

**EFFECT OF CASH TRANSFERS ON ACHIEVEMENT OF SELECTED  
SUSTAINABLE DEVELOPMENT GOALS AMONG FEMALE-HEADED  
HOUSEHOLDS IN SIAYA COUNTY, KENYA**

**BY**

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## DECLARATION

### Declaration by the student

I declare that this thesis is my original work and has not been presented for a degree in any other university or for any award.

Sign

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## **DEDICATION**

This work is dedicated to the late Dr. Francis K'opondo and the late Francis.

## **ACKNOWLEDGEMENT**

I wish to thank God for His provision and the opportunity to go through the course in good health.

My gratitude goes to my supervisors, Dr Destaings Nyongesa and Dr. Scholastica Odhiambo for their advice and guidance in the various stages of this project.

My special gratitude to my family for bearing with me during my studies.

May God bless you all.

## ABSTRACT

Poverty, hunger and lack of access to clean water and sanitation is high among developing economies derailing achievement of Sustainable Development Goals. Cash transfers provide social protection to the vulnerable. Kenya's Inua Jamii programme issues CTs to Orphans and Vulnerable children, Persons living with Severe Disability and Old Persons. The main objective of this study was to establish the effect of cash transfers on achievement of selected SDGs among female-headed households in Siaya County. The three specific objectives were to determine the effect of cash transfers on poverty reduction, hunger reduction and increasing access to clean water and sanitation among female-headed households in Siaya County. Numerous literature on cash transfers and SDGs among female-headed households point towards a significant effect of CTs on reducing poverty, reducing hunger and improving access to clean water and sanitation. The study was founded on the Household Welfare Theory which suggests income and consumption as the best measurements of household welfare. The target population was 109,680 female-headed households in Siaya County and sample size of 399 FHHs using the Yamane formula. A correlational design was adopted to study the relationship between cash transfers and SDGs. Data was collected using a structured interview schedule. Reliability and validity of data instruments was tested during the pilot study and results found to be consistent with final study. A binary logit regression analysis of data collected revealed that increasing cash transfer by 1% had a significant negative effect on poverty rate by 1.58%. The coefficient of income was **(-0.686)** with p value of **(0.01)**. Consumption had no significant effect on poverty reduction. The second objective analysed cash transfer to have a coefficient **(-1.212)** and p value **(0.004)**. Increasing cash transfer among by 1% significantly reduces probability of a FHH experiencing hunger by 1.2%. More frequency of meals and balanced diet in the household reduces hunger level. On the third objective, the positive coefficients of cash transfers **(1.196)**, source of water and proper sanitation **(2.703)** prove that the increasing cash transfers by 1% increased access to clean water and sanitation by 1.196% and 2.703% respectively. Conclusion was drawn that cash transfers had a significant effect on overall achievement of SDGs and further study can be done on nutritional outcomes. The study recommended more targeted approach in inclusion of female-headed households with special consideration to household size. Other interventions can also be used to have far reaching effects of cash transfers on reducing hunger and access to water and sanitation health.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>ASAL</b>	Arid and Semi-Arid Land
<b>CCT</b>	Conditional Cash Transfer
<b>CT</b>	Cash Transfer
<b>CTP</b>	Cash Transfer Programme
<b>FHH</b>	Female-Headed Household
<b>IJCT</b>	Inua Jamii Cash Transfer
<b>MDGs</b>	Millennium Development Goals
<b>OP-CT</b>	Old Persons Cash Transfer
<b>OVC-CT</b>	Orphans and Vulnerable Children Cash Transfer
<b>PWSD-CT</b>	Persons Living with Severe Disability Cash Transfer
<b>SDGs</b>	Sustainable Development Goals
<b>UCT</b>	Unconditional Cash Transfer
<b>UN</b>	United Nations
<b>WASH</b>	Water and Sanitation Hygiene

## OPERATIONAL DEFINITION OF TERMS

**Cash transfer** - Cash hand out given directly to eligible people who are at risk of falling into poverty without the transfer

**Inua Jamii cash transfer**- The largest cash transfer programme funded by the government of Kenya to orphans & vulnerable children, persons living with disability and old persons

**Female-headed household**- A household in which the sole decision-maker is a woman

**Hunger**-A situation of lower daily energy supply than required for a healthy body

**Poverty**- The state of lacking, when people's basic needs are not being met

**Water and Sanitation Hygiene**- Process of making water clean and safe for use, access to and use of basic toilets, and good hygiene practices such as handwashing with soap

**Sustainable development**- Human development that meets current needs of without compromising future needs.

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Poverty denies one access to basic human needs like food and clean water, hindering quality living standards vital for significant economic development (Dauda, 2017). Upon the expiry of Millennium Development Goals (MDGs) in 2015, 17 Sustainable Development Goals (SDGs) were adopted (Morton, Pencheon, & Squires, 2017). The SDGs include life below water, climate action, life on land, gender equality, zero poverty, good health, zero hunger, quality education, clean water and sanitation, clean energy, reduced inequality, decent work, innovation, sustainable cities, responsible consumption and production, partnerships, peace and justice. SDGs centred on human capital development through partnerships to address inequality, promote economic development and preserve the environment (Sachs, 2012). Studies on SDGs disclose that goals targeting poverty and hunger eradication have a greater impact but lack of political goodwill and sufficient financial support have been the main impediment to the continuance of environmental policies (Hull, Robertson, & Mortimer, 2020).

The eight inter-dependent Millennium Development Goals were established by member states of the United Nations in 2000 to exterminate poverty & hunger, reduce gender inequality, enable universal education and combat HIV/AIDS among other targets (Wysokińska, 2017). The MDGs focused mainly on developing countries and were heavily funded by developed countries. They achieved 50% percent reduced poverty, improved sanitation and increased development partnerships (Gaspar, Amaglobeli, Garcia-Escribano, Prady, & Soto, 2019). Globally, high-income countries such as Sweden score well on the Sustainable Development Goals economic progress index while low-income countries have a low score in all SDGs generally (Andrea, 2018).

Poverty is the inability to meet one's basic needs due to factors such as lack of income often requiring government intervention through welfare programmes (World Bank, 2022). Statistics from the 2018 Borgen Project show that despite great progress in eradicating poverty, 1 in every 10 people is still living below the global monetary threshold of 2.15 dollars a day. Further, Andrea (2017) notes that the realization of the zero-poverty target by 2030 needs a better strategy that will reach all poor households

in rural areas and prevent those that have emerged out of poverty from relapsing. In Kenya, female headed households have higher poverty headcount rates (38.8%) compared to male headed households (32.7%). Rural female headed households had the highest poverty rate at 42.5 per cent compared to 31.9 per cent in urban female headed households. Siaya County reported a 34.2% poverty level of its population (KNBS 2021).

The World Health Organization defines hunger as the inadequacy of a diet to sustain good health and normal activity, growth, and development among individuals. One in every 9 people is food insecure and most likely to be female (WHO, 2018). Gendered poverty exists and women are more affected by resource constraints, unemployment and gender-based violence than men (Julka & Das, 2015). More interventions are required to counter hunger and malnutrition, especially among children.

Nearly 785 million people globally do not have safe drinking water nor proper sanitation (WHO, 2018). Sixty-four percent of Kenyans in the rural areas use a non-improved toilet and only 6.8% of Siaya County's population has access to piped water (Kenya Economic Survey, 2022). Clean water and sanitation reduces incidence of disease, promotes good health and reduces poverty. Proper sanitation also restores the dignity of more so women and girls.

Boccia, *et al.*, (2016) define cash transfers as social protection initiatives that provide income to the poor to reduce their economic vulnerability and create an enabling environment to flourish from birth to old age. Without money constraints, households can purchase or produce a variety of foods and increase food security and quality (Tirivayi, Knowles, & Davis, 2016). Cash transfers have gained prominence in emerging economies as an effective means to tackle poverty and hunger at the household level which can help achieve Sustainable Development Goals (Kirera, 2012).

The *Pantawid Pamilyang Pilipino Program* in the Philippines cushions vulnerable households through the provision of conditional grants and boasts of a yearly poverty reduction rate of 1.4% (Amerjaphil, San-Pedro, & Mildred, 2018). In Mexico, Orozco & Gammage (2017) assert that cash transfers to women and girls are a means of

alleviating poverty through employment or providing sustainable livelihood to vulnerable women. In Sub-Saharan Africa, majority of cash transfers focus on hunger alleviation and food security (Hjelm, 2016) mainly due to instances of drought, floods and other climatic problems. In Malawi for instance, Bhalla, Handa, Angeles, and Seidenfeld (2018) contend that cash transfer programs significantly influenced the quality of diet and reduced stunted growth among children. South Africa's long apartheid rule which was advantageous to their social welfare system, greatly reduced poverty, increased child literacy and education level (Graven, 2014). Migwi (2017) found that cash transfer given to urban poor women in Nairobi, Kenya enabled them to save and invest towards achievement of other Sustainable Development Goals not just reducing poverty.

The ailing elements of social protection in the society set the stage for the enactment of Kenya's social transfer policy. The Orphans and Vulnerable Children Cash transfers (OVC-CT) was therefore introduced in 2004 guided by the constitution which accords every Kenyan the right to basic needs and social security (Constitution of Kenya, 2010). The objective was to retain orphans and vulnerable children in a family set-up and prepare them for prosperity (Omolo, 2017). The pilot program was rolled out among 500 households in former Kwale, Nairobi and Garissa districts with each beneficiary receiving Kshs.500 monthly. The cash transfer later extended in 2006, to non-pensionable old persons who are more than 65 years of age in 2007, Persons Living with Severe Disability-CT (PWSD-CT) in 2010 and finally became a universal programme in 2017. Currently, about 1,094,372 households are supported across the 47 counties with beneficiaries receiving 2,000 shillings per month up from Ksh.1500 in 2010 (Omolo, 2017). Beneficiary households have been reported to eat more balanced, frequent meals and their children are less absent from school (Roger, 2009). Increased income also promotes women to the centre of decision-making in the household and improves their livelihoods (Lawless, et al., 2019).

Literature on cash transfers and sustainable development goals give varied views though pointing to the same outcomes. Ervin, et al., (2017) through baseline data and a randomized control trial method found that in Zambia, cash transfers increased consumption and food security among households. In Uganda, Blattman, Fiala, & Martinez (2020) also carried out a random evaluation of the impact of social grants on

young people of 16-35 years old and determined that cash grants stimulated them to acquire skills and kick-start self-employment. Haushofer & Shapiro, (2016) through a randomized clinical trial, observed households' responses to unconditional transfer programs in Kenya. The evidence revealed that although recipient's gender did not matter, there was a more notable footprint on female recipients. Most studies on cash transfers employ a randomized control trial research design. The covid-19 pandemic further unfolded that poverty, hunger and weak health systems are a major crisis. Improving access to clean water and sanitation requires more global cooperation (WHO, 2020). Continuing studies by WHO emphasize that to achieve the SDGs; environmental protection, social inclusion and economic growth are the key dimensions to focus on.

The Government of Kenya has 4 nationwide cash transfers namely the Old Persons-Cash Transfer, Cash Transfer for Orphans and Vulnerable Children, Persons With Severe Disability-Cash Transfer and the Hunger Safety Net Programme for ASAL areas (Kenya National Social Protection Policy 2011). The Inua Jamii Cash Transfer Programme which is the umbrella for the OVC-CT, OP-CT and PWSD-CT is the largest and most universal program and the focus of this study. Before cash transfers, the annual progress report of 2004/2005 reported Kenya's population at 35 million, 5.8% inflation rate and only 53% of rural population had access to safe water, HIV prevalence was at 10.2%. Extreme poverty was reported among 17% of the population with an overall 46.8% being below the poverty line. 4.2% of children were severely malnourished and 15.4% of the general population considered to be at risk of extreme hunger. Ten years after the introduction of cash transfers, the annual progress report 2014/2015 showed inflation at 7.39%. 11% of children were underweight, 57% of rural population had access to improved water source and 21.6% improved sanitation facility. The poverty line was at 36.1% of the population. The Kenya Poverty Report of 2021 signals cash transfer program design challenges, technical and financial issues hampering implementation and insufficient statistics for more coverage and inclusion of beneficiaries especially in the rural areas. The monthly pay out has also not been reviewed since 2010 to account for the high cost of living and population pressure. These challenges slow the achievement of the SDG -2030 agenda. The main objective of this study focuses on the Inua Jamii cash transfer program as an intervention to steadily reduce poverty, reduce hunger and increase



access to clean water and sanitation among female-headed households in Siaya County.

## **1.2 Statement of the Problem**

Poverty curtails access to basic needs and brings on extreme hunger. Hunger weakens the body and increases morbidity lowering economic productivity. Poor diet hampers proper development especially among children. Inadequate access to safe water, improved sanitation and clean energy breeds illness causing high health care costs and reduced life expectancy for socio-economic participation. Poverty, hunger and lack of access to clean water and proper sanitation prevents households from attaining sustainable development especially female-headed households (Elum, 2021). The HIV/AIDS pandemic in Siaya County aggravates poverty and dependence levels in the county as the prevalence is 13.17% versus the national prevalence of 3.67%, likewise, female prevalence was 17.54% against male prevalence of 9.63% (Kenya HIV Estimates 2022). Poverty level was 38.6% nationally, Siaya County has a high poverty index of 47.56% and no significant manufacturing activities hence low absorption of rural labour. With 38.8% female-headed households, 42.5 % of the FHHs are living in the rural areas and facing socio-cultural and economic discrimination (KNBS Kenya Poverty Report 2021). Proper targeting of the Inua Jamii cash transfer can enable female-headed households achieve sustainability. Women are traditionally the primary caregivers, producers and processors of food for the household. Poverty is closely related to whether people get enough to eat, economic policies that foster growth will raise the nutritional status of the poor and eliminate hunger. The study, therefore, sought to establish the effect of cash transfers on achievement of selected sustainable development goals among female headed-households in Siaya County, Kenya.

## **1.3 Objectives of the Study**

### **1.3.1 Main Objective**

To establish the effect of cash transfers on the achievement of selected Sustainable Development Goals among female-headed households in Siaya County, Kenya.

### **1.3.2 Specific Objectives**

- i. To establish the effect of cash transfers on reducing poverty among female-headed households in Siaya County.
- ii. To determine the effect of cash transfers on reducing hunger among female-headed households in Siaya County.
- iii. To investigate the effect of cash transfers on increasing access to clean water and sanitation among female-headed households in Siaya County.

### **1.4 Research Hypotheses**

1.  $H_0$ : Cash transfers have no significant effect on poverty reduction in female-headed households.
2.  $H_0$ : Cash transfers have no significant effect on reduced hunger in female-headed households.
3.  $H_0$ : Cash transfers have no significant effect on improving access to clean water and sanitation in female-headed households.

### **1.5 Justification of the Study**

The study's main objective was to determine the effect of cash transfers in reducing poverty, reducing hunger and increasing access to clean water and sanitation sustainable development goals agenda of 2030, with female-headed households as the vulnerable group. Discriminatory access to finance, cultural limitations to inheritance and labour market hampers women's engagement in economic activities and entrepreneurial potential especially in the rural areas (UNCTAD, 2018). Siaya County represents a rural area with a higher female population facing similar challenges, therefore empowerment of women can sustainably revolutionize rural economies. Many rural women spend a substantial amount of time collecting water, improving access to clean and safe water through targeted interventions would allow more time for productive work (UNCTAD, 2018). Population in Siaya County is rapidly growing, food production is on the decline and there is high water scarcity and has a more female than male population (KNBS, 2019). These factors cause high rates of poverty, hunger and lack of access to clean water and sanitation among the population which 90% lives in rural areas (KNBS, 2019). The study intended to address the inequality through cash transfer to enable the SDGs of zero poverty, zero hunger and clean water and sanitation health to be achieved among FHHs in the county.

### **1.6 Significance of the Study**

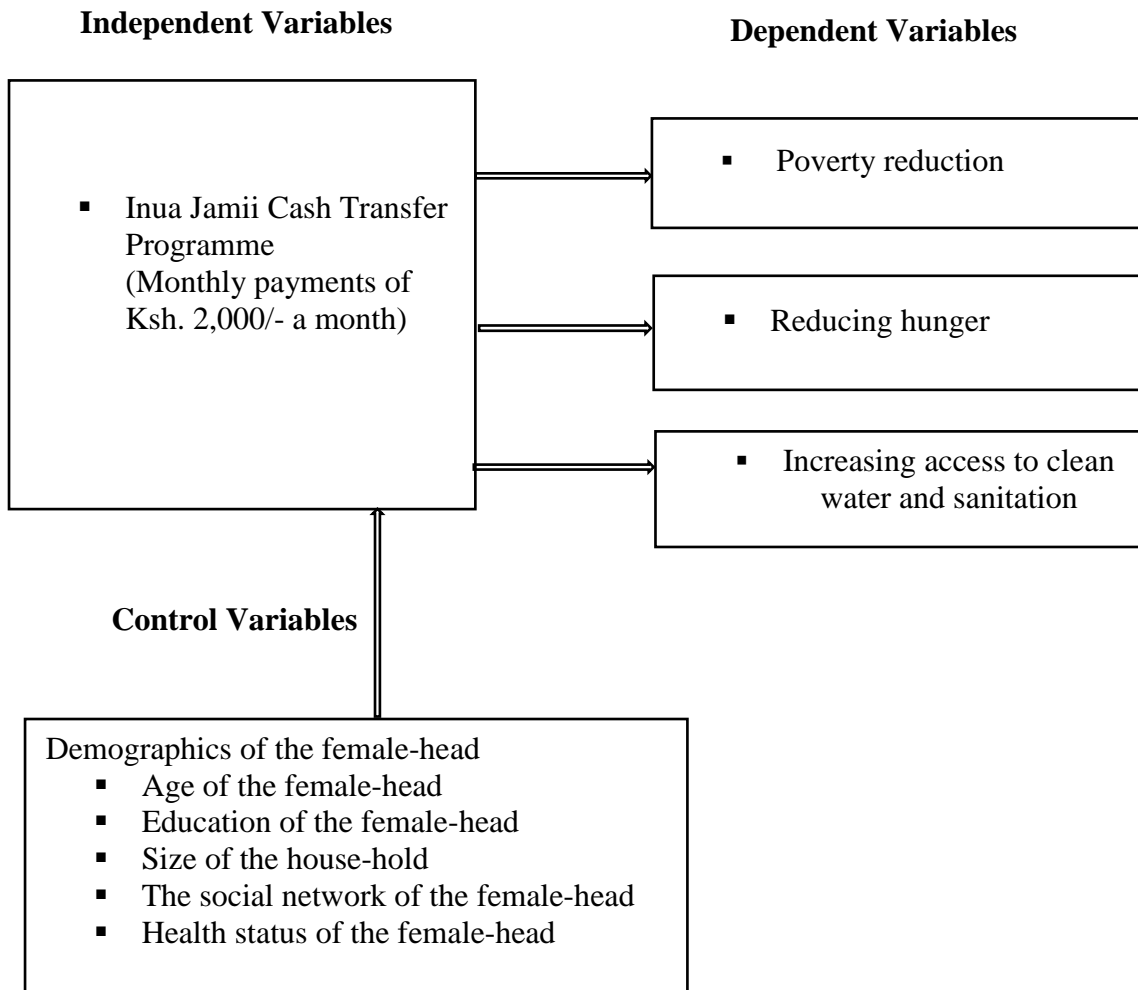
Kenya's commitment to Sustainable Development Goals is hampered by the fact that there are 17 goals to be attained. There is need for fewer, achievable targets. Data collected provides information for policymakers to improve the implementation of existing programmes towards the achievement of SDGs. The study reduces international research gap by offering new findings from a different country concerning SDGs. Knowledge explorers in learning institutions can make use of the findings as they would be available in learning avenues. The study hopes to assist in formulating policies to uplift vulnerable female-headed households in the county.

### **1.7 Scope of the Study**

The area of study was the six sub counties of Siaya County and focused on female-headed households with children or dependants across the sub-counties. This was due to time and financial implications.

### **1.8 Conceptual Framework**

A conceptual framework graphically summarizes the objectives and how the independent variables are expected to influence the dependent variables of the study. Cash transfers are treated as a form of social assistance to vulnerable individual households, enhances their resilience and influences their decision on consumption and expenditure (Devereux & Sabates Wheeler, 2004). The study expects that providing cash transfer to the female-headed household will increase income hence food consumption, non-food consumption and improve access to clean water and sanitation practices. By connecting selected research questions and theory, the study is built on the hypothesis that providing regular cash transfers to vulnerable female-headed households can potentially reduce poverty and reduce hunger in their household and increase access to clean water and sanitation.



**Figure 2.1: Conceptual Framework Showing Influence of Cash Transfers Source (Research objectives)**

**Table 1.0: Operational Definition of Variables**

<b>Variable</b>	<b>Description</b>
<b>Independent variable</b> Inua Jamii cash transfer	Monthly pay-out of the cash transfer
<b>Dependent variable</b> Poverty	<ul style="list-style-type: none"> <li>• Income of the household</li> <li>• Consumption of the household</li> </ul>
<b>Dependent variable</b> Hunger	<ul style="list-style-type: none"> <li>• Frequency of meals in the household</li> <li>• Diversity of the diet of the household</li> </ul>
<b>Dependent variable</b> Access to clean water and sanitation	<ul style="list-style-type: none"> <li>• Source of water for all use by the household</li> <li>• Type of housing/presence of toilet in the home</li> <li>• Water storage capacity for the household</li> </ul>
<b>Intervening variables</b> Size of household Education level of female-head Age of female-head Social networks of female-head Coping mechanism for food scarcity	<ul style="list-style-type: none"> <li>• Members of the household</li> <li>• School level</li> <li>• Years of age of respondent</li> <li>• Belonging to any social groups</li> <li>• Alternatives to food insecurity</li> </ul>

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter appraises various literature on the impact of cash transfers on the achievement of Sustainable Development Goals among female-headed households. The chapter reviews the household welfare theory which gives a foundation of the study and various empirical literature on the same.

#### **2.2 Theoretical Literature**

The study adopted household welfare theory that is based on household income and consumption-based decisions.

##### **2.2.1 Household Welfare Theory**

The study was structured on the household welfare theory founded by Angus Deaton in 1989. The basic assumption of the theory is that the basic decision making unit in society is the household and consumption of goods and services is the main determinant of household welfare (Deaton, 1989). The theory suggests that consumption and expenditure data can be used to analyze the welfare of the poor and socio-economic policies can use household income to influence household welfare. He pioneered the use of household surveys in measuring living standards in low income countries. The main limitation of this theory is that measuring household welfare in terms of access to basic services only is not ideal because other important components of welfare such as food and non-food consumption of goods and services might be overlooked (Deaton, 1989). The household as an individual consumer spends some resources on goods and services to maximize utility against a budget constraint (Shikur, 2020).

Household surveys measure variables that are used to target beneficiary vulnerable households. The intervention injects income into the household which increases demand for goods and services. When demand and consumption increased within the household, production also increased and there was a resultant economic growth (Devereux, 2016). The model was modified to accommodate the variable of clean water & sanitation and hunger as measures of achieving sustainable development goals among female-headed households. This study applies the fundamentals of this

theory and through a logit regression analysis investigates the relationship between income from cash transfers and poverty, nutritional and sanitation status of the female-headed household.

### **2.3 Empirical Literature Review**

The study examines the impact of cash transfers on achievement of selected sustainable development goals among female-headed households in Siaya County, Kenya.

#### **2.3.1 Cash transfers and Poverty reduction among female-headed households**

In Mexico, Orozco & Gammage (2017) working paper examined over 150 cash transfer related literature to evaluate the effect of the cash transfer programmes on the livelihoods of the women and girls. The results indicated that cash transfers empowered women and provided suitable employment related service to women. Cataloging of household level data by Julka and Das (2015) on female-headed households confirmed that gender is a significant factor of poverty. Female-headed households in Odisha and Tamil Nadu were the poorest population.

Fultz & Francis (2013) carried out a desk-based review on cash transfers on women's poverty and economic empowerment in South Africa, Mexico, Brazil, and India. They showed that cash transfers reduce extreme gender-poverty gaps by enabling women to save and invest in income-generating assets. Panel study by (Martinez, Cummings, & Vaaler, 2015) across seven Sub-Saharan countries established that one dollar transferred to a beneficiary spurs an extra 0.27 to 1.52 dollar of local income which increases demand for local products creating an expansionary effect on the economy. Migwi (2017) conducted a case study on the effect of cash transfers in alleviating poverty in the slum area of Nairobi and reported that women were able to create economic opportunities which gave them more independence, reduced social discrimination and directly influenced the realization of SDGs. Bastagli et al. (2016) also maintained that cash transfers reduce short-term poverty and provide a reliable and predictable income in the long run. CTs promote economic and social development when coordinated with other appropriate rural development strategies (Wray & Croy, 2015).

Ervin *et al.* (2017) used a randomized control trial and concluded that cash transfers boosted consumption and economic capacity of beneficiaries in Zambia while Blattman, Fiala & Martinez (2020) confirmed that cash grants stimulated the youth to acquire skills and transformed poor women in Northern Uganda by increasing household spending and child care investment.

In Kenya, Haushofer and Shapiro, (2016) randomly collected evidence on the household response to the unconditional transfer program and demonstrated that although there was increased general well-being of recipients; the recipient's gender was not significant. These studies support cash transfers as reliable social protection against poverty among women and female-headed households. They mostly employ randomized control trials which may be limited to real-life treatment situations. This study consequently puts the hypothesis to test through a correlational design to study the relationship between cash transfers and poverty reduction among female-headed households in Siaya County.

### **2.3.2 Cash transfers and Hunger reduction among female-headed households**

An estimated 795 million people are undernourished in the world today with a high of 23% in Sub-Saharan Africa alone (Hjelm, 2016). Lack of sufficient food causes serious nutrient deficiencies among affected populations (Ecker & Nene, 2012). According to case studies by Tiwari, et al., (2016) in Zambia, Lesotho, Kenya, and Ghana, there is a notable increase of 35% in food expenditures as a result of cash transfers but no measure on whether the increase in food expenditure translates to increase in dietary quality and nutrient intake. Dietrich & Schmerzeck (2019) estimated the ramifications of cash transfers on nutrition in Kenya using the difference-in-differences model. They found that the program positively influenced food diversity and value of purchased foods but does not individualize nutrition at the household level.

Hjelm (2016) conducted an impact evaluation study on cash transfers' repercussions on food security in 8 Sub-Saharan countries through randomized control trials and longitudinal propensity score matching. She found evidence that food security is influenced by cash transfers. Bhalla et al. (2018) reported that in Malawi, even though the program alone did not significantly contribute to food expenditures, there was an



11% increase in the frequency of meals in a day. Sufficient income enables households to purchase or produce variety of foods which increases food quantity and quality (Tirivayi, Knowles, & Davis, 2016).

The number of undernourished people has dropped by almost half globally in the past two decades but covid-19 has exposed weaknesses in food supply chains among vulnerable nations (Heggen, Sandset, & Engebretsen, 2020). Bhalla, Handa, Angeles, and Seidenfeld's (2018) expressed scepticism on whether cash transfers alone are adequate to eradicate hunger or further exploration for other interventions is necessary. This study therefore aims to establish the effect of cash transfers on reducing hunger among female-headed households by influencing diet quality and nutrient intake through a correlational design.

### **2.3.3 Cash transfers and access to clean water and sanitation among female-headed households.**

Poverty is a risk factor for ill-health as most low-income earners are forced to live in polluted settings, predisposing them to infectious diseases. A study by Tilley, (2016) weighs up the outcome of conditional cash transfers on toilet use in South Africa and concludes that even though cash transfers do not eradicate poverty, they can increase toilet use among poor populations in the rural alongside hygiene education.

Ahmed and Hrybk (2016) carried out a study on the influence of cash transfers on sanitation health in the Philippines and concluded that 97% of funds transferred to beneficiaries were used to build latrines and decent shelters. However, close supervision was needed to ensure sustainable WASH facilities are constructed. In Gaza, Water vouchers to vulnerable households enabled beneficiaries to purchase clean, treated water from water kiosks, however, this was not permanent solution (Bauer & Wildman, 2014).

Moreover, Njuguna (2019) asserts that in Kenya, poverty is associated with rural environments, open defecation and low literacy levels of the house-hold head. This places more emphasis on cash transfers to focus female-headed households in the rural areas. These evidences conclude that cash transfers can abate drivers of disease and improve hygiene of the household hence achieving Sustainable Development

Goals. The study aims to add to the existing knowledge using a correlational design to find out whether cash transfers can improve water and sanitation among female-headed households in Siaya County.

#### **2.4 Summary of Literature**

The studies point to the same outcomes that cash transfers have a significant effect on achievement of sustainable development goals among households. Cash transfers increase incomes of the households enabling them to access basic goods and services and reduce absolute poverty and hunger. This study aims to add to international knowledge gap on the relationship between cash transfers and reduction of poverty using a correlational design, to investigate whether cash transfers influence diet quality and nutrient intake at the household level and to establish the effects of cash transfers on clean water and sanitation health with focus on female-headed households.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter details the study's methods and design. The chapter also specifies the study area, the target population and the sampling procedures. It clarifies the instrument and procedures to be used to collect data, test reliability and validity of the data collection instrument and the techniques that were employed to interrogate the outcomes of cash transfer programs on vulnerable female-headed households in rural parts of Siaya.

#### **3.2 Research Design**

This outlines the techniques employed to conduct the study. The philosophical assumption of this study is that quantitative data will enable testing of the hypothesis through measurable variables (Needleman & Needleman, 1996). A correlational design was therefore suitable for the study to weigh the relationship between variables (Peteros, Columna, Etcuban, Almerino, & Almerino, 2019). The correlation coefficient will help to establish whether increasing cash transfers has any significant effect on reducing poverty, reducing hunger and increasing access to clean water and sanitation among female-headed households in Siaya County.

#### **3.3 Area of the Study**

Siaya County was the area of study. It is located in Kenya's Southwest, in what was earlier known as Nyanza province. The county has an approximate total area of 2,530 km<sup>2</sup>. It lies between latitude 0° 26' to 0° 18' North, longitude 33° 58' East and 34° 33' West. The county consists of six sub-counties, thirty wards, and has a population density of 392.6/km<sup>2</sup>. Residents in most rural areas of Siaya County are poor and lack access to income and clean water and sanitation.

#### **3.4 Target Population**

This is the source population from which a sample is drawn (Blanche et al., 2006). The population of Siaya County is about 993,183 people as per the 2019 national census. Women account for 521,496 of this while men make up 471,669. There are six sub-counties with a total of 240,000 households. The population of the study was female-headed households in the county.

### 3.5 Sampling Technique and Sample Size

The 2016 Inua Jamii Progress Report served as the baseline for the evaluation. Key informants helped to gather participants' perceptions and beliefs on the intended study as they are informed community leaders (Kabanga, et al., 2022). The Kenya Integrated Household Budget Survey 2015/2016 through the Kenya National Bureau of Statistics indicates that out of 240,000 households in Siaya County, 45.7% are female-headed that is, 109,680 households. A suitable sample size was arrived at using the Yamane formula (Chaokromthong & Sintao, 2021).

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

$$n=109680/ (1+109680(.05^2))$$

$$n=399$$

Where, n =Sample Size      N = population (109680 FHHs) e =level of precision at 95%

Multistage sampling ensured that respondents were fairly represented across the 6 sub-counties (Campbell, et al., 2020). Siaya county has 6 sub counties. Out of the six sub counties, 13 households from each of the 30 wards and 4 more each from the larger wards of Rarieda and Gem made up the sample of 399 households.

**Table 3.1 List of sub counties and wards in Siaya County**

<b>Sub-county</b>	<b>No. of wards</b>
Alego Usonga	6
Ugenya	4
Gem	6
Ugunja	3
Rarieda	5
Bondo	6
<b>Total</b>	<b>30</b>

(Source: KNBS 2019)

### **3.6 Data Collection Tools**

Structured interview schedules with standardized, closed-ended questions aided to collect primary data and reduce interviewer bias (Jayaratne & Jayatilleke, 2020). This tool capacitates the interviewer to ask the same questions in the same order and collect similar information uniformly from respondents. Qualitative observations were useful to know more about the household demographics (Hamilton & Finley, 2019). The use of both quantitative and qualitative data surpasses the weakness of either of the data.

### **3.7 Data Collection Procedure**

The instrument for data collection was accompanied by a preliminary letter obtained from the University and personally handed to the participants. A preliminary visit to the social services office was done to declare the intention to serve the research instrument and to get to know where to locate the targeted female-headed households.

### **3.8 Reliability**

This indicates whether the data instrument measures the intended outcomes and the degree to which it gives similar results when done by different researchers over time (Pandey & Pandey, 2021). Test-retest reliability was achieved through a pilot test of 25 respondents in the West Uholo location to note the consistency in responses and time taken to respond. The area has similar characteristics to the study population. Respondents from the pilot study were excluded from the final study. Internal reliability of how well the test measures the variables of interest was measured using the Cronbach alpha formula whereby a value of 0.7 and above was acceptable.

### **3.9 Validity**

Face validity was determined through expert opinions from resourceful persons in the field of economics (Shrotryia & Dhanda, 2019). Content validity conducted through analysis of common attributes among the theoretical framework of the topic ensured that all areas are appropriately covered. Construct validity of inferences made about the study was done using the Rasch model to test correct responses. Convergent validity can be measured by correlating findings from this study with similar studies.

### 3.10 The Econometric Model

The study’s main objective is to establish the effect of cash transfers in reducing poverty, reducing hunger and increasing access to clean water and sanitation among female-headed households in Siaya County. The conceptual framework illustrated that the achievement of these sustainable development goals is influenced by other intervening variables. The questionnaires were clustered through statistical analysis of the three SDGs after intervention of cash transfers. A binary logit regression model was applied to analyze binary responses. Logit regression is a probability model with two mutually exclusive categories in the dependent variable that estimates the probability of an event occurring. The conditional probability of optimal coefficients  $\beta$  is calculated, logged and summed up to yield a predicted probability. This study makes use of binary categorical values ‘yes’ or ‘no’ and unit of measure is probability hence its suitability. The logit function is expressed as;

Logit( $\pi$ ) =  $1 / (1 + \exp(-\pi))$  where,

$$\ln(\pi/(1-\pi)) = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_k$$

therefore, the main objective model is,

$$\text{Prob}(Y_{SDGs}) = \beta_0 + \beta_1 X_{\text{Cash transfer}} + \beta_2 X_{\text{Income}} + \beta_3 X_{\text{consumption}} + \beta_4 K_{\text{frequency of meals}} + \beta_5 K_{\text{balanced diet}} + \beta_6 Z_{\text{clean water \& sanitation}} + e_i$$

The three specific objectives were modelled as;

$$\text{Prob}(Y_{\text{zero poverty}}=1|X) = \beta_0 + \beta_1 X_{\text{Cash transfer}} + \beta_2 X_{\text{Income}} + \beta_3 X_{\text{consumption}} + e_i \dots \dots \dots (1)$$

$$\text{Prob}(Y_{\text{zero hunger}}=1|X) = \beta_0 + \beta_1 X_{\text{Cash transfer}} + \beta_4 K_{\text{frequency of meals}} + \beta_5 K_{\text{balanced diet}} + e_i \dots \dots \dots (2)$$

$$\text{Prob}(Y_{\text{clean water \& sanitation}}=1|X) = \beta_0 + \beta_1 X_{\text{cash transfer}} + \beta_6 Z_{\text{water source, sanitation}} + e_i \dots \dots \dots (3)$$

Estimating the logit model gave the probability that the female-headed household is not poor, not hungry, or without access to clean water and sanitation upon receiving cash transfers controlled by the household’s demographics.

#### 3.10.1 Variable Specification

This defines the relationship between the outcome variable and predictor variables.

**Table 3.2: Variable Specification**

<b>Type of dependent variable</b>	<b>Level of measurement</b>	<b>Type of data</b>	<b>Procedure used</b>
Zero poverty	Nominal	Binomial	Logistic regression
Zero hunger	Nominal	Binomial	Logistic regression
Access to water and sanitation	Nominal	Binomial	Logistic regression

### **3.10.2 Data Analysis and Presentation**

The collected data was coded and analysis of descriptive and inferential statistics conducted using SPSS statistical programme. The descriptive statistics comprised of mean and standard deviation. Inferential analysis was done by running a logit regression of the binary outcomes of dependent variables.

### **3.10.3 Test of Significance**

Quantitative data from each objective of the study was analysed and variables that fall within the 95% confidence interval indicated their significance level. The study employed a two-tailed test and P-value of  $< 0.05$  was considered significant to reject the null hypothesis and accept the alternative hypothesis.

### **3.11 Ethical Considerations**

The researcher obtained proposal approval from the Dean, Graduate School of Maseno University. Secondly, the researcher sought an authentication certificate from the Ministry of Education through NACOSTI. The researcher further visited all Siaya Sub-County offices to seek permission for data collection and get informal consent from the respondents. The respondents' information was solely used for this study. Personal data was kept secure and not disclosed to unauthorized persons. Rights of the vulnerable households under study were protected through anonymity of participants, informed consent on collection tool and voluntary participation. Great consideration was also made to ensure the safety of respondents and the researcher concerning the Covid-19 pandemic and Ministry of Health regulations.

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### 4.1 Introduction

Data collected from respondents was analysed and presented in this section. Descriptive statistics were presented in tables and charts consisting of frequencies, percentage frequencies, mean and standard deviation to help understand the attributes of the sample. Inferential statistics measured the effect of cash transfer on Sustainable Development Goals in line with the specific objectives of reducing poverty, reducing hunger and increasing access to clean water and sanitation among female-headed households in Siaya County and presented using a binary logistic regression analysis at 5% significance level.

#### 4.2 Response Rate

A response rate of 377 (94%) out of the targeted 399 respondents was realised and adopted for analysis. According to Mugenda and Mugenda (2003), a response rate above 80% is termed as excellent for further statistical analysis.

#### 4.3 Household Demographics

The data provided information about the demographic characteristics of the respondents; size of the household, age of the respondents, educational level of female-head, health status and social network of the female-head.

##### 4.3.1 Age

**Table 4.1: Age of the Respondents**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Age (Years)	377	23.00	83.00	49.5146	14.12088
Valid N (listwise)	377				

The average age of the female head was 49 years hence would not be considered youths or of child-bearing age biologically. Kenya's current life expectancy is 65 years; this could imply a low productivity age for the breadwinner.



### 4.3.2 Level of Education

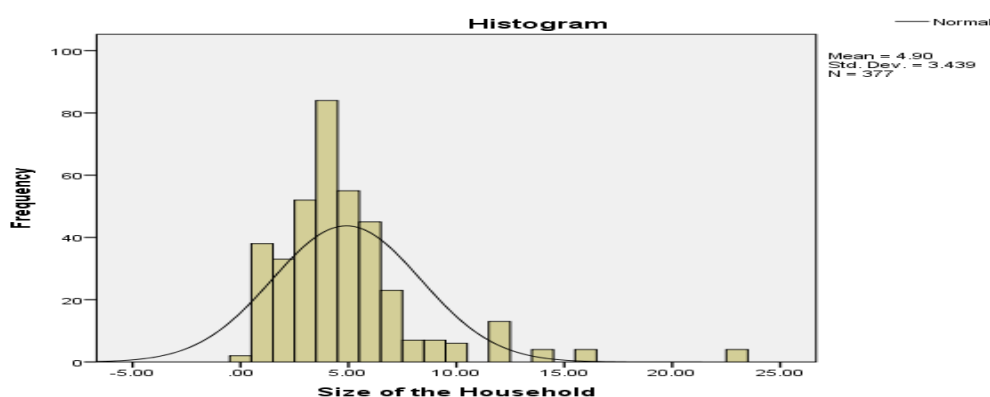
**Table 4.2: Education Level of Female-Head**

		Frequency	Percent
Valid	Primary Level	313	83.0
	Secondary Level	51	13.5
	College Level	13	3.4
	Total	377	100.0

The respondents' level of education compares literacy and occupation. 83% of the female-head had only reached primary level due to poverty, ignorance and poor exposure. Low literacy level limits employability and overall social and economic decision-making.

### 4.3.3 Household Size

**Figure 4: Household size**



The households had an average of five members. Poverty incidence is more notable on large family sizes due to strain on resources such as housing, food and amenities. The household size is also a determining factor for access to clean water and sanitation of the members of the family.

### 4.3.4 Health Status of the Respondent

**Table 4.3: Health-Status of Beneficiary**

		Frequency	Percent
Valid	No	166	44.0
	Yes	211	56.0
	<b>Total</b>	<b>377</b>	<b>100.0</b>

The table indicates that 56% of the respondents had recurring or permanent health issues. Poor health contributes to income inequality by limiting economic participation and causing high health care costs such as transportation and treatment. Health status affects income of the household hence contributing to poverty.

#### 4.3.5 Social Groups

**Table 4.4: Social Networks of Female-Headed**

		<b>Frequency</b>	<b>Percent</b>
Valid	No	170	45.1
	Yes	207	54.9
<b>Total</b>		<b>377</b>	<b>100.0</b>

Social networks provide a sense of belonging and socio-economic benefits to members. 54.9% of the female-heads had membership in atleast one social group where they did weekly table banking and merry-go rounds. Beneficiaries of cash transfers are able to save part of their pay-out and access credit in case of an emergency or investment opportunity.

#### 4.4 Cash Transfer and Sustainable Development Goals

Sustainable Development Goals were expected to be achieved upon admission of cash transfers to the vulnerable as social protection against adversity and income inequality.

**Table 4.5: Cash Benefits**

		<b>Frequency</b>	<b>Percent</b>
Valid	No	214	56.8
	Yes	163	43.2
<b>Total</b>		<b>377</b>	<b>100.0</b>

There were 163 female-headed households out of the 377 respondents who received cash transfer making up 43.2% while the cash transfer did not reach 56.8% of the households.

**Table 4.6: Source of Cash Benefit**

		<b>Frequency</b>	<b>Percent</b>
Valid	Women Group	42	11.1
	Non-Governmental Donation	8	2.1
	Government Sources	17	4.5
	None	310	82.2
	<b>Total</b>	<b>377</b>	<b>100.0</b>

The sources of the cash transfer were evaluated and 4.5 % was from the Inua Jamii cash transfer programme. Non-government organizations contributed to 2.1% to beneficiaries. Governmental cash transfers are more reliable, NGOs are seasonal and tend to close after the programme has achieved its targets therefore more beneficiaries would benefit more from government run cash transfers.

#### **4.4.1 Effect of cash transfers on reducing poverty among female-headed households**

The first objective measured poverty using monetary value of acquiring a basket of goods and services and the consumption to show any direct relationship with expenditure and household's resources.

**Table 4.7: Source of Income**

		<b>Frequency</b>	<b>Percent</b>
Valid	Business	150	39.8
	Farming	138	36.6
	Employment	19	5.0
	Causal Labour	70	18.6
	<b>Total</b>	<b>377</b>	<b>100.0</b>

In order to establish whether cash transfers can contribute to reducing poverty, the source of income of the female-head and monthly household consumption and expenditure was observed. It was found that 39.8 % of the female-heads got their source of income from engaging in small businesses such as small door step shops, selling second hand clothes, hair salons, tailoring among other trades and crafts. The

second source of income came from farming related activities such as selling produce. Cash transfers can empower household-heads to invest in more income generating activities and improve their farming practices.

**Table 4.8: Expenditure Per Month**

	<b>Mean (Ksh.)</b>	<b>Standard Deviation (Ksh.)</b>
Food Monthly Expenditure	6,004.26	6,788.80
Farm Input Monthly Expenditure	3,801.66	5,242.19
Clothing Monthly Expenditure	320.98	800.36
Health Care Monthly Expenditure	564.43	1,765.85
Fuel Monthly Expenditure	353.48	912.77
<b>Total</b>	<b>11,044.81</b>	<b>3,102.00</b>

Food expenditure was the highest expenditure cost at Ksh. 6,004 averagely against the monthly pay-out of the cash transfer of Ksh. 2,000. Purchase of farm inputs costed most households Ksh. 3,801 shillings per month. The low health care costs could infer that households are benefiting from the National Health Insurance Fund reducing the health care budget. Some individuals however, tend to postpone or ignore seeking medical attention unless they got worse which makes the data not very reliable. The cash transfer alone would be deficient to meet the daily poverty line monetary threshold of 2.15 dollars.

#### **4.4.2 Effects of cash transfer on reducing hunger among female-headed households**

The second objective was measured in terms of frequency of meals and diet diversity as non-monetary indicators of hunger levels in the household.

**Table 4.9: Food Consumption Score within 7 Days**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
How many meals did you eat in the past 7 days?	377	.00	21.00	16.9523	10.73114
How many meals did underage and children eat in the past 7 days?	363	.00	35.00	14.5207	7.34896

Household members, both children and adults had an average of 2 meals per day. The WHO recommends atleast 3 meals a day to meet the daily nutritional requirement for good health and development. The data shows sign of food insufficiency among the female-headed households because a large part of the farm produce is sold upon harvest to get income for other needs of the household. The land is fragmented within the homestead so farming is largely subsistent with no excesses. Poor storage for produce means that it is disposed of when harvested or cannot be well stored for dry seasons.

**Table 4.10: Coping Mechanism in Food Security**

<b>Food</b>	<b>No</b>	<b>Yes</b>
We relied on borrowed food	179 (47.5%)	198 (52.5%)
We limit food portion size	163 (43.2%)	214 (56.8%)
We restricted food consumption to certain members of the family only	188 (49.9%)	189 (50.1%)
We reduced number of meals eaten per day	119 (31.6%)	258 (68.4%)

The food scarcity reported above can be extreme forcing the households to adopt ways to cope. The leading coping mechanism adopted by 68.4% of the respondents was to drop the third meal to two meals in a day. Other households limited food portions, and restricted consumption of certain foods. There is indication of risk of undernutrition especially for children which has reduces economic productivity or hamper proper growth and development of the affected population.

**Table 4.11: Balanced Diet in the last seven days**

<b>Food</b>	<b>No</b>	<b>Yes</b>
Meat	161 (42.7%)	216 (57.3%)
Vegetables	37 (9.8%)	340 (90.2%)
Carbohydrates	68 (18.0%)	309 (82.0%)
Cereals	70 (18.6%)	307 (81.4%)
Fruits	57 (15.1%)	320 (84.9%)
Probability	21.65%	79.15%

About 79.15% of the female-headed households were able to have a balanced meal over the course of seven days. The households kept livestock and could get milk and animal protein occasionally, indigenous fruits though seasonal were locally available as well as local vegetables and cereals forming the most consumed food categories. Diet diversity depended on good farming practices and climatic factors beyond the control of respondents. The cash transfers would increase food expenditure and enable households to afford various foods atleast every other day.

#### **4.4.3 Effects of cash transfer on increasing clean water and sanitation**

The third objective was examined in terms of dwelling, sanitation practices, water quality and quantity. These are non-monetary material deprivation indicators.

**Table 4.12: Type of Material Used on the Walls**

		<b>Frequency</b>	<b>Percent</b>
Valid	Mud	310	82.2
	Bricks	52	13.8
	Stone	15	4.0
	<b>Total</b>	<b>377</b>	<b>100.0</b>

**Table 4.13: Type of Material Used on the Floor**

		<b>Frequency</b>	<b>Percent</b>
Valid	Mud	270	71.6
	Cemented	99	26.3
	Tiled	8	2.1
	<b>Total</b>	<b>377</b>	<b>100.0</b>

Observations in table 4.1 show that 71.6% of the female-headed houses were semi-permanent with either mud walls or mud floors. These are indicators of poverty and poses health risks such as jigger infestation, bedbugs and dust. Shortage of natural lighting in a room and poorly ventilation causes respiratory problems and affects social identity and status. It also affects household functioning.

**Table 4.14: Sanitation**

	No	Yes
The toilet presence in the homestead	85 (22.5%)	292 (77.5%)
The toilet is shared by more than one household	126 (33.4%)	251 (66.6%)
The toilet is well-ventilated	132 (35.0%)	245 (65.0%)
Available points for washing hands and proper disposal of waste	136 (36.1%)	241 (63.9%)

Concerning sanitation, 22.5% of female-households had no useable toilet in the homestead and are forced to practice open defecation or share with neighbouring households which can lower human dignity. This also meant majority of the households had no proper ways to dispose waste which is essential especially for girls and women. Cash transfers can target female-headed households to promote proper sanitation and is closely linked to poverty, and food security hence sustainable development

**Table 4.15: Source of Water**

		Drinking	Cooking	Domestic Use
Valid	Rain	13(3.4%)	8(2.1%)	5(1.3%)
	Spring	203(53.8%)	202(53.6%)	208(55.2%)
	Well	109(28.9%)	118(31.3%)	112(29.7%)
	Tapped	36(9.5%)	30(8.0%)	33(8.8%)
	Bought	16(4.2%)	19(5.0%)	19(5.0%)
	<b>Total</b>	<b>377(100%)</b>	<b>377(100%)</b>	<b>377(100%)</b>

Water quality and quantity was measured through source of water and availability of water to the household. Water supply however could have limited access due to social or gender barriers. Further, only 8.66% averagely of female-headed households used rain water as their source of water despite Siaya County recording rainy days 81.22% of the time annually according to recent reports by meteorological department of Kenya. The time spent to fetch water would otherwise be used for other income generating activity. The study found that only 66% of the FHHs had 20 litre jericans because they were easier to carry and keep inside the house. Households did not collect rain water as large water storage tanks were not affordable unless there are other means to pool funds to collect and store the freely available rain water whilst ensuring all households have tin roofs to facilitate this.

The use of open water sources exposed the households to high water contamination with solid suspensions. There were notable ongoing projects by NGOs in the area to pipe the spring water to which improved hygiene. Chlorine dispensers were also located around the fetching points to encourage raw water treatment at source. Access to clean and safe water improves the health of the poor, food security and opportunities for livelihood. Cash transfers only reduced financial barriers such as buying hygiene items and enabling access to water vendors. Other non-cash transfer interventions such as hygiene promotion sessions, repairing piped water networks, setting up communal water supply points are vital.

#### **4.5 Inferential Statistics**

Inferential statistics was adopted to test the hypothesis through a binary logit regression analysis at 5% significance level.

##### **4.5.1 Test of Hypothesis**

The test of hypothesis adopted the use of binary logistic regression model at 5% significance level. The general model which was given by  $P_i = \text{Prob}(Y_i = 1/X) = \Phi(Z)$  where  $Y = \beta_0 + \beta_1 X_{\text{Cash transfer}} + \beta_2 X_{\text{Income}} + \beta_3 X_{\text{consumption}} + \beta_4 K_{\text{frequency of meals}} + \beta_5 K_{\text{balanced diet}} + \beta_6 Z_{\text{water source \& sanitation}} + e_i$ . was examined to ascertain the overall model where  $P_i = 0$  indicate zero sustainable development goals achieved while 1 implies sustainable development achieved.



#### 4.5.2 Effect of cash transfer on poverty reduction among female-headed households in Siaya County

H<sub>0</sub>: Cash transfers have no significant effect on poverty alleviation among female-headed households in Siaya County.

In order to examine the first objective, logit regression was done on cash transfer (X\_Cash\_Trans), income (X\_Income) and Consumption (X\_Consumption) against Reducing poverty. The results were presented in table 4.3

**Table 4.16: Logit Regression Model 1**

Zero Poverty		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	X_Cash_Trans	-1.586	.459	11.933	1	.001	.205
	X_Income	-.686	.267	6.587	1	.010	.503
	X_Consump	.0004	.000	19.320	1	.000	1.000
	Constant	-.493	.574	.739	1	.390	.611

Variable(s) entered on step 1: X\_Cash\_Trans, X\_Income, X\_Consump.

-2Log likelihood =169.003

Cox & Snell R Square =0.178

Nagelkerke R Square =0.281

Chi-Square(3) =41.166

Sig. = 0.000

The logit model results were given as;

$$\text{Prob (Y}_{\text{zero poverty}}=1|\text{X}) = -0.493-1.586\text{X}_{\text{Cash transfer}}-0.686\text{X}_{\text{Income}}+ 0.0004\text{X}_{\text{consumption}}$$

The coefficient of cash transfers of **(-1.586)** and p value of **(0.001)** showed that increasing cash transfer by 1% has a significant negative effect poverty rate by 1.58%. The coefficient of income was **(-0.686)** with p value of **(0.01)** which meant that an increase in income by 1% reduces poverty rate significantly by 0.68%. Consumption coefficient had coefficient of **(0.0004)** and p value of **(0.000)**, therefore consumption had no positive significant effect on poverty reduction. Income increases the economic power of the household and influences their living standards. However, consumption is largely influenced by environmental factors of the household and more permanent income sources.

The findings were anticipated and agree with those by Bastagli et al. (2016) who reported that cash transfers can reduce short-term poverty and provide a reliable and predictable income in the long run. Wray & Croy (2015) also found that cash transfers promote economic and social development when coordinated with appropriate rural development strategies. These findings support rejection of the null hypothesis by proving that cash transfers can be used to achieve SDGs of reducing poverty among female-headed households in Siaya County.

#### 4.5.2 Effect of cash transfer on reducing hunger among female-headed households in Siaya County

H<sub>0</sub>: Cash transfers have no significant effect on reducing hunger among female-headed households in Siaya County.

Logit regression of cash transfer (X\_Cash\_Trans), frequency of meals (K\_Frequency\_Meal) and balanced diet (K\_Bal\_Diet) was done against reducing hunger.

**Table 4.17: Logit Regression Model 2**

Zero Hunger		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	X_Cash_Trans	-1.212	.424	8.184	1	.004	.298
	K_Frequency_Meal	.127	.040	10.220	1	.001	1.136
	K_Bal_Diet	3.091	1.000	9.546	1	.002	21.999
	Constant	-5.665	1.107	26.193	1	.000	.003

Variable(s) entered on step 1: X\_Cash\_Trans, K\_Frequency\_Meal, K\_Bal\_Diet.

-2Log likelihood =181.614

Cox & Snell R Square =.127

Nagelkerke R Square =.201

Chi-Square(3) =28.555

Sig. = 0.000

The logit model results were given as;

$$\text{Prob (Y}_{\text{zero hunger}}=1|\mathbf{X}) = -5.665 - 1.212\mathbf{X}_{\text{Cash transfer}} + 0.127\mathbf{K}_{\text{frequency of meals}} + 3.091\mathbf{K}_{\text{balanced diet}}$$

A variation of 20.1% in reduction of hunger was associated with the three independent variables while other variables contributed 79.9% according to the Nagelkerke  $R^2=0.201$ . The coefficients of cash transfer **(-1.212)** and p value of **(0.004)**, implied that increasing cash transfer among female-headed households by 1% reduces probability of a household experiencing hunger by 1.2% significantly. Increasing frequency of meals **(0.127, p=0.001)** by 1% reduces hunger level by 0.12%. Balanced diet had a positive coefficient **(3.091)** and p value of **(0.002)**. Frequency of meals and balanced diet both had positive significant effect on reducing hunger. Food security was also dependent on other factors such as climatic conditions, proper farming practices, household size, land size for farming. Cash transfers only increased food expenditure but not nutritional outcomes such as growth and development.

This concurs with what Bhalla et al. (2018) reported in Malawi, that even though the program had no notable consequence on the food expenditure there was only an increase in the frequency of meals in a day. They recommended additional interventions alongside cash transfers. Tiwari, et al., (2016) in Zambia, Lesotho, Kenya, and Ghana, noted an increase of 35% in food expenditures as a result of cash transfers but could not ascertain whether the increase in food expenditure translated to increase in dietary quality and nutrient intake. This study draws conclusion that cash transfers therefore significantly reduce hunger among female-headed households in Siaya County.

#### **4.5.2 Effect of cash transfer on increasing access to clean water and sanitation among female-headed households in Siaya County**

H<sub>0</sub>: Cash transfers have no significant effect on increasing access to clean water and sanitation among female-headed households in Siaya County.

The third objective results were analysed and presented in table 4.5 below.

**Table 4.18: Logit Regression Model 3**

Access to clean Water & Sanitation		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 <sup>a</sup>	X_Cash_Trans	1.196	.405	8.730	1	.003	.303
	Z_water source- _Sanitation	2.730	.855	10.183	1	.001	15.327
	Constant	-3.078	.699	19.414	1	.000	.046

Variable(s) entered on step 1: X\_Cash\_Trans, Z\_water source\_Sanit.

-2Log likelihood =192.317

Cox & Snell R Square =.081

Nagelkerke R Square =.129

Chi-Square(2) =17.852

Sig. = 0.000

The logit model was;

**Prob (Y<sub>clean water & sanitation</sub> =1|X) = -3.078 +1.196X<sub>cash transfer</sub>+ 2.730Z<sub>water source & sanitation</sub>**

Results above suggest that cash transfers (**p=0.03**), source of water and sanitation (**p=0.001**) are all also significant predictors increased access to WASH among female-headed households. The Nagelkerke R<sup>2</sup>=0.129 shows a goodness of fit for 12.9%. The positive coefficients of cash transfers (**1.196**), source of water and proper sanitation (**2.703**) prove that the increasing cash transfers by 1% increased access to clean water and sanitation by 1.196% and 2.703% respectively. Cash transfers would enable the FHHS to access safe water from water vendors hence reduce time spent fetching water over long distances. The income could also be used to purchase hygiene kits and construct toilet facilities for the households. These proper water and sanitation practices has more health impacts, more income opportunities among the women as they are most affected. Water quality and quantity also improves food production and processing.

Previous study by Bauer & Wildman, 2014 on water vouchers to vulnerable households in Gaza equally evidenced that beneficiaries were able to purchase clean, treated water from water kiosks. The study asserts observations by Njuguna (2019) that poverty is associated with poor toilet practice and is influenced by the low literacy levels of the house-hold head and rural environments. He agrees that the focus

of cash transfers must be on poor households to abate the drivers of disease, improve hygiene and the house environment. Findings on cash transfers single-handedly and directly impacting WASH can be pursued further. From the data analysed, cash transfers have a significant effect on increasing access to clean water and sanitation among female-headed households in Siaya County. The null hypothesis was therefore rejected and alternative accepted to be true.

#### 4.6 Mann-Whitney U Test

Mann-Whitney U test was conducted to test any discordance between female headed households that receive cash transfers and those that do not. The assumption of this test is that the independent variable consists two categorical groups that is, female-headed households that receive cash transfers/ female-headed households that do not receive cash transfers. This test allows us to compare the two sample groups (CT=163, No CT=214).

**Table 4.19: Mann-Whitney U Test**

	Source of Income	Consumption	Frequency of Meals	Balanced Diet	Clean water and Sanitation
Mann-Whitney U	13446.000	14815.500	16261.500	15241.000	12357.000
Wilcoxon W	25074.000	40240.500	41686.500	40666.000	37782.000
Z	-3.770	-2.201	-.897	-1.877	-4.735
Asymp. Sig. (2- tailed)	.000	.028	.370	.040	.000

Grouping Variable: Cash Transfer

The results demonstrated that receiving cash transfers significantly affects the household's source of income ( $p=0.000<0.05$ ), household consumption ( $p=0.028<0.05$ ), balanced diet ( $p=0.04<0.05$ ) and access to clean water and sanitation ( $p=0.000<0.05$ ). However, cash transfers had no significance on the frequency of meals ( $p=0.370>0.05$ ). Eligible female-headed households that received cash transfers are indeed better off due to the increased income which impacts all other variables than those that should receive and are not receiving. Vulnerable female-headed households are highly dependent on cash transfers in order to achieve Sustainable Development Goals. There is therefore a significant difference between beneficiaries and non-beneficiaries.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

The section summarizes and gives recommendations from the study findings. The summary was discussed objectively and used to develop a conclusion and recommendation of the study.

#### **5.2 Summary of the Study**

This study had the overall objective to analyse the impact of cash transfers on achievement of selected Sustainable Development Goals among female-headed households in Siaya County. The three specific objectives were to establish the effect of cash transfers on poverty reduction, reducing hunger and increasing access to clean water and sanitation among female-headed households in Siaya County respectively. The study found that, cash transfers had a significant impact on reducing poverty, reducing hunger and increasing access to clean water and sanitation among the female-headed households.

#### **5.3 Conclusions**

The study found out that reducing poverty can help improve clean water and sanitation as well as hunger. The three Sustainable Development Goals; (Goal 1) zero poverty, (Goal 2) zero hunger and Goal 6 (Increase access to water and sanitation health) are closely related. Lack of access to safe water and sanitation affects the health of the poor, food security, and their prospects of generating income. Cash transfers can therefore reduce income inequality among vulnerable female-headed households allowing them to have more to access basic needs and services hence increase their living standards. Low income contributes to poor health, similarly, poor health causes low income hence poverty trap. Extreme hunger is also more prevalent among the poor since the poor have limited land to plant enough food, prone to natural calamities which affect access to food, and poor storage facilities for harvest. Increasing access to water and sanitation health can increase the income of poor female-headed households by bettering their health and nutrition. This results into more economic participation and ability to earn more income.

The study concluded that cash transfers had significant impact on the overall achievement of Sustainable Development Goals among female-headed households in Siaya County.

#### **5.4 Recommendations**

The study recommendations come from the findings and conclusion.

##### **5.4.1 Effect of cash transfers on reducing poverty among female-headed households in Siaya County.**

Firstly, the study recommends that in order to sustainably reduce poverty among female-headed households, the cash transfer programme should target income generating activities more than direct consumption. The reported lump sum pay-out as opposed to regular payment of the cash transfer translates to immediate consumption especially food and debt resettlement. Financing entrepreneurship and farming which are the main source of income and expenditure will not only sustain the income sources but also enhance food security and reduce the expenditure on food. The cash transfers have better yielding effects when reliable and predictable without the much witnessed delays and arrears.

##### **5.4.2 Effect of cash transfers on reducing hunger among female-headed households in Siaya County.**

The recommendation is that cash transfers should bring on board more eligible female-headed households with more consideration to the household size. Other interventions to enhance coping mechanisms for food security such as irrigation, cultivation of drought-resistant crops, proper food storage need for collaborative efforts between the government and other stakeholders. This will enhance food security more sustainably and Zero hunger will be achieved when cash transfers are converted to sustainable food production in the long run.

##### **5.4.3 Effect of cash transfers on increasing access to clean water and sanitation among female-headed households in Siaya County.**

Water is a critical resource as a direct input into production, for good health and food security, water supports the ecosystem such as livestock and fishing. Water and sanitation security for the poor is needs to be more effective.

The recommendation from the study is that all stakeholders including the poor need to be involved in water planning and management. Investment in capacity building, infrastructure and technology can increase water and sanitation access among the poor female-headed households. Communal collaboration is important to pool funds to assist build proper, ventilated toilets, common clean water points, collect and store rain water. Regular rainfall is a free resource in the county and can be put to good use to help reduce overdependence on spring or river water. However, in the short-term, sensitization on raw water treatment to be done.

### **5.5 Study Limitations**

The main limitation of this was the vastness of the study area and the sensitivity of getting financial information from respondents.

### **5.6 Suggestion for Further Studies**

The study adds to the existing knowledge on impacts of cash transfers reducing poverty among female-headed households using a correlational design and reported consumption to have no relation with poverty. More investigation can be conducted to find out whether there is any correlation between poverty and consumption among households.



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## APPENDIX

### Annexure I: Sample Interview Schedule

I'm Simona Omondi from Maseno University. I intend to know more about poverty, hunger, and water and sanitation situation in this location. I am administering interviews with various households and the information you provide will be very valuable. Findings from interviews will be confidential and the respondent's identity remains anonymous throughout the study.

### SECTION 1: HOUSEHOLD DEMOGRAPHICS

1. County
2. Sub County
3. Village
4. Date of interview
5. Date of Check

<b>House-hold Member(Female-Head/Not Female Head</b>	
<b>Age (Years)</b>	
<b>Education Level of Female-head</b>	
<b>Size of the Household</b>	
<b>Health-status of beneficiary</b>	
<b>Social Networks of female-head</b>	

### SECTION 2: INCOME SOURCES

1. Have you ever received any cash benefits?
2. If yes, from which source?

In the last 30 days, what were the sources of income?

<b>Income Source</b>



### SECTION 3: EXPENDITURE

Give amount spent on all items in the last 30 days

Item Purchased	Quantity	Unit Price	Total Amount Spent
Food			
Farm inputs			
Clothing			
Health Care			
Fuel			

### SECTION 4: FOOD CONSUMPTION SCORE

1. How many meals did you eat within the last 7 days?
2. How many meals did underage and children eat in the past 7 days?
3. Have you eaten any of the following foods within the last 7 days?

Food	Yes	No	Source
Meat			
Vegetables			
Carbohydrates			
Cereals			
Fruits			

#### a) Coping Strategy

Has your household had to do the following to deal with the food scarcity situation?

1. Relied on borrowed food
2. Limited food portion size
3. Restricted food consumption to certain members of the family only
4. Reduced number of meals eaten

### SECTION 5: WATER AND SANITATION

#### 1. Shelter Information

- a) Type of material used on the walls
- b) Type of material used on the floor
- c) Type of material used on the roof
- d) Is the house well-ventilated? (presence of windows)

2. Sanitation

- a) Is there a toilet in the home?
- b) Is it shared by more than one household?
- c) Is the toilet well-ventilated?
- d) Are there points for washing hands and proper disposal of waste?

3. Water

What is the primary source of water for the household for each of the following listed use?

- a) Drinking
- b) Cooking
- c) Domestic use

- 4. Does the household have a water storage facility? If yes, what is the capacity?
- 5. Does the household have access to running water? If yes, how often is it available and is it enough?
- 6. How often do household members wash their hands?

Thank you for your time in completing this survey.