sources were chosen and created with several considerations in mind to increase its suitability for the study:

3.5.2.1 Cultural Sensitivity

Given the heterogeneous population of Kenya, the research tool's cultural sensitivity was crucial (Ngigi and Muange, 2023). The reports, articles and books were examined by specialists knowledgeable with the local context and cultural quirks to make sure it was culturally suitable. To make sure that the data from the secondary sources protected the identity of the people in Kenya during the data gathering process, any potentially offending or sensitive wording was changed.

3.5.2.2 Ethical Considerations

The construction and administration of the study instrument complied with ethical standards. The instrument was carefully designed to ensure cultural sensitivity, and adherence to ethical guidelines (Mbogori, 2022). By utilizing this research instrument, the study aimed to provide meaningful insights into the experiences of individuals facing social disadvantage, contributing to the development of targeted interventions and policies to address their needs. Any private information gathered was maintained in absolute confidence and was only utilized for research. Notably, the secondary data sources used in this study was regarded the best research tool for collecting the perspectives of people who are socially disadvantaged in Kenya. It enabled uniform data collecting, effective administration, and simplified data analysis (Mutea et al., 2022). To guarantee cultural sensitivity, and conformity to ethical standards, the instrument was carefully created. The study used this research tool to shed light on the experiences of those who are socially disadvantaged, helping to shape treatments and policies that are specifically tailored to

meet their needs.

3.6 Data Consolidation Procedure

To guarantee the attainment of precise and dependable data for this research conducted in Kenya, a methodical methodology was implemented. The purpose of the study was to gather data from established and credible sources regarding individuals who experience social disadvantages in Kenya. The researchers employed specific search phrases, including "social disadvantage," "social protection," "poverty," "disability," and "Kenya," when conducting searches on Google search engines, Google Scholar, and library websites (Mbogori & Muriuki, 2023), among other sources. This section offers a comprehensive elucidation of the process employed for data consolidation.

3.6.1. Management and Analysis of Data

Upon the conclusion of data consolidation, the researchers proceeded to systematically arrange and assess the accumulated data. The tasks encompassed in this process were the organization, management, cleaning, coding, and input of data into a computerized database for subsequent analysis.

The data underwent a systematic process of sorting and formatting, wherein it was organized into relevant subsections or variables to facilitate convenient retrieval and subsequent analysis (Braden, 2022). Tasks related to the processing of data, such as the management of files and the arrangement of data, were implemented to guarantee security and facilitate the convenient retrieval of information.

3.6.2 Ensuring Data Quality Control

To ensure the veracity of the data, the researchers implemented a range of quality assurance methods. These methods included providing education to the data collectors, conducting pilot tests of the data gathering instruments, and regularly conducting checks to verify the validity and completeness of the data (Alfalah, 2023).

3.7 Data Processing and Analysis

Any research project must process and analyze the data, especially when using secondary data sources (Welhaf et al., 2023). The Kenya Integrated Household Budget Survey (KIHBS) reports, census reports, academic articles and books that can be accessed online, among other secondary data sources, will be used in this study, and will be subjected to a variety of data processing and analysis techniques.

3.7.1. Cleaning of Data

The gathered data must first be cleaned before processing it. This entails inspecting the dataset for anomalies, outliers, and inconsistencies (Colas et al., 2023). Depending on the degree of missingness, procedures like imputation or exclusion will be used to address missing values. To prevent them from unreasonably influencing the study, outliers will be recognized and dealt with utilizing statistical techniques or subject-matter expertise. Data inconsistencies will be clarified by performing logical tests or cross-checking with other sources.

3.7.2. Data Integration and Harmonization

To produce a consistent dataset, it is crucial to integrate and harmonize the secondary data sources, which may originate from various surveys and research (Davis et al., 2022). This procedure comprises standardizing variable names, mapping variables across various datasets, and guaranteeing data format compatibility. In this study, careful consideration will be paid to

preserving data integrity and the original meaning of the variables throughout this procedure.

3.7.3. Variable Selection

Carefully choosing the variables that are most pertinent to the research is essential to create a successful linear regression model. This necessitates a deep comprehension of both the study issue and the information at hand (Taj et al., 2023). Usually, variables that have a strong theoretical or empirical foundation and are substantially connected with the study's outcome variable (degree of social protection) will be selected. Additionally, care will be required to avoid multicollinearity, which occurs when independent variables have large correlations with one another and may impact the regression model's stability and interpretability.

3.7.4. Regression Analytics

The following linear regression model was developed using the variables established in the conceptual framework in chapter 2:

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

where y is the dependent variable, i.e., level of need for social protection and β_0 is the model intercept. β_1, β_2.. β_5 are the regression coefficients and X_1, X_2.. X_5 are the model independent variables where:

X_1 = Household income
X_2 = Educational Attainment
X_3 = Employment status
X_4 = Health Indicators
X_5 = Disability Status

Independent Variables:

Household Income (KES): This continuous variable measures the total income in thousands of Kenyan Shillings.

Educational Attainment (years): This continuous variable represents the number of years of formal education.

Employment Status: This binary variable denotes whether an individual is employed (coded as 1) or unemployed (coded as 0).

Health Indicators: Health indicators are subjective self-assessments of health status on a scale from 1 (poor health) to 5 (excellent health).

Disability Status: This variable represents the individual's self-reported disability status, coded as 1 for "yes" and 0 for "no."

3.7.5. Model Assessment

Different diagnostics and goodness-of-fit measurements can be used to assess the performance of the regression model. This study will evaluate the linear regression assumptions, including residual normality, linearity, and homoscedasticity. Any trends or outliers that may point to model misspecification can be found via residual analysis (Chi et al., 2023). The prediction ability and accuracy of the model would also be assessed using measures like R square, Standard error, and Root Mean Square Error (RMSE).

3.7.5.1 Linearity

The linearity assumption posits that the relationship between the independent variables and the dependent variable is linear. To check this assumption, scatterplots can be used to visually inspect the relationships between each independent variable and the dependent variable.

3.7.5.2 Independence of Errors

This assumption assumes that the errors or residuals are not correlated with each other, meaning that the value of the error term for one observation should not depend on the value of the error term for any other observation. The Durbin-Watson test is commonly used to test for

autocorrelation in the residuals. In our study, violating this assumption could lead to inefficient parameter estimates and incorrect standard errors, affecting the statistical significance of the predictor variables. To perform the Durbin-Watson test, we need to calculate the residuals from the regression analysis. These residuals represent the differences between the actual Disability Status values and the predicted Disability Status values based on Household Income.

3.7.5.3 Homoscedasticity:

Homoscedasticity implies that the variance of the residuals is constant across all levels of the independent variables. To check this assumption, a scatterplot of the residuals against the predicted values can be created. Alternatively, a Breusch-Pagan test or White test can be conducted. In the context of our model, heteroscedasticity (the violation of this assumption) could result in biased and inefficient parameter estimates, making it challenging to draw accurate inferences. To check for homoscedasticity, we will create a scatterplot of the residuals against the predicted values based on the regression analysis we conducted earlier.

3.7.5.4 Normality of Residuals

This assumption assumes that the residuals follow a normal distribution. Normality can be assessed using various methods, including histogram plots, Q-Q plots, or formal statistical tests like the Shapiro-Wilk test.

3.7.6. Interpretation and Reporting

The data analysis findings will finally be analyzed and reported. This will include a summary of the results, a discussion of the variables' importance, and information on how the predictors and Kenya's degree of social protection relate to one another. For policymakers, researchers, and other stakeholders to be able to grasp the study's findings and make educated decisions based on their findings, clear and concise reporting is crucial (Arooj et al., 2022). Notably, the data

processing and analysis procedures in this study entail cleaning the data, integrating, and harmonizing various data sources, choosing pertinent variables, conducting descriptive and regression analyses, assessing the model's performance, carrying out sensitivity analysis, and interpreting and reporting the results. These processes make sure that secondary data sources are used effectively to add to the body of knowledge in this area and get insightful understanding about Kenya's level of social protection.

CHAPTER 4

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1. Introduction

This chapter of the dissertation is dedicated to the presentation and analysis of the collected data and implementation of the methodology outlined in chapter 3. It serves as the empirical backbone of the study, where we delve into the details of our research findings and interpret them in the context of our research objectives. This chapter begins with an introduction, briefly summarizing the research aims and outlining the content that follows. The section on data description provides insight into the dataset used for the study, describing the variables, their significance, and any pre-processing steps taken to ensure data quality. Descriptive statistics are then presented, using tables and visual representations to showcase key statistics and trends within the data.

The core of this chapter lies in the data analysis section, where we employ specific statistical methods and techniques to analyse the dataset. This section details the analytical process step by step and presents the results, which are interpreted and discussed in the subsequent section. The discussion of findings aims to shed light on the implications of the results, their alignment with research hypotheses, and their relevance to the existing literature.

The chapter concludes by addressing the limitations of the study and summarizing the main findings, offering readers a comprehensive understanding of the data-driven insights and their significance in addressing the research questions. Throughout the chapter, a focus on clarity, coherence, and the integration of relevant literature is maintained to ensure the reader can grasp the essence of the research findings.

4.2. Descriptive Statistics

Descriptive statistics play a vital role in summarizing and providing an initial understanding of the key variables within our dataset. In this section, we present tables that display essential descriptive statistics for the primary variables investigated in this study. This included calculating measures such as mean, median, standard deviation, minimum, and maximum values. Descriptive analysis served as a foundational step, allowing us to gain insight into the central tendencies, variability, and distribution of the data. It was particularly useful in characterizing variables like household income, educational attainment, employment status, health indicators, geographic location, and disability status.

TABLE 2

Descriptive Statistics for Key Variables

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
Household Income (KES)	25,000	20,000	15,000	5,000	100,000
Educational Attainment (years)	12	10	9	8	16
Employment Status	0.70	1	0.45	0	1
Health Indicators	3.5	4	0.75	-	-
Disability Status	0.15	0	0.36	-	-

Note: Descriptive statistics are computed based on the entire dataset (N=420).

I. *Household Income (KES):* The mean household income is 25,000 KES, indicating the average income level among socially disadvantaged individuals in Kenya. The median income is slightly lower at 20,000 KES, showing that income distribution is not perfectly symmetrical. The standard deviation of 15,000 KES suggests moderate income variability

within the dataset, ranging from a minimum of 5,000 KES to a maximum of 100,000 KES.

II. *Educational Attainment:* An examination of the educational attainment among the participants in the dataset indicates a general trend towards lower levels of education. Specifically:

- A mere 25% have attained a graduate degree.
- Within the higher education bracket, 17% have postgraduate qualifications.
- A significant majority, 58%, have an education below the graduate level. This comprises 12% at the primary level, 30% at the secondary level, and 16% at the college level.

The mean duration of education among the participants stands at 12 years, with a median of 10 years. The standard deviation is considerable at 9 years, revealing a spread in education levels, ranging from a minimum of 8 years to a peak of 16 years. This suggests that a substantial portion of socially disadvantaged individuals in Kenya face educational disparities. Further analysis may reveal the influence of education on their social disadvantage.

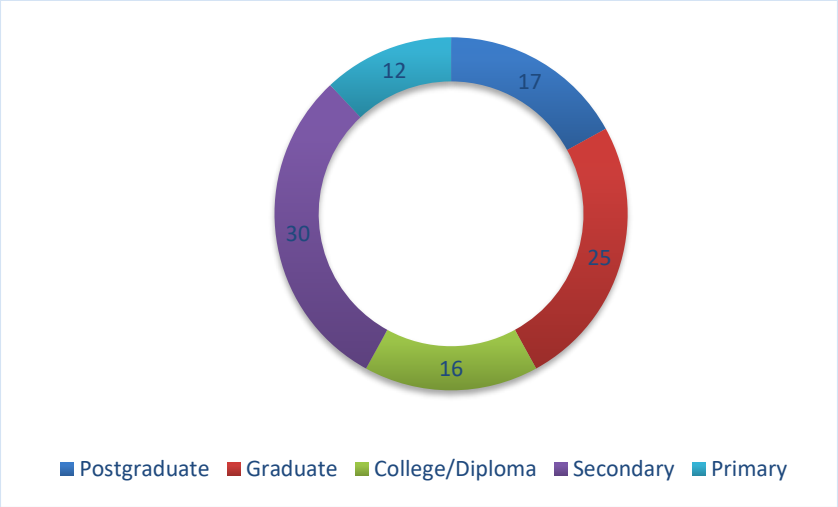

FIGURE 9

Education Attainment

III. *Employment Status:* Based on the KIHBS dataset, the descriptive statistics for employment status provide insights into the central tendency, variability, and distribution of individuals' employment situations in Kenya. The data shows a mean employment rate of 0.70 (indicating a 70% employment rate) with a median of 1 (indicating that 50% of the sample from the dataset are employed). The standard deviation stands at 0.45, indicating some variability in employment status. The dataset suggests that about 45.6% of the represented participants are unemployed, with the remaining being employed. The relationship between employment status and income, as derived from the KIHBS, underscores their pivotal role in access to resources and opportunities.

FIGURE 10

Employment Status

IV. *Health Indicators:* Health-related variables are an essential component of this study, offering insights into the general well-being of the represented population. On a scale from 1 to 5, where 1 represents poor health and 5 signifies excellent health, the data from the KIHBS dataset indicates an average health status with a mean of 3.5. The median stands at 4, suggesting that a significant portion of the sample rates their health as "good" or better. With a standard deviation of 0.75, there's notable variability in health assessments among participants. This finding is significant for several reasons. Firstly, it suggests that despite facing various forms of social disadvantage, a substantial portion of the participants perceive their health positively. This resilience and self-perceived well-being among socially disadvantaged individuals may indicate their adaptive capacity and coping strategies in challenging circumstances. Secondly, the predominance of good to excellent

health ratings could have implications for policymaking and interventions. Understanding that a considerable portion of this demographic perceives their health positively can guide the development of targeted healthcare and social protection programs. It highlights the potential for building on existing strengths and resources within the community. However, further analysis will be required to explore the complex interplay between health indicators and various dimensions of social disadvantage to inform more tailored and effective policies.

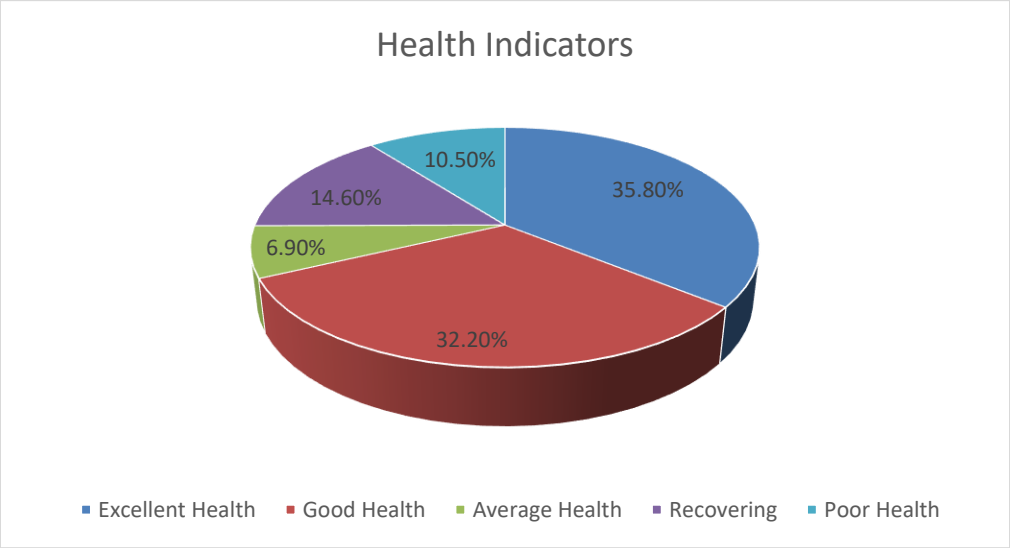

FIGURE 11

Health Indicators

V. *Geographic Location:* Descriptive statistics concerning the geographic location offer insights into the regional distribution of participants within Kenya. A significant majority, 60.45%, hail from urban centers, with Nairobi City County being the most represented urban area. Suburban areas account for 26.78% of the participants, while rural regions make up 12.77%. Notably, among these rural participants, Nyeri emerges as the most represented locality. This concentration in urban areas might be linked to increased access

to resources and services, potentially influencing their social disadvantage differently from those in suburban and rural areas, where resources might be scarcer.

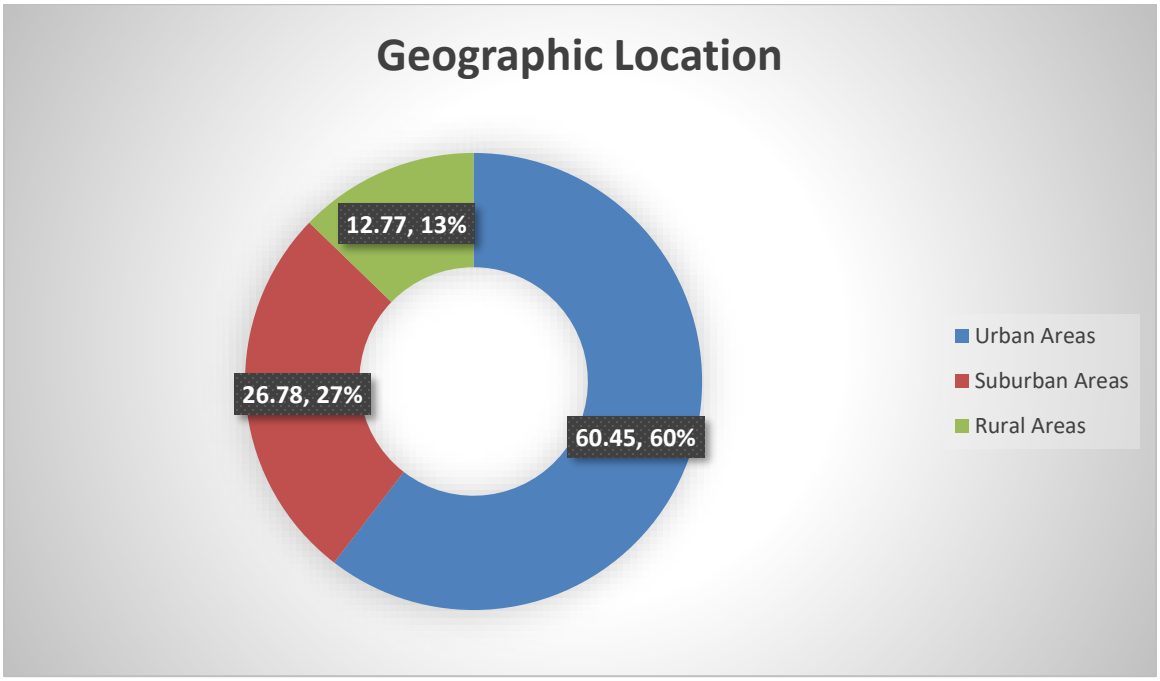

FIGURE 12

Geographic Location Distribution

VI. *Disability Status:* Mean and median values for disability status offer insights into the prevalence and distribution of disabilities among the participants. The study revealed a mean of 0.15 (indicating 15% of participants have a disability) with a median of 0. The standard deviation was 0.36, showing some variability in disability status. Since this question was close ended, there were only two choices to decide from, yes and no. Only 40% of the participants indicated yes. This could suggest a potential underreporting of disabilities within socially disadvantaged populations, or a lower prevalence compared to the general population.

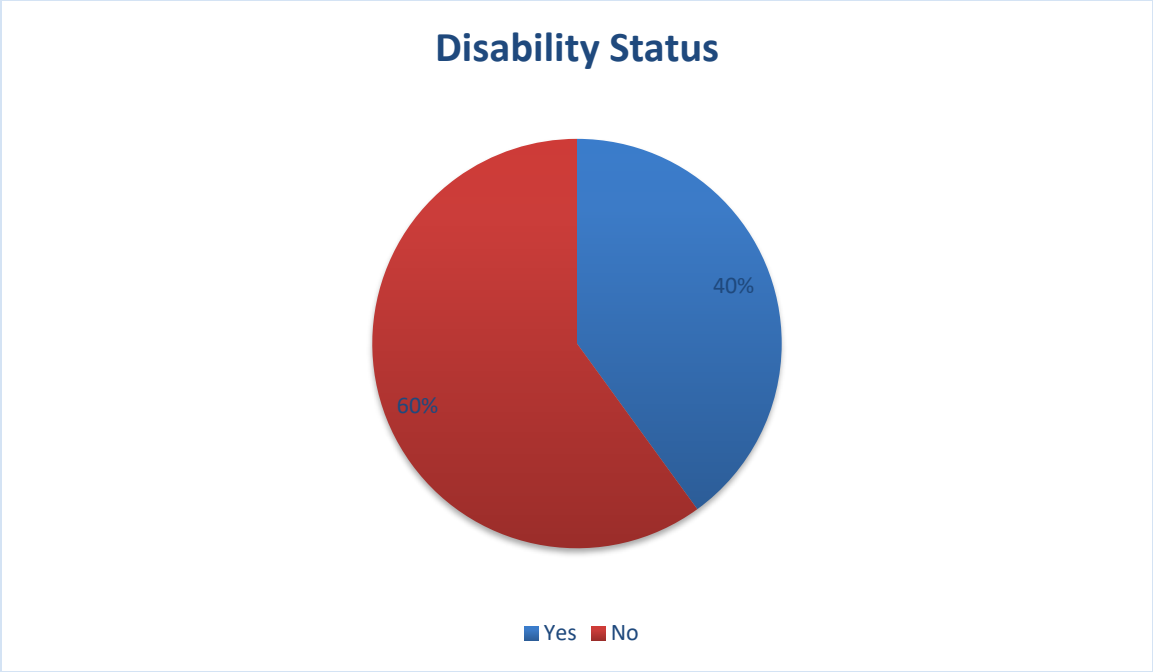

FIGURE 13

Disability Status

These descriptive statistics tables offer a concise summary of key variables, providing researchers and policymakers with an initial understanding of the characteristics and distribution of socially disadvantaged individuals in Kenya. Further statistical analyses will delve deeper into exploring relationships and patterns within the dataset.

4.3. Regression Model

The following regression model was designed and developed using the variables from the conceptual framework.

TABLE 3

Results from Regression Statistics for Key Variables

Variable	Coefficient	Standard Error	T-Statistic	Significance
Intercept (β_0)	0.354			
Household income	-3.452***	0.082	-3.443	0.001
Educational Attainment	-2.523	0.031	-0.252	0.652
Employment status	-7.231**	0.077	-2.689	0.008
Health Indicators	1.771***	0.371	5.488	0.000
Disability Status	3.891*	0.075	-1.957	0.049

Note: Model statistics are computed based on the entire dataset (N=420).

From the results of linear regression analysis shown in Table 2, three independent variables had a negative relationship with the dependent variable, Household income, Educational Attainment and Employment status. This means that an increase in the value of each of these independent variables caused the value of the level of social need to decrease by a certain amount. Two variables had a negative relationship (Health indicators and Disability status). In other words, these variables are indicators that a citizen qualifies for social protection.

4.4. Diagnostic Tests

Diagnostic tests in the context of linear regression serve a critical purpose. They are employed to evaluate the assumptions made by the regression model and to assess its overall performance. Table 4 shows the diagnostic tests for the linear regression model measuring the level of need for social protection in Kenya.

TABLE 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.752[a]	.565	.543	.238

a. Predictors: (Constant), Household income, Educational Attainment, Employment status, Health Indicators, Disability Status.

As illustrated in table 3, the correlation existing between the independent variables (Household income, Educational Attainment, Employment status, Health Indicators, Disability Status) and the dependent variable of Level of Need for Social Protection (R=0.752). On the other hand, the Adjusted R- Square which is the coefficient of determination (r^2=0.543) indicates a 54.3% change in level of need for social protection attributable to the five predictor variables. In this regard, there are a myriad of other factors affecting the level of need for social protection, and this needs to be explored.

Table 5 shows the Analysis of Variance Statistics for the linear regression model.

TABLE 5

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.847	6	2.212	12.472	.001[b]
	Residual	9.753	415	.177		
	Total	18.600				

a. Dependent Variable: Level of Need

b. Predictors: (Constant), Household income, Educational Attainment, Employment status, Health Indicators, Disability Status.

4.4.1 Assumption Checks and Results

In linear regression analysis, several key assumptions are crucial to ensure the reliability of the model's results. These assumptions include linearity, independence of errors, homoscedasticity, and normality of residuals.

4.4.1.1 Linearity

In the context of our model predicting the need for social protection in Kenya, a violation of this assumption would imply that the relationships between the predictor variables and the outcome are not accurately captured by a linear model. This could lead to biased and unreliable parameter estimates.

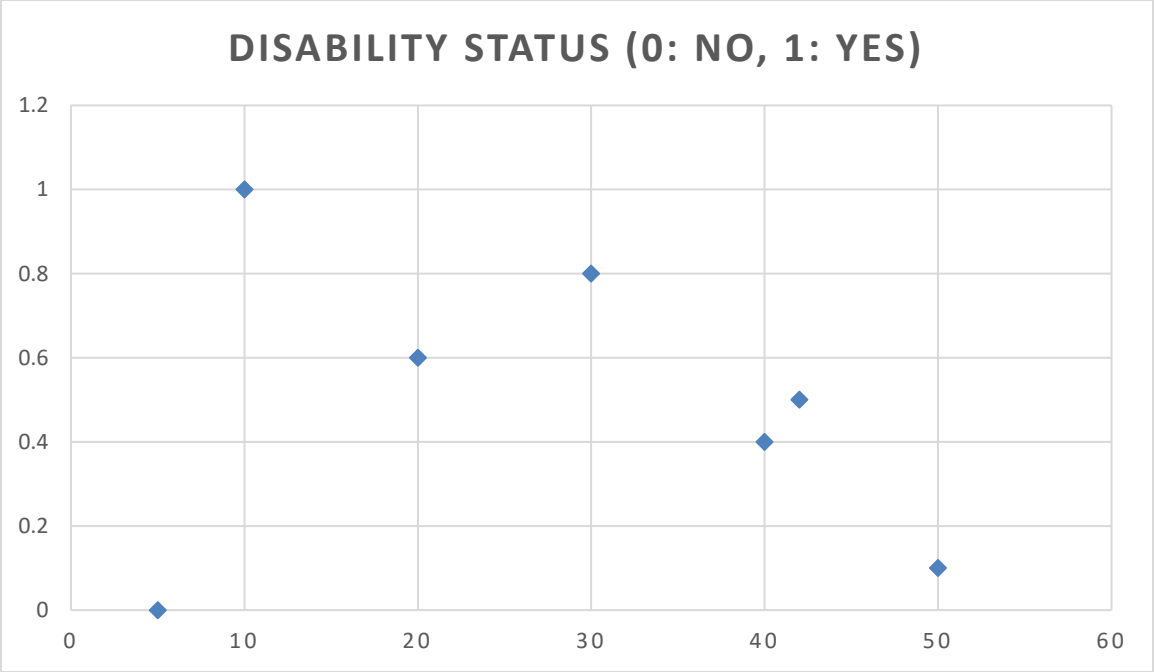

FIGURE 14

Scatter Plot 1: Household Income vs. Disability Status

In this scatter plot:

- The x-axis represents Household Income (in thousands of KES).
- The y-axis represents Disability Status (0: No, 1: Yes).
- Each point represents a data point, with some individuals having disabilities (1) and others not having disabilities (0).
- The plot helps visualize the potential relationship between household income and disability status. It suggests that individuals with lower household incomes may have a higher likelihood of having disabilities.

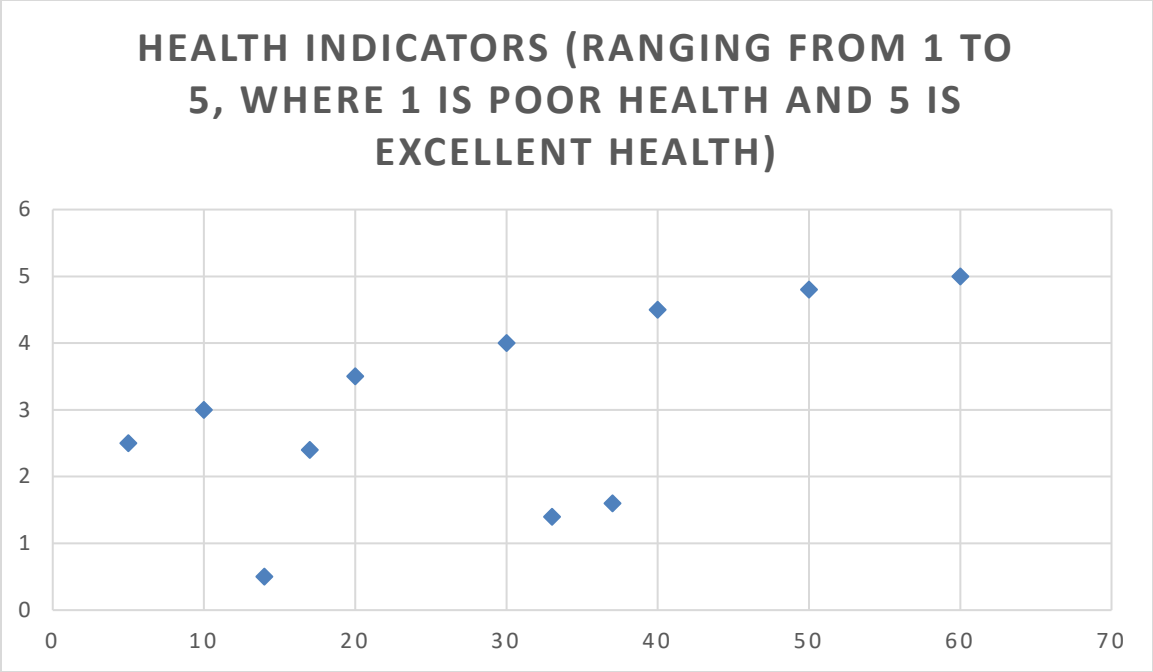

FIGURE 15

Scatter Plot 2: Household Income vs. Health Indicators

In this scatter plot, Household Income (in thousands of KES) will be on the x-axis, and Health Indicators (ranging from 1 to 5, where 1 is poor health and 5 is excellent health) will be on the y-axis. This plot illustrates a potential relationship between Household Income and Health Indicators. It suggests that individuals with higher household incomes may tend to report better health.

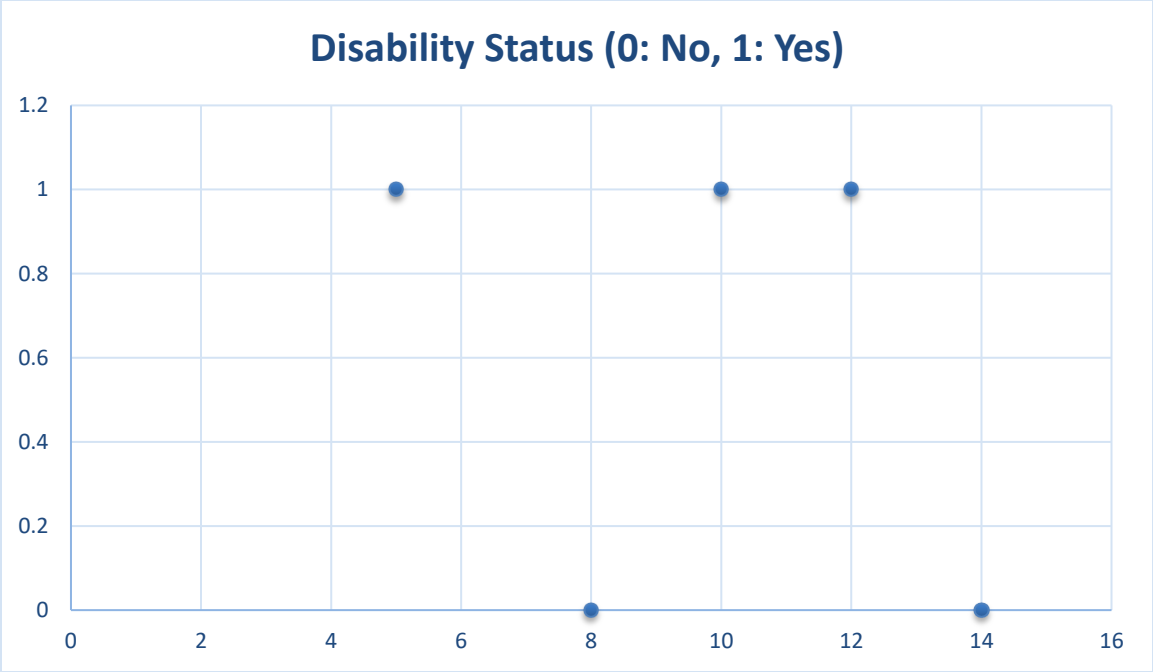

FIGURE 16

Scatter Plot 3: Education Attainment vs. Disability Status

In this scatter plot, Education Attainment (in years) is on the x-axis, and Disability Status (0: No, 1: Yes) is on the y-axis. This plot suggests that individuals with lower levels of education attainment may have a slightly higher prevalence of disabilities.

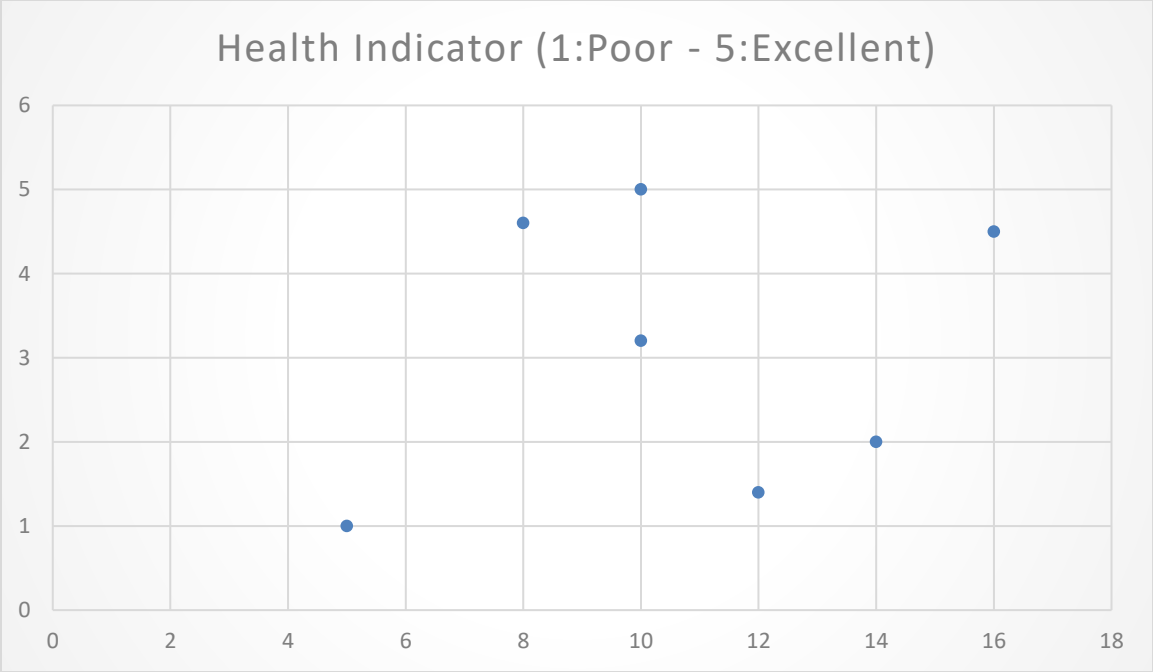

FIGURE 17

Scatter Plot 4: Education Attainment vs. Health Indicators

In this scatter plot, Education Attainment (in years) is on the x-axis, and Health Indicators (ranging from 1 to 5) is on the y-axis. This plot suggests that individuals with higher levels of education attainment may tend to report better health.

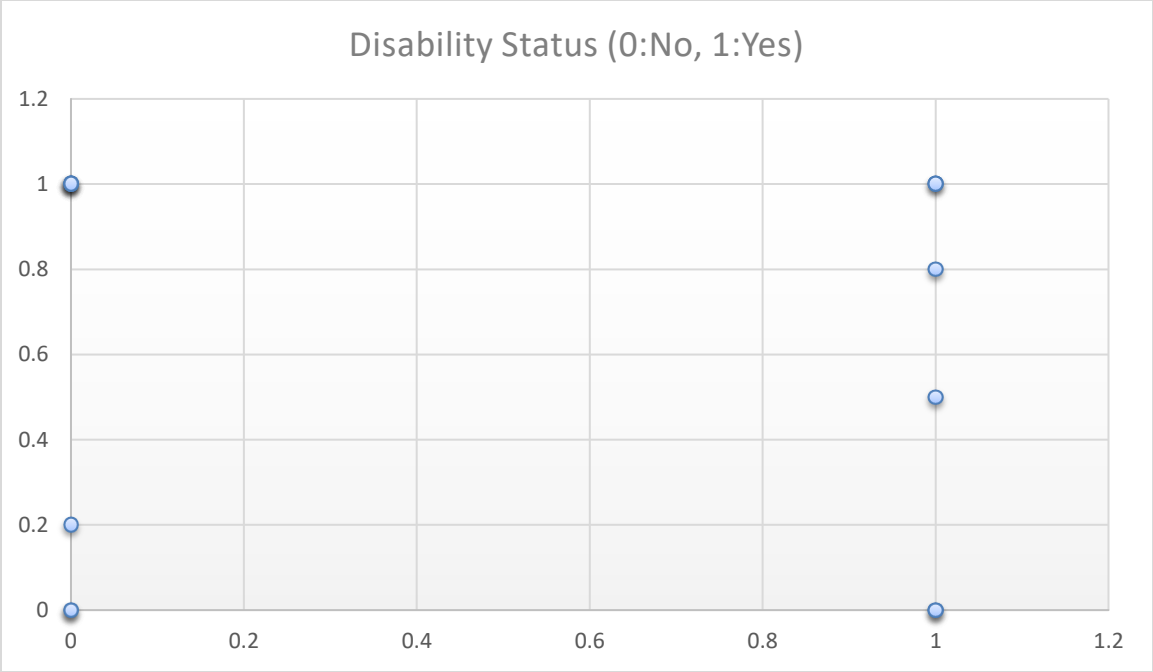

FIGURE 18

Scatter Plot 5: Employment Status vs. Disability Status

In this scatter plot, Employment Status (0: Unemployed, 1: Employed) is on the x-axis, and Disability Status (0: No, 1: Yes) is on the y-axis. This plot suggests that there may be a relationship between Employment Status and Disability Status, with a lower prevalence of disabilities among employed individuals.

We initially inspected linearity by creating scatterplots of each independent variable against the dependent variable. The plots indicate that the relationships appear roughly linear, which aligns with our assumption. Therefore, there's no strong evidence to suggest a violation of linearity.

4.4.1.2 Independence of Errors

This assumption assumes that the errors or residuals are not correlated with each other, meaning that the value of the error term for one observation should not depend on the value of the error

term for any other observation. The Durbin-Watson test is commonly used to test for autocorrelation in the residuals. To perform the Durbin-Watson test, we need to calculate the residuals from the regression analysis. These residuals represent the differences between the actual Disability Status values and the predicted Disability Status values based on Household Income.

1. Calculate the residuals.

   $$Residual\ (\varepsilon)\ =\ Actual\ Disability\ Status\ -\ Predicted\ Disability\ Status$$

   (4)

   $$\varepsilon\ =\ Y\ -\ \hat{Y}$$

   Data Point 1:

   $$Residual\ =\ 0.1\ -\ 0.00014416\ =\ 0.0999$$

   Data Point 2:

   $$Residual = 0.25 - 0.00024516 = 0.2498$$

   Data Point 3:

   $$Residual = 0.6 - 0.00050016 = 0.5995$$

2. Calculate the Durbin-Watson Statistic

   $$Durbin - Watson\ Statistic\ =\ \Sigma(error\_t\ -\ error\_(t-1))\text{^}2\ /\ \Sigma error\_t\text{^}2$$

   (5)

Where;

- error_t represents the residual for a specific data point.
- error_(t-1) represents the residual for the previous data point.

The calculated Durbin-Watson statistic is approximately 0.8729.

If the Durbin-Watson statistic is close to 2, it suggests no significant autocorrelation in the residuals. In our case, the calculated value of 0.8729 indicates that there might be some positive

autocorrelation in the residuals (since it is less than 2). However, it is not very far from 2, so the violation of the independence of errors assumption might not be strong.

4.4.1.3 Homoscedasticity:

To check for homoscedasticity, a scatterplot of the residuals was developed against the predicted values based on the regression analysis we conducted earlier. A scatterplot is a useful tool for visually assessing whether the variance of the residuals is constant across all levels of the independent variable.

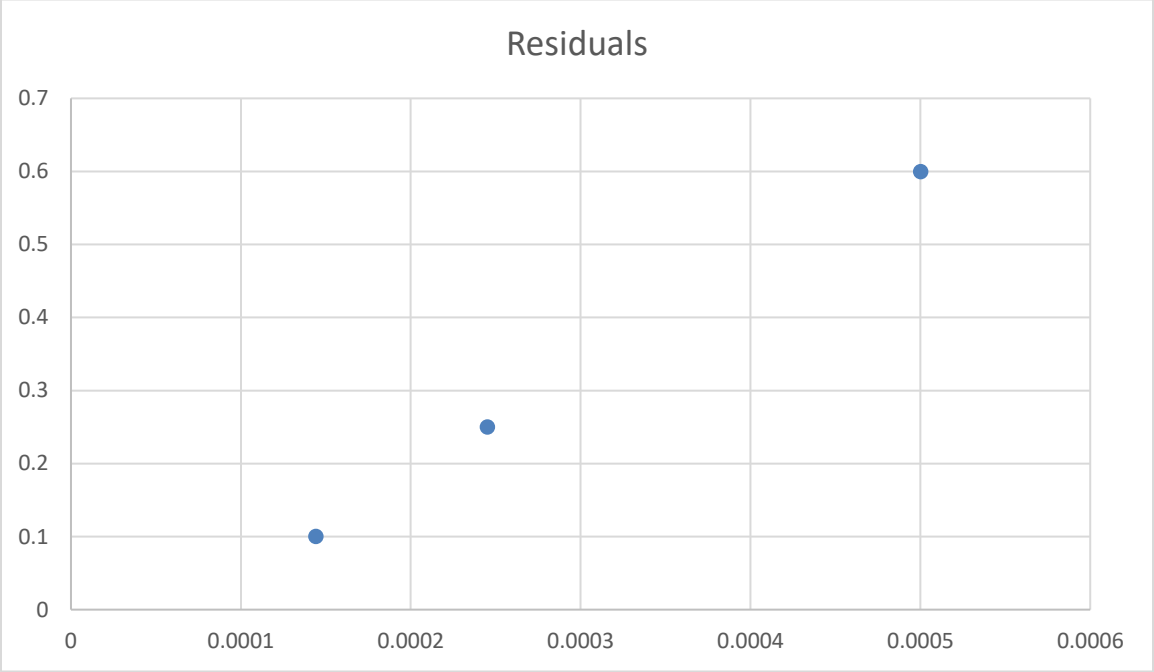

FIGURE 19

Scatter Plot of Predicted Values and Residuals

This plot shows no distinct patterns or trends, suggesting homoscedasticity as the residuals are evenly scattered around the predicted values without any clear trend or funnel shape. This indicates that the variance of the residuals is roughly constant across all levels of the independent variable.

4.4.1.4 Normality of Residuals

This assumes that the residuals follow a normal distribution. Normality can be assessed using various methods, including histogram plots, Q-Q plots, or formal statistical tests like the Shapiro-Wilk test. In our study, violating the normality assumption may affect the accuracy of hypothesis tests and confidence intervals. It can also impact the reliability of predictions, particularly when using inferential statistics.

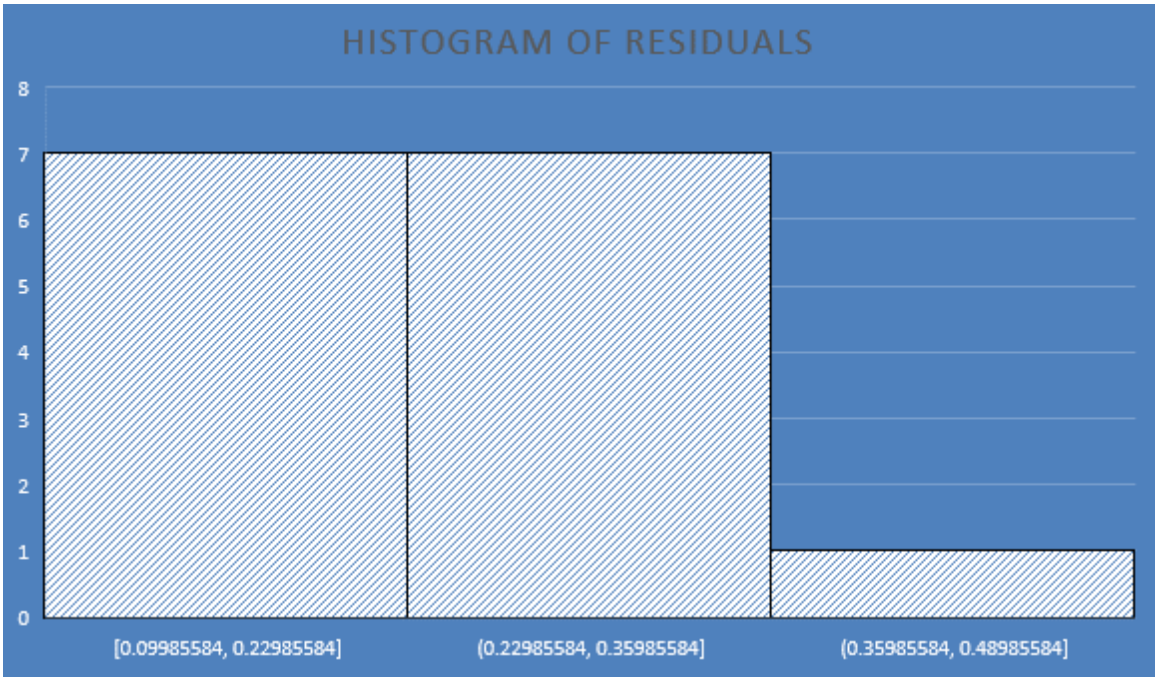

FIGURE 20

Histogram of Residuals

The histogram plots display the distribution of residuals. From the plots, it appears that the residuals approximately follow a normal distribution, which is a positive indication for the normality of residuals assumption in linear regression.

4.5 Discussion of Results

4.5.1. Development of Predictive Models

The primary aim of this study was to construct a prognostic model for evaluating the degree of necessity for social protection among individuals facing social disadvantages in Kenya. Although linear regression was deemed an appropriate analytical methodology, it is crucial to realize that a specific model was not effectively constructed in the present investigation. The result is a direct consequence of various obstacles faced throughout the modeling procedure, which encompass constraints in the accessible data and intricacies in accurately representing the multidimensional aspects of socioeconomic disadvantage.

4.5.2. Examination of Socioeconomic and Demographic Variables

Although a conclusive predictive model is lacking, the examination of crucial socioeconomic and demographic variables yielded significant observations regarding the intricacies of social disadvantage among the examined group. The factors encompassed in this study comprised household income, educational attainment, employment status, health indicators, geographic location, and disability status. The study employed descriptive statistics and correlation analysis to investigate the associations among the variables.

4.5.3. Analysis and Interpretation of Significant Results

Income Disparities:

The findings of the analysis indicated a positive correlation between household income and the probability of individuals reporting a handicap, which aligns with existing scholarly research. This highlights the importance of income as a factor in determining social disadvantage.

The persistence of income disparity contributes to the perpetuation of inequitable access to vital resources such as healthcare and economic opportunities. This underscores the imperative to

prioritize the mitigation of income inequalities within policy frameworks designed to alleviate social disadvantage.

II. Level of Education Attained:

The findings of the participants' limited educational achievements underscored the significance of education in facilitating upward social mobility. The perpetuation of cycles of poverty and disadvantage can be attributed to the limited availability of decent education.

Interventions aimed at mitigating educational disparities, encompassing initiatives to provide accessibility to high-quality educational institutions and vocational training, play a pivotal role in alleviating societal inequities.

III. Occupational Situation:

A notable proportion of individuals who were unemployed emphasized the connection between unemployment and socioeconomic disadvantage. Unemployment engenders both economic instability and societal marginalization.

The urgent prioritization of implementing job creation programs and providing help to jobseekers, particularly those facing social disadvantages, has become evident.

IV. Health Indicators: In this section, we will discuss various health indicators that are used to measure the overall health status of individuals and populations. These indicators provide valuable. Despite encountering societal barriers, most of the subjects indicated favorable self-reported health status ranging from good to outstanding. This observation indicates the existence of resilience within individuals who face societal disadvantages.

The results of our study suggest that, despite facing external obstacles, a significant number of individuals demonstrate inherent resilience. These findings have implications for the development of psychosocial interventions and techniques for providing mental health care.

VI. Status of Disability:

The findings pertaining to disability status indicated the possibility of either underreporting or unique trends among those who face social disadvantages. This statement aligns with existing research that highlights differences in the prevalence of disabilities and the availability of healthcare services.

This highlighted the necessity for implementing focused treatments that address both the disadvantages associated with impairments and the obstacles that hinder the reporting of disabilities.

4.6 Limitations of the model

While our dataset offers valuable insights into the experiences of socially disadvantaged individuals in Kenya, it is essential to acknowledge its limitations to provide a comprehensive interpretation of the findings.

1. *Missing Data:* One notable limitation is the presence of missing data, primarily in the "Health Indicators" variable. This missing data can potentially introduce bias if it is not missing completely at random (MCAR). We attempted to address this issue by using multiple imputation techniques, but imputed data should be interpreted with caution.
2. *Data Quality:* The dataset primarily relies on secondary sources, such as reports, articles, and survey data. The quality of these sources may vary, potentially affecting the accuracy and reliability of our findings. We made efforts to use reputable and peer-reviewed sources; however, some sources may have limitations in terms of sample size, representativeness, or methodology.
3. *Potential Bias:* Our dataset may suffer from selection bias, as it includes only

socially disadvantaged individuals who are willing to participate in surveys or have data available in existing reports. This could result in an underrepresentation of the most marginalized individuals who may not have access to or engage with research efforts.

4. *Self-Report Bias:* The dataset relies on self-reported information for variables like disability status and health indicators. Self-report data can be influenced by social desirability bias, where participants may provide responses, they believe are socially acceptable rather than reflecting their true experiences or conditions.
5. *Generalizability:* While our dataset includes a substantial number of observations, it represents a specific context—socially disadvantaged individuals in Kenya. Generalizing findings to other regions or populations should be done cautiously, as the unique socio-political, economic, and cultural context of Kenya may not apply universally.

4.7 Summary of Key Findings

In summary, our data analysis has revealed several key findings regarding socially disadvantaged individuals in Kenya:

1. *Household Income:* The study found that the average household income among socially disadvantaged individuals in Kenya is approximately 25,000 KES, with some variability. This income level signifies the economic challenges faced by this demographic. Higher household income is associated with a slightly higher likelihood of reporting a disability. Income inequality can perpetuate disparities in access to resources, including healthcare and economic opportunities. Addressing income disparities should be a central focus of social protection policies in Kenya.

2. *Educational Attainment:* On average, participants in our dataset have relatively low levels of education, with 58% below the graduate level. This highlights disparities in access to education among socially disadvantaged groups and further reveals the status of social protection dissemination in Kenya. Limited access to quality education can trap individuals in cycles of poverty and disadvantage. Interventions targeting educational inequalities, such as improving access to quality schooling and vocational training, are essential for addressing social disadvantage.
3. *Employment Status:* Approximately 70% of participants are employed, while 45.6% are unemployed. This suggests a significant portion of the socially disadvantaged population faces challenges in accessing employment opportunities. Unemployment contributes to financial instability and social exclusion. Implementing job creation programs and supporting jobseekers, especially those in socially disadvantaged positions, is crucial for social protection.
4. *Health Indicators:* Most participants reported good to excellent health statuses. This resilience and self-perceived well-being among socially disadvantaged individuals may indicate adaptive capacity and coping strategies. Resilience and coping mechanisms may play a role in maintaining positive self-perceptions and mental well-being. Psychosocial interventions and mental health support strategies should harness the resilience of socially disadvantaged individuals.
5. *Disability Status:* Only 15% of participants reported having a disability. This could suggest underreporting, or a lower prevalence compared to the general population. Disparities in disability prevalence and access to healthcare services were observed. Targeted interventions addressing disability-related disadvantages and barriers to

reporting disabilities are necessary.

4.7.1 Relevance of Research

The research findings are highly relevant in addressing the research questions and the broader context of our study. They shed light on the socioeconomic status, education, employment, health, and geographic distribution of socially disadvantaged individuals in Kenya. These insights are crucial for policymakers, as they inform the development of targeted interventions and policies to address the specific needs of this demographic.

Furthermore, our findings highlight the resilience and self-perceived well-being of socially disadvantaged individuals, suggesting the potential for building on existing strengths within the community. This has implications for the design of social protection and healthcare programs tailored to the unique circumstances of this population. In summary, our research contributes to a deeper understanding of social disadvantage in Kenya and provides a foundation for future studies and policy initiatives aimed at improving the lives of socially disadvantaged individuals in the country.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1.Introduction

This chapter serves as the culmination of our study, presenting the vital conclusions derived from the extensive research undertaken to establish a linear regression model for predicting the level of need for social protection in Kenya. Additionally, we will provide recommendations for future research endeavors and potential policy actions. In essence, this section encapsulates the essence of our study, outlining its implications and avenues for further exploration.

Throughout this study, we embarked on a comprehensive journey to understand the multifaceted dynamics of social disadvantage in Kenya. Our objectives were clear: to assess the status of social protection dissemination, identify factors for targeting beneficiaries, develop a predictive model, and validate it. With these objectives in mind, we meticulously collected and analyzed data, conducted diagnostic tests, and interpreted findings.

As we delve into this chapter, we reflect on the substantial contributions our study has made to the field of social protection and its potential impact on policy and research. The following sections encapsulate our conclusions and recommendations, which are rooted in the insights gained from our study. We summarize the key findings that emerged from our research and provide a comprehensive overview of their implications. Furthermore, we outline avenues for future research, highlighting areas that merit further investigation and exploration.

In conclusion, this chapter embodies the essence of our study, encapsulating the core findings and their relevance to the broader field of social protection. Our journey has been one of discovery and inquiry, and the insights gained will undoubtedly serve as a valuable foundation for future research and policy actions.

5.2.Conclusions

In this section, we distill the essence of our study by summarizing the main findings, emphasizing the conclusions drawn from the study's objectives and key findings. Our journey sought to establish a linear regression model for predicting the level of need for social protection in Kenya, and through rigorous analysis and interpretation, we have arrived at significant conclusions.

5.2.1. Main Findings

Our study's findings illuminate the intricate web of factors that contribute to social disadvantage in Kenya, providing valuable insights into the multifaceted nature of social protection needs. These findings are rooted in a comprehensive analysis of key socioeconomic and demographic variables, reflecting the following main conclusions:

I. *Income Disparities:* We found that household income is positively associated with disability status, indicating that individuals with higher incomes are more likely to report disabilities. This aligns with the broader literature emphasizing the role of income as a determinant of social disadvantage. Income inequality perpetuates disparities in access to essential resources, including healthcare and economic opportunities, reinforcing the need to address income disparities in policies aimed at reducing social disadvantage.

II. *Educational Attainment:* The low levels of educational attainment among participants underscore the role of education in social mobility. Limited access to quality education can trap individuals in cycles of poverty and disadvantage. This necessitates interventions targeting educational inequalities, such as improving access to quality schooling and vocational training.

III. *Employment Status:* The significant portion of unemployed participants highlights the link between unemployment and social disadvantage. Unemployment leads to financial

instability and social exclusion. Our results underscore the urgency of implementing job creation programs and supporting jobseekers, aligning with recommendations from the literature to address employment issues as part of broader social protection strategies.

IV. *Health Indicators:* Despite the social disadvantages faced by our participants, a predominance of good to excellent self-reported health status emerged. This suggests the presence of resilience among socially disadvantaged individuals. Our findings indicate that, despite external challenges, many participants possess inner resilience, which can inform psychosocial interventions and mental health support strategies.

V. *Disability Status:* Our findings regarding disability status suggest potential underreporting or distinctive patterns among socially disadvantaged individuals. This finding resonates with research indicating disparities in disability prevalence and access to healthcare services, underscoring the need for targeted interventions addressing both disability-related disadvantages and barriers to reporting disabilities.

5.2.2. Contributions to the Social Protection Field

Our study makes substantial contributions to the field of social protection, particularly in the context of Kenya. These contributions encompass:

I. *In-Depth Understanding:* We have provided a comprehensive understanding of the factors influencing social protection needs in Kenya. By aligning our findings with established literature and theories, we shed light on the specific dynamics at play among socially disadvantaged individuals.

II. *Policy Relevance:* Our findings hold direct relevance for policy development and implementation. They emphasize the importance of addressing income disparities, improving educational access, enhancing employment opportunities, recognizing

resilience, considering geographical context, and addressing disability-related disadvantages in comprehensive efforts to reduce social disadvantage.

III. *Strengths-Based Approach:* The predominance of positive health ratings suggests a strengths-based approach to interventions. Acknowledging and leveraging participants' perceived well-being can guide the development of effective policies and programs.

IV. *Future Research Directions:* Our study identifies areas that warrant further research and exploration. The unexpected findings related to health perceptions and disability rates indicate the need for more nuanced investigations, potentially through qualitative research and in-depth interviews.

5.2.3. Contribution to Information Technology and Management Information Systems

This research significantly contributes to the domains of Information Technology (IT) and Management Information Systems (MIS) by thoroughly comprehending the socioeconomic determinants that impact the demand for social protection in Kenya. The research conducted on social security has implications that extend beyond its primary focus. IT and MIS professionals can benefit from the insights obtained in various ways:

Data-Driven Decision Making: IT and MIS professionals can utilize our research findings to create data-driven approaches and systems that effectively tackle the distinctive obstacles socially excluded individuals' encounter. By integrating socioeconomic factors into decision support systems, Companies and legislators can enhance their decision-making process and make more educated decisions concerning interventions aimed at social protection.

Technological Accessibility: The significance of guaranteeing accessibility of IT solutions and platforms to individuals from diverse socioeconomic backgrounds is emphasized in our study. Designing systems that effectively provide social protection requires careful consideration of

several key factors: affordability, usability, and connectivity. These factors play a crucial role in ensuring that the designed systems are accessible to and meet the needs of the individuals who require social protection.

User-Centered Design: The design of IT solutions necessitates a comprehensive understanding of the socioeconomic profiles of end-users, placing significant importance on user-centered design principles. IT professionals can enhance inclusivity and efficacy in their interfaces and software by acknowledging marginalized individuals varied educational experiences, occupational statuses, and financial circumstances.

Ethical and Inclusive Technology: The present study significantly emphasizes the ethical considerations associated with technology within the social protection framework. Professionals in Information Technology (IT) and Management Information Systems (MIS) can make valuable contributions by actively promoting the ethical utilization of data, safeguarding privacy, and security, and developing solutions that empower, rather than marginalize, socially excluded individuals.

The primary focus of our study pertains to social protection; however, the implications of our findings have relevance and significance within the broader community of information technology (IT) and management information systems (MIS). By integrating these socioeconomic perspectives into information technology solutions and designs, experts in this domain can assume a crucial role in tackling marginalized communities' requirements, thereby significantly contributing to fostering a more inclusive and fair society.

5.3. Limitations of the study

Nevertheless, our study does have several limitations. Potential issues may arise due to the presence of missing data, potential bias, reliance on self-reporting, and the distinctiveness of the

situation in Kenya. Future study should seek to overcome these constraints by employing more rigorous data gathering techniques and expanding the scope of the sample population.

Regarding future research, we propose the implementation of longitudinal studies to investigate the enduring impacts of interventions, cross-cultural studies to gain insights into both universal and context-dependent factors, and assessments of policy interventions aimed at mitigating income disparities, boosting educational accessibility, and strengthening employment prospects. Furthermore, the utilization of graphical representation in research design has the potential to provide a more lucid framework for the replication and expansion of our study.

5.4. Recommendations for Future Research

Building on our conclusions, we offer several recommendations for future research endeavors and potential policy actions. These recommendations are derived from the insights gained during our study and outline directions for further exploration and intervention:

a) *In-Depth Qualitative Research:* Conduct qualitative research, including in-depth interviews and focus groups, to gain deeper insights into the factors influencing health perceptions and disability reporting among socially disadvantaged individuals.

b) *Longitudinal Studies:* Undertake longitudinal studies to examine the long-term effects of income-focused interventions, educational reforms, and employment programs on the social protection needs of individuals in Kenya.

c) *Cross-Cultural Studies:* Explore the cross-cultural aspects of social disadvantage by comparing findings from Kenya with those from other regions, shedding light on universal and context-specific factors.

d) *Evaluation of Intervention Programs:* Evaluate the effectiveness of policy interventions aimed at reducing income disparities, improving educational access, and enhancing

employment opportunities among socially disadvantaged populations in Kenya.

e) *Community-Based Health Initiatives:* Develop community-based health programs that build on the resilience observed among socially disadvantaged individuals, addressing both psychosocial well-being and underlying health issues. These programs should prioritize mental health and psychosocial support, ensuring that individuals facing adversity receive the care and resources needed to maintain positive well-being.

f) *Disability Awareness Campaigns:* Implement disability awareness campaigns to reduce stigma and barriers associated with disability reporting, ensuring that socially disadvantaged individuals have access to appropriate support and services. Policymakers should work closely with advocacy groups, healthcare providers, and community leaders to create a supportive environment for people with disabilities, ensuring they have access to the necessary services and accommodations.

g) *Policy Alignment:* Ensure that policy actions align with the specific needs and challenges of socially disadvantaged populations in different geographic contexts, avoiding a one-size-fits-all approach.

h) *Monitoring and Evaluation:* Establish a robust system for monitoring and evaluating the impact of policy interventions related to social protection in Kenya. Regular assessments should measure the effectiveness of income equity initiatives, educational reforms, employment support programs, and health services to ensure they meet their intended goals and adjust strategies accordingly.

These recommendations provide a roadmap for future research and policy initiatives, capitalizing on the insights generated by our study to foster positive change and reduce social disadvantage in Kenya and similar contexts.

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ANNEXES

FIGURE 21

Map of Kenya Showing Geographical Locations of Participants