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**TOPIC: PFUMVUDZA PROGRAM AND FOOD SECURITY IN ELDERLY FEMALE-
HEADED RURAL HOUSEHOLDS OF ZAKA, ZIMBABWE**

DECLARATION

I, TAKUDZWA CHITIGA (B213010B) declare that this dissertation is my original work and has never been submitted to any institution for academic examination purposes or publication. I further declare that all other people's work cited is properly acknowledged and referenced. The work has been subjected to the University's anti-plagiarism check and it passed.

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DEDICATION

This dissertation is dedicated to my beloved parents whose love, support and sacrifices have made this journey possible. My siblings Tatenda, Tinotenda and Taropafadzwa whose belief in me gave me the strength to persevere. This dissertation is also dedicated to the memory of my beloved brother, Tafadzwa whose spirit, strength and love continue to guide me every day. Though you are no longer here, your presence lives on in my heart and in everything I strive to achieve.

ABSTRACT

This study sought to explore the role of the Pfumvudza program in enhancing food security among elderly female-headed rural households in Zaka District, Zimbabwe. The intentions of the study were to recognize the unique vulnerabilities faced by elderly women in rural settings, to examine their participation in Pfumvudza activities, the challenges they encounter, the adaptive strategies they employ, diverse perspectives on food security and suggested interventions for sustainable support. A qualitative research approach was adopted, utilizing a case study design to gain in-depth insights into lived experiences. Data were collected through purposive and availability sampling from 12 participants using semi-structured in-depth interviews and focus group discussions. Findings revealed that elderly female heads actively engage in key Pfumvudza activities such as digging planting basins, applying organic manure, planting, mulching and harvesting, despite age-related limitations. Major challenges identified included limited financial resources, physical labor constraints, inadequate extension support, delayed input distribution and balancing farming with household responsibilities. In response, participants adopted coping strategies such as forming cooperative groups, leveraging family support, using low-labor techniques, saving and rotating inputs, participating in trainings and preserving food. The study also uncovered diverse perspectives on food security shaped by gender roles, household dynamics, cultural beliefs, access to markets and infrastructure, and the influence of government and NGO interventions. Participants proposed intervention strategies to enhance food security, including strengthening agricultural support systems, promoting livelihood diversification, improving health and nutrition services, enhancing access to land and resources and building climate resilience and social protection mechanisms. Participants recommended strengthening agricultural support, promoting diversified livelihoods, improving access to land and resources, enhancing social protection and building climate resilience. The study concludes that while Pfumvudza presents opportunities for improved food security, its sustainability in elderly female-headed households depends on context-sensitive, age-appropriate, and gender-responsive support systems as well as inclusive policies and community-based interventions.

LIST OF ABBREVIATIONS

NGOs - Non Governmental Organizations

UNICEF - United Nations International Children's Fund

WHO - World Health Organization

MoLAWRR- Ministry of Lands, Agriculture, Water and Rural Resettlement

FAO- Food and Agriculture Organization

WFP- World Food Program

IFAD- International Fund for Agricultural Development

ROSCA- Rotating Savings and Credit Association

UNECA- United Nations Economic Commission for Africa

HSCT- Harmonized Social Cash Transfer

CEDAW- Convention on the Elimination of All Forms of Discrimination Against Women

AU- African Union

UN- United Nations

NAPF- National Agricultural Policy Framework

MoLARR- Ministry of Lands, Agriculture and Rural Resettlement

UNDP- United Nations Development Program

ZimVAC- Zimbabwe Vulnerability Assessment Committee

FGD- Focus Group Discussion

VSLAs – Village Savings and Loan Associations

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CHAPTER 1

INTRODUCTION AND BACKGROUND

1. INTRODUCTION

Food security remains a significant issue in Zimbabwe, especially for rural communities and vulnerable groups like elderly female-headed households. As a vital sector for rural livelihoods, agriculture in Zimbabwe faces considerable challenges due to unpredictable climate patterns, economic difficulties and limited resources, all in which exacerbate food insecurity. In response, the government launched the Pfumvudza program, a climate-smart agricultural initiative aimed at improving food security through sustainable farming practices targeted at smallholder farmers. By focusing on conservation methods such as mulching and minimal tillage, the program aims to boost crop yields, support soil health and enhance food access among vulnerable populations including elderly women in rural areas. Elderly women who head rural households encounter unique obstacles, including limited physical capacity and access to resources, which complicate efforts to achieve food security. This study examines how the Pfumvudza program affects these households, exploring how it addresses food insecurity while identifying challenges elderly women may face in implementing conservation practices. By focusing on this demographic, the research aims to assess the program's effectiveness and offer insights for policy improvement.

1.1 BACKGROUND OF THE STUDY

Food insecurity remains a significant global challenge with an estimated 828 million people worldwide suffering from hunger, according to the State of Food Security and Nutrition in the World (The 2021 UN SOFI) report. The (2021 UN SOFI) report reveals a concerning rise in global hunger, 828 million people facing hunger in 2021, a 46 million increase from 2020, and 29.3% of the world's population experiencing severe food insecurity. The global food security crisis is exacerbated by factors such as climate change, economic instability and conflict, which disproportionately affect vulnerable groups. The Food and Agriculture Organization (FAO, 2018) proposes that the elderly, particularly elderly women are highly vulnerable to food insecurity due to reduced mobility, limited access to income and resources, and the responsibilities they hold in the household.

Women are central to food production and family nutrition in many parts of the world, but gender inequality restricts their access to land, credit, education and technology. According to Hirvonen (2019), as women age, these challenges intensify, as older women often face further social isolation, physical limitations and increased caregiving responsibilities. Female-headed

households, especially elderly ones are often more vulnerable to food insecurity because of these compounded boundaries. Kassie et al., (2018) suggests that female-headed households face both economic deprivation and social exclusion, making them highly vulnerable in global food security crises. Studies show that elderly female-headed households experience food insecurity more acutely, as they are often deprived of adequate economic opportunities and social support systems.

According to the African Union (2019), Sub-Saharan Africa is home to some of the highest rates of food insecurity globally, with approximately 30% of the population being food insecure. The African continent faces numerous food security challenges including climate change, land degradation, political instability and economic vulnerability. Rural areas are most affected, with smallholder farmers especially women bearing the burden of these challenges. The World Bank (2020) submits that rural households particularly those headed by women face disproportionate barriers to accessing agricultural inputs, capital and markets, contributing to their higher rates of food insecurity.

World Bank (2024) proposes that among the most vulnerable countries is Mozambique, Kenya and Zimbabwe. Elderly female-headed households in rural Africa are particularly vulnerable to food insecurity. These households are often led by grandmothers or widows who lack access to modern agricultural techniques, financial resources and sufficient labor to manage farming activities effectively. Ncube et al., (2021) proposes that the ageing population in Africa, alongside the migration of younger members for economic opportunities, exacerbates these vulnerabilities. Agreeing with Munyuki-Hungwe and Ndlovu, (2015) elderly women especially in sub-Saharan Africa have limited access to formal social safety nets, which increase their risk of food insecurity. Gender inequalities in land ownership and access to resources are entrenched according to Chimhowu and Hulme, (2008) as elderly women often face additional burdens in agricultural production, which affects their capacity to grow sufficient food for their families. In many rural areas, gender-based violence and discrimination limit women's involvement in decision-making, especially for older women, thus diminishing their ability to improve household food security.

In Zimbabwe, food insecurity is a critical issue. According to Sakadzo and Kugedera (2020), and World Food Program report (2021), nearly 5.6 million people in Zimbabwe were classified as food insecure in 2021, representing 35% of the population. Rural Zimbabwe is the hardest hit with rural households facing both chronic food insecurity. The country's agriculture,

primarily rain-fed, is vulnerable to frequent droughts, which have worsened over the past two decades due to climate change. The 2018 Zimbabwe Demographic and Health Survey revealed that 23% of households that are most vulnerable are female-headed, and of these many experiences food insecurity due to limited access to land, capital and markets. According to Makoni (2020), the situation is even more severe among elderly female-headed households, many of whom are widows or grandmothers caring for their grandchildren. Elderly female-headed households, according to Mutopo (2019), often face difficulties to in accessing resources, and their ability to participate in agricultural production is constrained by their age, health and lack of support from younger family members.

The Pfumvudza program, introduced by the government of Zimbabwe in 2020 aims to address food insecurity in vulnerable rural households by promoting climate-smart agriculture. This program provides. This program provides inputs such as seeds, fertilizers and technical support and focuses on improving productivity in areas affected by drought and climate change. The program specifically targets smallholder farmers including elderly female-headed households, who often lack the resources to adapt to changing climatic conditions.

The effects of food insecurity in elderly female-headed households in Zimbabwe are profound. Malnutrition, especially among children and elderly women, is a direct consequence. These households often experience chronic undernutrition, leading to poor health outcomes and increased vulnerability to disease. Furthermore, food insecurity in these households can contribute to social isolation, as elderly women may struggle to access necessary support and resources. The causes of food insecurity in elderly female-headed households in Zimbabwe are multifaceted, and these comprise of age-related factors where older women face physical limitations, making agricultural labor difficult, and their ability to access markets and information is often constrained. Ncube et al., (2021) proposes that limited access to resources grounds food insecurity as elderly women typically have less access to land, credit, agricultural inputs and technologies that could improve their productivity. Migration of younger family members causes food insecurity according to Munyuki-Hungwe and Ndlovu (2015) as most young adults leave rural areas in search of economic opportunities, leaving elderly women to manage households alone with limited labor.

Several national and international stakeholders are involved in addressing food insecurity in Zimbabwe. The government of Zimbabwe through the Ministry of Agriculture has initiated programs like Pfumvudza to support vulnerable populations including elderly women. Non-

Governmental Organizations like CARE Zimbabwe, World Vision and The Zimbabwe Red Cross work alongside the government to provide emergency food aid and support sustainable agricultural practices in rural areas. International organizations like The United Nations (UN) through agencies such as Food and Agriculture Organization (FAO) and World Food Program (WFP) provides technical assistance and funding to enhance food security programs in Zimbabwe. Elderly female-headed households are the primary beneficiaries of these interventions, but they are also the most affected by delays or insufficient support due to their lack of social and economic capital.

The Pfumvudza program is one of the primary national initiatives aimed at addressing food insecurity among elderly female-headed households. The program has received support from international donors and NGOs, focusing on climate-resilient agricultural practices and providing inputs to vulnerable farmers. However, the effectiveness of the program in reaching and benefitting elderly women remains under-explored. In terms of legal frameworks, Zimbabwe is a signatory to several international conventions and agreements that guide its food security efforts. The Comprehensive Africa Agriculture Development Program (CAADP, 2003) under the African Union encourages African governments to improve food security by investing in agricultural development.

The Maputo Declaration (2003) and the Malabo Declaration was adopted in 2003 at the second African Union Assembly in Maputo, Mozambique as it marked a commitment by African Leaders to allocate at least 10% of their national budgets to agriculture and to achieve 6% annual agricultural growth aiming to reduce poverty and hunger, which are key instruments guiding food security policy in Zimbabwe. The United Nations Sustainable Development Goals (SGDs), particularly goal 2 (Zero Hunger) are foundational to the country's food security initiatives. In Zimbabwe, the National Policy on Food and Nutrition Security (2012) provides a framework for addressing food security at the national level, ensuring that vulnerable populations including elderly women are prioritized.

While there have been several studies on food security in Zimbabwe and Africa in general, limited research has focused specifically on elderly female-headed households in rural Zimbabwe especially in the context of the Pfumvudza program. This study seeks to fill that gap by assessing how the Pfumvudza program affects the food security of elderly female-headed households and whether it provides sufficient support for this vulnerable group. The gap this study seeks to address is the impact of targeted agricultural interventions on improving

the food security of elderly women in rural Zimbabwe, examining program reach, effectiveness and how well the unique needs of elderly women are integrated into food security interventions.

1.2 STATEMENT OF THE PROBLEM

The Pfumvudza program, a climate-resilient agricultural initiative introduced by the Government of Zimbabwe aims to improve food security for smallholder farmers through sustainable, conservation-based farming practices. While the program has demonstrated some success in enhancing agricultural productivity in certain regions, its effectiveness remains limited for specific groups, particularly elderly female-headed households in rural Zimbabwe. These households are disproportionately affected by food insecurity due to a combination of age, gender and socio-economic factors that restrict their access to resources, technology and support systems.

The primary group affected by the Pfumvudza program's failures in addressing food insecurity is elderly female-headed households in rural Zimbabwe. These households face a unique set of challenges that make them particularly vulnerable to food insecurity including limited physical capacity, older women often lack the physical strength required for intensive agricultural labor, which according to Chikwanha and Hara (2020) is essential for adopting the labor-intensive farming techniques promoted by Pfumvudza. Gumbo et al., (2021) suggests that Pfumvudza emphasizes new, climate-smart agricultural practices that may be challenging for elderly women to learn and apply, particularly without adequate training and support. Social isolation is also another barrier for elderly female-headed household, and Mushunje et al., (2019) points out that social networks that could support elderly female farmers in adopting new agricultural technologies may be weak, especially in rural areas where traditional norms often limit women's mobility and access to social resources. These barriers compound the effects of food insecurity leading to persistent poverty, malnutrition and limited resilience in the face of shocks such as droughts or economic instability.

The desired situation is one where elderly female-headed households benefit from the Pfumvudza program, gaining increased access to resources, skills and support that enable them to produce sufficient food for their own consumption and market sale. This would lead to improved food security. By enhancing agricultural productivity through climate-smart farming, elderly women would be able to increase their food production, reduce dependence on external food aid and have surplus produce for income generation. Elderly female farmers would have better access to the assets they need, including land, credit and information enabling them to make informed decisions and improve their overall well-being as empowered

elderly women. Amid the desired conditions is strengthened social support. Building stronger social networks and community-based support systems would help elderly female-headed households overcome barriers to adopting new agricultural techniques and boost resilience to climate shocks.

However, the reality is that despite the Pfumvudza program's potential to improve food security in rural Zimbabwe, many elderly female-headed households face significant challenges in benefitting from it. These challenges include inequitable access to resources and support. Chikwanha and Hara (2020) submits that while Pfumvudza provides inputs such as seed and fertilizer, elderly farmers often struggle with limited access to these resources due to social, economic and institutional barriers. For example, many elderly women lack control over land, which is a fundamental requirement for participating in the program and are often overlooked in distribution schemes. The Pfumvudza program heavily relies on farmer training and extension services. However, these services are often inaccessible to elderly women, this according to Gumbo et al., (2021) results from either mobility issues or because they are not prioritized in training sessions limiting their ability to fully implement the farming practices required for success. In many rural areas, the infrastructure necessary to support the Pfumvudza program such as irrigation systems and access to markets is underdeveloped. According to Moyo and Ncube (2022) elderly female farmers frequently lack the tools and resources required to maintain and effectively use the technology promoted by the program, further exacerbating their vulnerability to food insecurity.

This gap between the ideal goals of the program and its on-the-ground realities has contributed to persistent food insecurity among elderly female-headed households. While the program has the potential to enhance food security, the socio-economic and cultural barriers they face prevent them from fully reaping its benefits.

The problem at hand is that despite the potential of the Pfumvudza program to address food insecurity, elderly female-headed households in rural Zimbabwe remain marginalized due to systematic barriers related to access, resources, training and infrastructure. This study aims to explore these challenges and the real impact of the program, highlighting the gap between policy intentions and outcomes for this vulnerable group. By addressing these issues, the program can be better tailored to meet the needs of elderly female farmers, improving their food security and overall livelihoods.

1.3 AIM OF THE RESEARCH

To analyze the diverse perspectives on sustainable food security in rural households under elderly females' headship in Zaka, Zimbabwe.

1.4 OBJECTIVES

1. To establish the Pfumvudza program's activities performed by the elderly female household heads in Zaka.
2. To examine the challenges associated with the Pfumvudza program in elderly female-headed households in Zaka.
3. To analyze coping strategies adopted by the elderly female heading households in rural Zaka.
4. To understand diverse perspectives on food security sustainability in rural households under older female's headship in rural Zaka.
5. To offer possible interventions strategies to enhance sustainable food security in households under older female's headship in rural Zaka.

1.5 RESEARCH QUESTIONS

1. What are the activities performed by elderly female household heads in Zaka under the Pfumvudza program?
2. What challenges do elderly female household heads in Zaka face in the implementation of the Pfumvudza program?
3. What coping strategies are adopted by elderly female heading households in rural Zaka to overcome challenges faced under the Pfumvudza program?
4. How do elderly female-headed households in rural Zaka perceive and experience food security sustainability?
5. What intervention strategies can effectively enhance sustainable food security in households headed by older women in rural Zaka?

1.6 ASSUMPTIONS OF THE STUDY

This study assumes that the Pfumvudza program is effectively implemented and operational in the study areas, with elderly female-headed rural households participating and benefitting from the program. It also assumes that food security is a critical concern for this demographic, and that study participants will provide accurate and reliable information. Additionally, the study assumes that the sample selected is representative of the population of elderly female-headed

rural households in Zimbabwe, and that the data collection tools and methods will yield reliable and valid data. The study is grounded in the principles of conservation agriculture and social protection assuming that programs like Pfumvudza can improve food security and reduce poverty among vulnerable populations. The study also assumes that survey and focus group discussions data will provide comprehensive insights, and statistically significant relationships will emerge. Contextually, the study assumes a relatively stable economic and political environment, ongoing climate change impacts and supportive government policies.

1.7 SIGNIFICANCE OF THE STUDY

The significance of the study Pfumvudza Program and Food Security in Elderly Female-Headed Rural Households cannot be overstated. By examining the impact of the Pfumvudza program on food security in these households, the study can provide valuable insights into the effectiveness of this program in addressing the unique food security challenges faced by this vulnerable group. The study's findings can inform the development of targeted interventions that address the specific food security needs of elderly female-headed rural households, ultimately improving their health, well-being and livelihoods.

Also, the study is important for women in Zimbabwe, particularly those living in rural areas. By highlighting the experiences and perspectives of elderly female-headed rural households, the study can help to amplify the voices of women and promote greater recognition of their contributions to food security and rural development. The study's findings can also inform the development of policies and programs that promote women's empowerment and gender equality in the context of food security and rural development.

At the community level, the study is significant because it can inform the development of community-based initiatives that promote food security and sustainable livelihoods. By examining the impact of the Pfumvudza program on food security in elderly female-headed rural households, the study can provide valuable insights into the effectiveness of this program in promoting food security and sustainable livelihoods at the community level. The study's findings can inform the development of community-based initiatives that build on the strengths of the Pfumvudza program and address its limitations.

The Pfumvudza Program and Food Security in Elderly Female-Headed Rural Households as a study is essential for Zimbabwe because it can inform policy and programming decisions related to food security, rural development and social protection. By examining the impact of the Pfumvudza program on food security in elderly female-headed households, the study can

provide valuable insights into the effectiveness of this program in promoting food security and sustainable livelihoods. The study's findings can inform the development of policies and programs that promote food security, rural development and social protection, ultimately contributing to the achievement of Zimbabwe's development goals and the United Nation's Sustainable Development Goals, (SDGs).

1.8 DELIMITATIONS OF THE STUDY

This study focuses exclusively on elderly female-headed rural households in Zimbabwe, limiting generalizability to other populations. The study's geographical scope is restricted to one district in Zimbabwe, which may not represent the entire country's experiences.

1.9 LIMITATIONS OF THE STUDY

The first major limitation that qualitative research is likely to face according to Creswell (2014) is the inherent subjectivity of qualitative research where findings may be influenced by the researcher's interpretations, potentially reducing the generalizability of the results. The focus on a specific demographic group, elderly female-headed households may not adequately represent the broader rural population, and this according to Patton (2002) limits the scope of the conclusions. Additionally, qualitative research rendering to Marshall and Rossman (2016) relies on small, purposively selected sample sizes, which, while allowing for in-depth exploration may not capture the full diversity of experiences or the broader patterns across different regions of Zimbabwe. The study's reliance on interviews or focus group discussions according to Flick (2018) could also be influenced by social desirability bias, where participants may provide responses, they believe are expected or socially acceptable, rather than their true experiences. Lastly, the study may encounter challenges in triangulating data across different sources, which could lead to limited validation of findings. Despite these limitations, qualitative research remains invaluable in providing nuanced, context-specific insights of the complex relationship between Pfumvudza program and food security in elderly female-headed households in rural Zaka.

1.10 DEFINITION OF KEY TERMS

Pfumvudza Program is a Zimbabwean climate-smart agriculture initiative promoting conservation techniques to improve food security for small-scale farmers.

Food Security is a state in which all people have reliable access to sufficient, safe and nutritious food for a healthy life. Food Security is defined by the World Bank (2001) as a situation that exists when all people have access to enough food for an active and healthy life, and when households have both physical and economic access to food that meet their needs.

Female-Headed Household is a household where the primary breadwinner or decision-maker is a woman, often due to the absence of a male partner according to UN Women (2019).

Elderly Population refers to individuals aged 60 and older who may face age-related health, mobility and financial challenges impacting food security.

CHAPTER 2

LITERATURE REVIEW

2.0 LITERATURE REVIEW

The Pfumvudza program, launched in Zimbabwe 2020, aims to enhance food security through conservation agriculture practices targeting vulnerable populations, including elderly female-headed households. Literature reviews that these households face significant food insecurity challenges due to limited access to productive resources, social protection and healthcare. According to FAO (2019), studies on conservation agriculture highlight its potential to improve food security, particularly among smallholder farmers. However, research on the Pfumvudza program's effectiveness in addressing food insecurity among elderly female-headed households is scarce. Existing studies emphasize the importance of addressing gender-specific constraints in agricultural programs. Mazhawidza and Mushunje et al., (2020) provide insights into the Pfumvudza program's implementation, but its impact on food security among elderly female-headed households remains understudied. This knowledge gap necessitates further research to inform policy and programming.

2.1 THEORETICAL FRAMEWORK

The study is going to employ, or work based on the Sustainable Livelihoods Framework (SLF). According to Scoones (1998), this framework is particularly significant as it emphasizes the role of various forms of capital that are human, social, natural, physical and financial on the livelihood's strategies of individuals and households. It offers a comprehensive approach to understanding the multifaceted aspects of livelihood security and how interventions such as the Pfumvudza program impact them.

The SLF aids in understanding the effectiveness of the Pfumvudza program by examining how the program enhances or constraints access to different forms of capital for elderly female-headed households. Specifically, the framework will allow the researcher to investigate whether the Pfumvudza program improves access to critical resources such as knowledge and technology (human capital), financial resources for farming inputs (financial capital) or social networks that might aid during periods of hardship (social capital). Chiroro et al., (2021) suggest that by focusing on these different forms of capital, the study can evaluate whether the program effectively empowers elderly women to improve their food security and livelihood outcomes. This analysis can provide insights on how well the program's design addresses the specific challenges faced by this vulnerable group, such as limited access to labor, finance and

technology, while also contributing to broader goals of agricultural productivity and poverty alleviation.

The SLF also addresses the objectives of the study by facilitating an understanding of how elderly female-headed households navigate their livelihoods within the context of the Pfumvudza program. The framework highlights the multiple dimensions of vulnerability and resilience that elderly women face, offering insights on how they adapt their livelihoods strategies to changing circumstances. By utilizing the SLF, the study can assess how well the program aligns with the needs of elderly women, especially considering their unique vulnerabilities such as physical limitations, lack of support systems and limited access to information. The UN Women (2018) recommends that the use of the SLF supports a deeper analysis of whether the program empowers these women to break out of cycles of poverty and food insecurity, or if it inadvertently reinforces existing inequalities. Moreover, the SLF allows for the exploration of the specific barriers that elderly women may face in accessing and utilizing the program's resources, thus providing a clear lens through which the research can evaluate the program's inclusivity and sustainability.

Muguti et al., (2020) proposes that the SLF, in terms of limitations, offers a critical perspective on the broader structural factors that may influence the success of the Pfumvudza program. While the framework emphasizes individual household strategies, it also draws attention to external constraints such as government policies, environmental challenges and market dynamics that may limit the impact of the Pfumvudza program as an intervention to food insecurity. The Pfumvudza program may improve food security by providing inputs and training but may not necessarily address systematic issues like poor infrastructure, climate change or unequal access to markets, all of which could constrain the program's success. This limitation is particularly relevant in Zaka, Zimbabwe where economic instability, irregular rainfall patterns and limited access to markets are persistent challenges. SLF enables research to contextualize the program's impact within these broader structural realities. The Sustainable Livelihoods Framework is an invaluable tool that will be employed in exploring the Pfumvudza program's impact on food security in elderly female-headed households in rural Zaka. It provides a multidimensional approach that allows for the identification of critical factors influencing the success or failure of the program while considering the broader socio-economic and environmental context. Through the lens of the SLF, the research can effectively address the program's effectiveness, limitations and its ability to meet the specific needs of this vulnerable group.

2.2 UNDERSTANDING THE PFUMVUDZA PROGRAM

The Pfumvudza program, initiated by the Zimbabwean government in 2020, is a strategic intervention aimed at enhancing food security and agricultural productivity among smallholder farmers, particularly focusing on vulnerable groups. Among the most vulnerable are elderly female-headed households, who according to Mkodzongi (2020) often have limited labor, limited access to inputs and restricted institutional support. Given the significant challenges faced by these households including limited access to resources, land and knowledge, the Pfumvudza program seeks to empower them through targeted support, enhancing household food production and resilience against climate shocks. This literature review explores the conceptual and empirical foundations of Pfumvudza (Conservation Agriculture), drawing insights from global conservation agriculture initiatives and past studies to contextualize its application in Zimbabwe, Zaka.

Conservation agriculture according to FAO (2011) is a globally recognized approach that promotes sustainable growth through three core principles that is minimal soil disturbance, permanent soil cover and crop diversification. Kassam (2009) submit that conservation agriculture has been implemented across diverse agro-ecological zones including Latin America, Asia and Africa as a response to soil degradation, water scarcity and climate variability. According to Giller (2009), evidence from countries like Brazil and India demonstrates that when Conservation Agriculture is correctly implemented and supported with institutional frameworks, it can lead to increased yields, better soil health and reduced input costs. In sub-Saharan Africa, however, Conservation Agriculture has been more uneven. Studies in Zambia, Malawi and Kenya according to Andersson & Giller (2012) indicate that while Conservation Agriculture improves drought resilience and soil fertility, barriers such as high labor demands during initial implementation, inadequate extension services and cultural resistance have hindered broader adoption.

The Pfumvudza program adapts Conservation Agriculture principles into a localized model tailored for Zimbabwe's smallholder farmers. According to the Government of Zimbabwe (2020), Pfumvudza emphasizes farming on smaller, manageable plots (for example, 39meters by 16meters), the use of mulch, early land preparation using planting basins and precise input application to improve yield efficiency. One of the key objectives according to Mangwaya (2021) is to enable vulnerable households to grow enough food to meet annual consumption needs on limited land, with one plot expected to produce at least one ton of maize. Since its launch, Pfumvudza has been integrated into Zimbabwe's Presidential Input Scheme, where

farmers receive free inputs (seeds, fertilizers and chemicals) conditional on adopting the Conservation Agriculture method. Reports from the Ministry of Lands and Agriculture show that over 2.5 million households had enrolled in the program by 2023 according to MoLAWRR (2023). While the government has hyped the program's success, empirical evaluations present a nuanced picture.

Several studies have shown that the Pfumvudza has increased maize and traditional grain yields, especially in drought-prone areas such as Masvingo and Matebeleland South according to Mutenje (2022) and ZimVAC (2023). The World Bank (2022) has reported that during the 2020/21 and 2021/22 seasons farmers practicing Pfumvudza harvested 3-5 times more maize than those using conventional methods. Additionally, some households experienced improvements in food self-sufficiency and income from surplus sales. However, challenges persist. Chikobvu and Mapuranga (2021) highlight that implementation is heavily dependent on timely input delivery and effective extension support, both of which has been inconsistent. Moreover, some beneficiaries according to Chikobvu and Mapuranga (2021) reported difficulty maintaining mulching practices due to competing use of crop residue for livestock feed and fuel. Labor intensity rendering to Gukurume (2021), particularly in digging planting basins has been cited as a major constraint, especially for elderly and female-headed households. These limitations suggest that while Pfumvudza can enhance productivity, its success is conditional on context-specific adaptations.

According to Doss (2018), globally and locally, it is widely acknowledged that agricultural policies often overlook the distinct needs of women and the elderly. In rural Zimbabwe, many elderly women head households due to out-migration, widowhood, or illness among younger adults. Despite their critical role in food production, Mutopo (2014) suggests that elderly women often lack secure land rights, access to labor and mobility to attend training sessions. These constraints reduce their capacity to fully participate in or benefit from programs like Pfumvudza. A study by Hanyani-Mlambo (2020) found that while women constitute the majority of rural smallholder farmers, their access to state-supported agricultural programs is often mediated by local power structures and patriarchal norms. Furthermore, elderly farmers face additional challenges related to physical capacity and chronic health issues, which are rarely addressed in program design or implementation. As a result, interventions like Pfumvudza risk reinforcing existing inequalities unless tailored support mechanisms such as labor saving technologies, gender-sensitive training and targeted input delivery are integrated.

Similar Conservation Agriculture based interventions in countries like Ethiopia, Tanzania and Lesotho provide valuable lessons. For instance, in Ethiopia rendering to Gebremedhin (2017) the government's Sustainable Land Management Program linked Conservation Agriculture with watershed development and gender empowerment strategies, improving both productivity and household nutrition. In Malawi, according to Ngwira (2014) Conservation Agriculture adoption was highest where NGOs provided continuous support and where women's groups played active roles in the implementation. These cases reinforce the importance of holistic program design, including institutional coordination, inclusive participation and ongoing support.

The Pfumvudza program represents a significant policy innovation in Zimbabwe's agricultural sector, aligning with global shifts toward climate-resilient and sustainable food systems. While early results are promising, particularly in boosting yields and food availability, the program's design and implementation require further refinement to ensure inclusivity. Elderly female-headed households face specific socio-economic and physical barriers that may limit their participation and gains from Pfumvudza. As such, future research should investigate the intersection of gender, age and agrarian policy to develop adaptive strategies that ensure no one is left behind.

2.3 UNDERSTANDING FOOD SECURITY IN ELDERLY FEMALE-HEADED RURAL HOUSEHOLDS

Food security remains a critical developmental concern, particularly in sub-Saharan Africa, where climate variability, economic instability and socio-political dynamics undermine household resilience. Among the most vulnerable demographics are elderly female-headed households, especially in rural settings. In Zimbabwe, the intersection of age, gender and rurality often worsens food insecurity as elderly women face structural barriers in accessing resources, inputs and support systems. Understanding the specific challenges these households face is key to assessing the impact of agricultural interventions like Pfumvudza Conservation Agriculture Program, which aims to boost food production through sustainable practices.

Globally, female-headed households rendering to FAO (2011) often face heightened risks of food insecurity due to a combination of limited access to land, capital, education and social protection. This vulnerability according to HelpAge International (2018) is further amplified among elderly women, who contend with physical limitations, widowhood, marginalization and minimal participation in decision-making. Studies in South Asia and parts of Latin America according to Gonzalez- Gonzalez et al., (2020) show that elderly women in rural areas

often rely on informal networks or subsistence agriculture with inadequate institutional support. Mutegi et al., (2015) propose in sub-Saharan Africa, food insecurity in elderly female-headed households is aggravated by systemic gender inequalities and the burden of caregiving for orphaned grandchildren due to HIV/AIDS. Chikazunga and Paradza (2013) emphasize that elderly female-headed households face unique vulnerabilities due to limited access to productive resources, reduced labor capacity and social exclusion, hence stress that food security strategies must be gender-sensitive and age-responsive, recognizing the intersection of gender, age and socio-economic status

In Africa, rural households headed by elderly women rendering to Devereux and Sabates-Wheeler (2015) are commonly among the poorest, with inadequate access to agricultural inputs, healthcare and credit services. The FAO (2023) underscores that these households are typically excluded from mainstream agricultural programs due to ageist perceptions of productivity and gender-based stereotypes. Furthermore, the care economy according to Kabeer, (2015) where elderly provide unpaid care often limits their time and energy for food production. A study by Mango et al., (2018) in Malawi observed that older women often experience declining productivity due to physical constraints, yet they still shoulder the responsibility of providing for extended families. Additionally, limited formal education among older rural women reduces their ability to adapt to modern farming techniques.

In Zimbabwe, food security has been influenced by factors including recurring droughts, economic instability and land reform policies. The Zimbabwe Vulnerability Assessment Committee (ZimVAC) 2022 report highlights that elderly female-headed households are among the most the most food-insecure, often surviving on remittances or social safety nets which are insufficient. Previous studies in Zimbabwe according to Chimhowu and Woodhouse (2006) show that these households often lack land tenure security, especially post the Fast Track Land Reform Program of 2001, where many women did not receive formal land allocations. Matondi (2012) found that elderly female farmers were frequently overlooked in agricultural support initiatives, leading to dependency on food aid or unsustainable coping mechanisms.

Mukarumbwa and Mushunje (2010) demonstrated that household food insecurity in Zimbabwe is influenced by factors such as household head's age, gender, education and access to inputs. In the rural context, these intersect deeply, creating a compounded disadvantage for elderly women. According to Mawere et al., (2013), cultural norms also play a role, as widowed or

unmarried elderly women often lack familial support and face exclusion from communal resource sharing systems. Moreover, food insecurity among elderly female-headed households is influenced by climate vulnerability. Moyo et al., (2017) argues that the increasing frequency of droughts and erratic rainfall patterns has severely affected rain-fed agriculture, the mainstay for many of these households. Moyo also suggests that while women are the backbone of rural agriculture in Zimbabwe, they remain the most under-supported by extension services, credit schemes and adaptive farming programs.

Chiripanhura (2010) noted that government and NGO programs often lack a gendered and age specific approach resulting in minimal long-term impact on elderly female-headed households. Mazvikadei et al., (2021) analyzed food insecurity in Masvingo and found that empowering elderly female farmers with small grants and training significantly improved food self-sufficiency. The Pfumvudza program initiated in 2020 aims to address climate resilience through conservation agriculture techniques. While its focus on smallholder farmers has potential, little empirical work has examined its specific impact on elderly women-headed households. However, Madziyire et al., (2022) suggest that where properly implemented, Pfumvudza has improved household yields, yet elderly women often face challenges in land preparation and input access without labor support.

Understanding food security in elderly female-headed households requires a nuanced refined analysis that integrates age, gender and rural marginality. While global and regional frameworks highlight these vulnerabilities, Zimbabwe's context presents unique historical and socio-economic complexities. Empirical evidence indicates that such households are excessively food insecure and despite interventions like Pfumvudza holding promise, they must be tailored to the specific capacities and constraints of elderly women to be truly effective. Further research is needed to assess how these interventions can inclusively empower this population and ensure sustainable food security outcomes.

2.4 PFUMVUDZA PROGRAM'S ACTIVITIES PERFORMED BY THE ELDERLY FEMALE-HEADED HOUSEHOLDS

Globally, the aging agricultural workforce presents a critical issue, with many smallholder farmers over 60 years old. A substantial portion of these farmers according to Devereux and Sabates-Wheeler (2015) are women, who often experience heightened vulnerability due to social and economic factors. Research indicates that elderly farmers may be more receptive to adopting conservation agriculture practices, drawing on their extensive knowledge and experience (FAO, 2024). On a global scale, conservation agriculture programs have been

applauded for promoting sustainable farming practices among smallholder farmers despite elderly female-headed households encountering significant barriers to participation, and Moyo et al., (2021) present barriers such as limited access to resources and technology that hinder their ability to implement these practices effectively. The necessity for tailored support and knowledge transfer is evident in studies from various regions, emphasizing the importance of understanding the specific needs of elderly female farmers in enhancing food security. Studies in India and Bangladesh indicate that while elderly women engage in less physically demanding tasks such as seed selection and post-harvest processing, they face challenges in labor-intensive activities like land preparation and irrigation due to age-related physical limitations and limited access to resources (Das & Mishra, 2016).

Within the African context, women play a pivotal role in agricultural production, yet they often face systemic barriers that limit their access to resources and decision-making power (MDPI, 2024). Female-headed households are particularly vulnerable to food insecurity, exacerbated by challenges such as limited labor and inputs (FAO, 2024). Research in West Africa highlights that women's contributions to household food security are often more substantial than men's, underscoring the critical need for programs that empower women economically (Nyamupingidza and Moyo 2020). Given the context of climate change and its disproportionate impact on women, initiatives like Pfumvudza that specifically target female farmers can play a transformative role in improving food security and nutrition at household level. Mazvimavi and Twomlow (2009) propose that in countries like Malawi and Zambia, elderly female farmers often participate in less labor-intensive tasks such as weeding, mulching and harvesting. However, activities requiring significant physical effort such as digging planting basins and applying fertilizers are frequently challenging for them. Chikowo et al., (2014) advise that to mitigate these challenges, community-based support systems including labor-sharing arrangements and youth involvement, have been identified as crucial factors enhancing the participation of elderly women in agricultural programs.

In Zimbabwe, the Pfumvudza program, a climate-smart agriculture initiative has been widely adopted to enhance food security among smallholder farmers as well as to support vulnerable households through the promotion of conservation agriculture practices. This initiative according to the UN (2024) has reached over 1.6 million households, providing essential inputs such as seeds and fertilizers. Mutambara and Mafongoya, (2022) propose that activities carried out under the Pfumvudza program include land preparation, planting, mulching and post-harvest processing. They also submit that despite the potential benefits, elderly female-headed

households face numerous challenges, including limited access to agricultural extension services and social isolation. Studies indicate that these households are often led by older, widowed women with lower educational levels and smaller landholdings, making them particularly susceptible to climatic variations (UN Women Africa, 2023). According to Chikowo et al., (2015) the Pfumvudza program has shown promise in increasing agricultural yields and improving food security, provided that it is complemented by robust support systems and community engagement.

According to the UN (2024), the Pfumvudza program encompasses several activities that elderly female-headed households must perform and these include land preparation, input application, weed management, water conservation through mulching and pest control. For elderly women, these tasks can be physically demanding, posing significant challenges. The program emphasizes preparing small plots using conservation agriculture principles, which may require more labor than elderly women can manage alone as well as the need for regular monitoring and intervention in pest management can add to the burden, further complicating their participation in the program (FAO, 2017). The challenges faced by elderly female-headed households in the Pfumvudza program despite its successes are multifaceted and, Mandizvidza et al., (2021) mention limited access to resources, physical limitations and social isolation that can hinder their ability to engage fully in the program. Furthermore, entrenched gender inequalities often restrict these women's decision-making power and access to necessary inputs. However, Nhira and Matondi (2016) submit that opportunities exist for leveraging their traditional knowledge and fostering community support, hence by encouraging shared labor and providing targeted interventions such as subsidized inputs and labor-saving technologies, elderly women's participation can significantly be enhanced.

2.5 CHALLENGES ASSOCIATED WITH THE PFUMVUDZA PROGRAM IN ELDERLY FEMALE-HEADED HOUSEHOLDS

Globally, conservation agriculture programs that share similarities with Zimbabwe's Pfumvudza initiative have been championed as solutions to food insecurity and climate change vulnerability. However, elderly female-headed households face specific challenges in adopting these methods. A major barrier according to FAO (2017) lies in the physically demanding nature of activities such as digging planting basins and managing mulching processes, which elderly individuals especially women often find too strenuous without external assistance. Furthermore, these households typically lack access to modern tools and inputs necessary to effectively implement climate-smart agriculture. According to Tambo and Wunscher (2017),

older women in rural areas are often left behind due to insufficient training, inadequate extension services and limited mobility, all of which hinder full participation. Financial exclusion also compounds these difficulties, as elderly women are less likely to access agricultural loans or subsidies that could offset the high labor and input costs associated with such programs (Sheahan and Barret (2017). Therefore, while the intent behind conservation programs is inclusive, practical barriers create a divide in their effectiveness for elderly female farmers.

Across sub-Saharan Africa, similar challenges have been documented in conservation agriculture initiatives involving vulnerable groups. Elderly female-headed households often struggle with both structural and socio-cultural barriers. In Malawi and Zambia, studies show that although conservation agriculture practices like minimum tillage, mulching and intercropping have shown yield benefits, the uptake among elderly women remains limited due to labor intensity and lack of physical strength (Mazvimavi & Twomlow, 2009). Moreover, rendering to Nyasimi and Huyer (2017), elderly women frequently face restricted land tenure rights making long-term investment in land management and sustainable agriculture risky or infeasible. Chikowo et al., (2014) suggests that gendered division of labor also means that women are typically expected to perform unpaid or undervalued agricultural work, often without access to decision-making power in community-based resource management systems. Without labor support from family or community networks, and in the absence of adaptive tools or mechanization suited for the elderly, conservation agriculture initiatives across Africa fail to fully include elderly women. This reflects a broader issue of policy gaps in addressing intersectional vulnerabilities in rural development programs

The Pfumvudza program, designed to enhance food security among smallholder farmers in Zimbabwe, particularly targets vulnerable groups including elderly female-headed households. However, several challenges hinder its effectiveness. A research by Chikozho (2020) indicates that access to resources remains a significant barrier as many elderly women face limitations in accessing inputs such as seeds, fertilizers and tools, primarily due to socio-economic constraints and systemic inequalities. Furthermore, the logistical challenges related to the distribution of agricultural inputs often exacerbate these issues, as many rural areas experience delays in receiving vital resources (Nhemachena et al., 2020). A study by Moyo (2019) highlights that the lack of timely support can discourage participation in the program, leading to underutilization of the provided inputs. Additionally, the training component of Pfumvudza is crucial for successful implementation, however, many elderly women may struggle with new

agricultural techniques due to limited prior exposure to modern farming practices (Mujeyi and Mudhara 2021). The generational gap in agricultural knowledge create a disconnect from proper implementation, making it challenging for older women to adapt to innovative farming methods promoted by the program. This situation is compounded by the physical limitations often faced by elderly individuals, affecting their ability to engage fully in demanding agricultural activities (Mutenje et al., 2019). Hence, while the Pfumvudza program aims to promote sustainable agricultural practices and improve food security, the challenges of accessibility, training and physical capability significantly undermine its potential for success among elderly female-headed households.

Moreover, social dynamics play a critical role in shaping the experiences of elderly women within the Pfumvudza framework. Cultural norms according to Moyo (2019) often dictate the roles and responsibilities within households, which can lead to marginalization of elderly women's contributions to food production. Moyo and Chikodzi (2020) observed that in many cases, decision-making power remains concentrated within younger male family members, which can lead to conflicts over resource allocation and farming decisions. This dynamic can result in older women being sidelined, despite their extensive knowledge and experience in agriculture. The research by Moyo and Chikodzi (2020) underscores the importance of integrating gender-sensitive approaches in agricultural programs to ensure that the voices of elderly women are heard and valued. Furthermore, the intersectionality of age and gender creates unique vulnerabilities, as older women often face discrimination not only due to their gender but also because of their age (Mhlanga and Dube 2020). Programs that fail to acknowledge these social complexities risk exacerbating existing inequalities rather than alleviating them. Additionally, the impact of climate change poses another significant challenge as unpredictable weather patterns can undermine the agricultural practices encouraged by the Pfumvudza program (FAO, 2021). As elderly women are often the primary caregivers and food providers, their resilience in the face of climate variability is critical for household food security. Therefore, addressing the multifaceted challenges associated with the Pfumvudza program requires a comprehensive understanding of the socio-cultural, economic and environmental factors that influence the experiences of elderly female-headed households in rural Zimbabwe.

2.6 COPING STRATEGIES ADOPTED BY THE ELDERLY FEMALE HEADING HOUSEHOLDS

Globally, elderly female-headed households in rural areas often develop diverse coping strategies to mitigate food insecurity, poverty and vulnerability to climate change. These strategies typically center on adaptive use of available resources, diversification of income sources, and reliance on social networks. For instance, in parts of Southeast Asia and Latin America, older women often resort to kitchen gardening, small livestock rearing or seasonal informal labor to supplement household food stocks and incomes (HelpAge International, 2018). According to FAO (2017) many elderly women rely heavily on remittances from migrant family members or engage in community-based mutual aid groups. The combination of low literacy rates, restricted land ownership and limited mobility further compels them to adopt low-input, labor-efficient practices. However, these coping mechanisms are often short-term and insufficient in the face of prolonged shocks such as droughts or pandemics, indicating the need for more structured safety nets.

Across sub-Saharan Africa, rural elderly female-headed households face overlapping vulnerabilities that is gender, age and poverty that significantly shape their coping mechanisms. These women commonly engage in subsistence farming, utilizing traditional knowledge and drought-tolerant crop varieties to ensure some level of food production despite limited access to extension services or inputs (Mafa and Monga 2021). According to Chikowo et al., (2014) elderly female heads frequently practice intercropping, mixed cropping and crop rotation to maximize yield and manage soil fertility with minimal resources. Another key strategy is reliance on social capital, where women form informal labor-sharing arrangements or rotating savings groups (ROSCA), which provide temporary support during lean seasons (Tambo and Wunscher 2017). Additionally, elderly women may adjust household consumption patterns by eating fewer meals per day, prioritizing feeding children or substituting cheaper, less nutritious foods to stretch limited food supplies (WFP, 2019). These strategies, while essential for survival, often compromise nutrition and health outcomes in the long term.

Elderly female-headed households in rural Zimbabwe face significant challenges in achieving food security, particularly in the context of programs like Pfumvudza. To navigate these challenges, many adopt various coping strategies that reflect their resilience and resourcefulness. Research by Chikulo (2021) indicates that these strategies often involve diversifying income sources, such as engaging in small-scale trade or crafting, which helps supplement agricultural production. Many elderly women leverage their social networks to

access resources, sharing labor and knowledge with neighbors to enhance their agricultural productivity (Chikobvu and Mabvurira, 2020). This practice not only fosters community solidarity but also allows for the pooling of resources, which is critical in times of scarcity. Additionally, studies show that elderly women often rely on traditional ecological knowledge to adapt their farming practices to local conditions. This includes the cultivation of drought-resistant crops and the use of intercropping techniques, which enhance soil fertility and resilience to climate variability (Mazvimavi et al., 2020). Furthermore, Moyo (2019) notes that participation in community groups or cooperatives has been identified as a vital coping mechanism, providing access to shared resources, training, and financial support. By collectively navigating challenges, these groups empower elderly women, enabling them to enhance their food security and overall livelihoods. However, despite these strategies, many face barriers such as limited access to credit and markets, which can undermine their efforts.

Moreover, elderly female-headed households often employ various adaptive strategies to mitigate the impacts of food insecurity. Research suggests that these strategies can be categorized into short-term and long-term approaches. Short-term strategies may include borrowing food from neighbors or relatives, reducing meal sizes or relying on food aid programs (Chitongo and Munemo 2021). While these methods can temporarily alleviate food shortages, they may not be sustainable in the long run. In contrast, long-term strategies focus on improving agricultural practices and household resilience. For instance, older women often invest in training programs to enhance their agricultural skills and knowledge, particularly in climate-smart practices promoted by initiatives like Pfumvudza (FAO, 2021). Furthermore, many elderly women engage in intergenerational knowledge transfer, teaching younger family members sustainable practices and the importance of food security (Chitongo and Munyati 2020). This transfer of knowledge not only preserves traditional agricultural practices but also empowers the next generation to adapt to changing circumstances. The interplay of these coping strategies highlights the agency of elderly women in managing food security challenges, emphasizing the importance of supporting their efforts through targeted policies and programs. Understanding these strategies provides valuable insights on how interventions can be tailored to strengthen the resilience of elderly female-headed households in rural Zimbabwe.

2.7 UNDERSTANDING DIVERSE PERSPECTIVES ON FOOD SECURITY SUSTAINABILITY IN RURAL HOUSEHOLDS UNDER OLDER FEMALE'S HEADSHIP

Food security sustainability, particularly under the leadership of elderly women in rural households is a subject that has attracted global concern due to demographic changes, gender

dynamics and climate vulnerability. Globally, older women in rural settings are increasingly seen as custodians of food systems, traditional knowledge and intergenerational well-being (FAO, 2017). However, their capacity to sustain food security is frequently undermined by structural barriers such as limited access to land, credit and agricultural inputs (HelpAge International, 2018). In Latin America and South Asia, studies have shown that female-headed rural households often adopt diversified strategies to maintain food access, including engaging in home gardening, forming cooperatives, or relying on remittances (Casimir and Tobi 2011). Nonetheless, food security sustainability remains fragile when such households lack institutional support, especially in the face of climate shocks and market instability. There is also growing recognition that sustainable food systems must be inclusive of older rural women, but policy frameworks still lag behind in integrating their needs effectively (UN Women, 2021).

In sub-Saharan Africa, food security in rural female-headed households is shaped by intersecting factors of gender, age and poverty. Elderly women often head households due to the death or migration of spouses and in many cases, they are responsible for grandchildren. These households are often poorer and more food insecure compared to male-headed or younger female-headed households (Gibbens and Schoeman 2010). Perspectives on sustainability among these women frequently emphasize resilience through indigenous knowledge, conservation of seeds, soil fertility management, and communal support systems (Chikowo et al., 2014). In Ethiopia and Uganda, according to Mutambara and Mafongoya (2022) elderly women have reported relying heavily on intercropping and drought-tolerant crops to mitigate food shortages, demonstrating an ecological approach to sustainability. However, cultural norms, limited land tenure rights and exclusion from extension services inhibit their long-term ability to plan and invest in sustainable food systems. While NGOs and some governments have begun targeting these households with resilience-building programs, many remain on the margins due to insufficiently disaggregated policy planning (FAO, 2020).

Food security in Zimbabwe is a multifaceted issue, particularly in rural areas where women often play a crucial role in agricultural production and household nutrition. Studies show that female-headed households frequently face unique challenges in achieving food security due to limited access to resources, education and decision-making power Samaratunge and Nyirenda (2020). In Zimbabwe, the Pfumvudza program aims to empower smallholder farmers,

particularly women, by providing inputs and training. Research by Mutambara and Mafongoya (2022) indicates that when women are at the helm of food production, they prioritize household needs, often leading to more sustainable food practices, however gender biases persist, affecting women's access to land and credit, which are essential for sustainable agricultural practices. Current studies highlight the importance of recognizing women's contributions to food security and their unique insights into sustainable practices (Mutenje et al., 2019). The intersection of gender and food security illustrates the need for policies that promote gender equity in agriculture, particularly in programs like Pfumvudza.

The sustainability of food systems in rural areas is increasingly recognized as vital for long-term food security. Research by Mupangwa et al., (2016) emphasizes that sustainable agricultural practices, such as crop rotation and organic farming, enhance soil fertility and yield resilience. Older female heads of households often possess traditional ecological knowledge that can contribute to sustainable practices (Chikowo et al 2015). The Pfumvudza program encourages conservation agriculture techniques, which align with these traditional practices while also integrating modern methods. Studies have shown that programs that build on local knowledge and practices can lead to better adoption rates and outcomes (Moyo et al., 2022). Furthermore, the integration of climate-smart agriculture into these practices is essential to address the impacts of climate change on food security (FAO, 2021). Understanding the perspectives of older women in this context can provide valuable insights into how sustainability can be achieved in food production.

Socioeconomic factors according to Muchomba (2017) heavily influence food security in rural households, particularly those headed by older women as research has shown that access to education, health care and financial resources is critical for improving food security outcomes. In Zimbabwe, older women often have limited access to these resources, which can exacerbate food insecurity. The Pfumvudza program attempts to mitigate some of these issues by providing targeted support and resources to female farmers. However, studies indicate that without addressing broader socioeconomic inequalities, the impact of such programs may be limited (Chikozho, 2020). Moreover, community support networks rendering to FAO (2019) play a crucial role in enhancing food security for these households as they can provide assistance and share resources. Understanding how socioeconomic factors intersect with food security can help in designing more effective interventions.

Cultural beliefs and practices significantly shape food security strategies in rural households as noted by Moyo (2019) who suggests that in Zimbabwe, traditional gender roles often dictate the division of labor and resource allocation within households, impacting food security. Older women often bear the burden of food preparation and nutrition in their households, which can influence their perspectives on food security. The Pfumvudza program's design must consider these cultural dynamics to be effective, and should also consider that culturally sensitive approaches can lead to greater acceptance and success of agricultural interventions. Furthermore, older women often serve as custodians of traditional knowledge, which can enhance food security through the preservation of indigenous crops and practices (Samaratunge and Nyirenda (2020). Recognizing and integrating these cultural influences into food security programs is essential for fostering sustainable practices in rural Zimbabwe.

2.8 POSSIBLE INTERVENTIONS STRATEGIES TO ENHANCE SUSTAINABLE FOOD SECURITY IN RURAL HOUSEHOLDS UNDER OLDER FEMALE'S HEADSHIP

Globally, sustainable food security among elderly female-headed rural households has increasingly attracted policy attention, especially in the context of aging populations and gender-responsive development. Intervention strategies proposed in global frameworks emphasize the importance of inclusive agricultural support, social protection and capacity building. For instance, the Food and Agriculture Organization (FAO, 2017) recommends tailored extension services and input subsidies for older women, coupled with the promotion of labor-saving technologies. Access to microcredit and land rights is also crucial, as these are foundational to ensuring that elderly female farmers can invest in sustainable agricultural practices (FAO, 2017). Community-based approaches, such as participatory seed banks and agro ecological training centers have been successful in Latin America and parts of Asia, improving older women's resilience to food shocks (IFAD, 2020). Moreover, digital agriculture platforms and mobile services that disseminate weather forecasts and market prices have been identified as valuable tools in enhancing food security for elderly female farmers although digital literacy remains a barrier for older populations (UN Women, 2021).

In Africa, intervention strategies to improve food security in elderly female-headed rural households must address intersecting issues of age, gender, poverty and environmental stress. One key intervention is the establishment of gender-sensitive and age-appropriate agricultural extension programs that specifically engage elderly women through local dialects and informal peer networks (UNECA, 2019). Chikowo et al., (2014) postulate that efforts to introduce drought-tolerant and early-maturing crop varieties have had positive results in improving yields

and reducing food insecurity in rural elderly-led households in countries like Malawi and Ethiopia. Additionally, introducing appropriate mechanization such as hand-held tillers and raised garden beds can reduce the physical burden of farming for older women. Social protection programs such as non-contributory pension schemes and targeted food aid have also played a vital role in ensuring a minimum level of consumption during periods of food shortage (World Bank, 2020). Community savings groups and informal social networks provide another buffer against economic shocks. However, for such interventions to be sustainable, they must be accompanied by policies that enhance women's land tenure security and enable intergenerational farming support including youth engagement in agriculture alongside elderly women (FAO, 2020). Without integrated rural development strategies that account for age and gender, interventions risk excluding this vulnerable group.

In Zimbabwe, particularly in rural areas such as Zaka, enhancing food security in elderly female-headed households under the Pfumvudza program requires multi-layered and context-specific interventions. Mutangi (2018) suggests that while Pfumvudza has been widely promoted as a climate-smart agriculture initiative, elderly women often struggle with labor-intensive tasks and input delays. Therefore, intervention strategies should include simplifying the basin-digging process through the provision of small mechanized tools or community labor support schemes. Mutambara and Mafongoya (2022) propose that the provision of regular and timely agricultural input packages such as seeds, fertilizers and organic compost can significantly reduce production risks for these households. Targeted extension support that prioritizes elderly women through home visits or locally tailored training sessions can help bridge knowledge and accessibility gaps. Local NGOs and faith-based organizations have also played a role in distributing food hampers and initiating community gardens, which can be scaled up as part of long-term resilience strategies (Tanga and Tangwe, 2020).

At a policy level, expanding and improving Zimbabwe's Harmonized Social Cash Transfer (HSCT) program and ensuring that elderly women are enrolled and receive consistent support would be a critical step (FAO, 2021). Land tenure reforms that secure land rights for older women along with promoting community-based irrigation schemes, would further support year-round production and reduce dependency on erratic rainfall (Ministry of Public Service, Labor and Social Welfare, 2022). Interventions must also integrate health and nutrition education to ensure that the available food meets the dietary needs of elderly women and dependents in their care.

Enhancing sustainable food security in elderly female-headed households requires targeted intervention strategies that address their unique needs and challenges. Research indicates that integrating gender-sensitive approaches into agricultural programs is crucial. Mudege et al, (2017) suggest that the Pfumvudza program can be improved by ensuring that older women receive adequate training and resources tailored to their specific circumstances. This includes providing workshops that focus on sustainable agricultural techniques such as conservation farming and crop diversification, which are particularly beneficial for older women managing limited resources. Additionally, access to credit and financial services must be expanded to enable these women to invest in their farming practices and improve their livelihoods. Studies show that microfinance initiatives specifically targeting women can enhance their ability to purchase necessary inputs and tools leading to increased agricultural productivity (Bryan et al 2018). Furthermore, fostering community-based organizations can empower elderly women by facilitating knowledge sharing and collective action, enabling them to negotiate better prices for their produce and access markets more effectively (Devereux and Sabates-Wheeler, 2015). Such organizations can also serve as platforms for advocacy, allowing older women to voice their needs and influence policy decisions that affect their food security.

In addition to financial and educational interventions, promoting the use of technology can significantly enhance food security among elderly female-headed households. Current studies emphasize the role of mobile technology in providing timely agricultural information, weather forecasts and market prices, which can help women make informed decisions regarding their farming practices (Place and Fakihi 2019). Training programs that teach elderly women how to use these technologies can bridge the digital divide and improve their agricultural outcomes. Moreover, partnerships with local agricultural extension services can facilitate knowledge transfer and support the implementation of sustainable practices (Koehler, 2021). Furthermore, interventions should consider the incorporation of climate-smart agriculture to mitigate the effects of climate change, which disproportionately impacts vulnerable populations (Moyo, 2019). Initiatives that focus on soil health, water management and biodiversity can enhance resilience and ensure food security in the face of environmental challenges. By adopting a holistic approach that combines financial support, education, community empowerment and technological integration, policymakers can create a sustainable framework that effectively supports elderly female-headed households in achieving sustainable food security.

2.9 LEGAL AND POLICY FRAMEWORK

Legal and policy frameworks play a pivotal role in shaping the structural environment within which food security is pursued. In Zimbabwe, these frameworks encompass agricultural, land, gender and social protection policies that intersect to influence the livelihoods of rural households. However, the impact on elderly female-headed households remains underexplored in much of the policy discourse. This review examines the extent to which existing legal and policy instruments address the unique vulnerabilities of elderly female-headed households, especially in the context of the Pfumvudza/ Conservation Agriculture Program. At the international level, Zimbabwe is signatory to a number of treaties and conventions that provide normative guidelines on food security, gender equity and social protection:

The Universal Declaration of Human Rights (1948) and the International Covenant on Economic, Social and Cultural Rights (1996) recognize the right to adequate food as a fundamental human right. Zimbabwe, as a party is obligated to progressively realize this right. The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW, 1979) mandates states to ensure equal access for women to economic opportunities, including agricultural resources. This is particularly relevant for elderly female-headed households who often face gendered barriers in land access and participation in agricultural programs according to UN Women (2018).

The Maputo Declaration on Agriculture and Food Security (2003) commits African Union (AU) member states to allocate at least 10% of national budgets to agriculture and to promote food security. The 2014 Malabo Declaration further reinforced this urging governments to target vulnerable groups, including women and the elderly in agricultural policy interventions. These international and regional commitments provide a foundation for Zimbabwe's domestic policies but often fall short in implementation, especially in addressing age-gender-specific food insecurity. Elderly female-headed households continue to face significant challenges due to inadequate social protection, limited access to resources and systematic gender inequalities.

National Legal Frameworks Relevant to Food Security and Gender in the country include the Constitution of Zimbabwe (2013) Section 77 of the Constitution that guarantees every citizen the right to food and water, while Sections 56 and 80 advocate for gender equality and the rights of women. Furthermore, Section 21 commits the state to take reasonable measures to ensure the welfare of the elderly. Despite these provisions, Chirisa and Chivenge (2020) note that implementation mechanisms have often been inadequate in prioritizing elderly rural women in practical policy rollouts. In the contrary,

Chivenge et al., (2015) emphasize the importance of supportive policies and institutional frameworks in promoting the adoption of conservation agriculture as they note that government support, access to extension services and availability of inputs are critical factors influencing the success of such programs.

Land Tenure and Agricultural Law, The Land Reform and Resettlement Program, particularly after 2000, disrupted formal land rights systems. Matondi (2012) suggests that despite having redistributed land to formerly marginalized groups, elderly women were largely excluded due to patriarchal allocation mechanisms and the lack of legal documentation. The Communal Land Act still limits land ownership rights in communal areas, often resulting in women accessing land through male relatives, limiting their independence and ability to benefit from programs like Pfumvudza. Moyo et al., (2021) discuss the need for stronger policy support to ensure equitable access to land, credit and agricultural resources for vulnerable groups, and also note that existing policies sometimes lack sufficient focus on elderly female farmers, leading to gaps in resource allocation and social protection coverage. The authors recommend that policy frameworks be strengthened and better enforced to promote inclusivity in agricultural development programs like Pfumvudza, and to integrate social protection measures that address the multi-dimensional vulnerabilities of elderly female-headed households.

Legal Age Discrimination in Zimbabwe lacks a specific legal framework addressing age discrimination. HelpAge International (2017) asserts that although elderly persons are recognized in the Constitution, there are no explicit anti-discrimination statutes protecting the elderly in access to agricultural or food support programs. Zimbabwe's Constitutional and Legal systems, while progressive in some areas still permit age and gender-based discrimination in land matters. Customary law, which governs inheritance and land rights often excludes women particularly the elderly from inheriting land.

Agricultural and Food Security Policies in the country comprise of the Zimbabwe National Agricultural Policy Framework (NAPF, 2018-2030) which provides a roadmap for increasing agricultural productivity, promoting climate-smart agriculture and ensuring food and nutrition security. According to the Ministry of Lands, Agriculture and Rural Resettlement (2018), the policy advocates for inclusive participation but lacks robust mechanisms to prioritize or measure impact on elderly women-headed households. Also, the Pfumvudza Program introduced in 2020 as a part of Zimbabwe's climate resilience strategy is based on conservation agriculture principles. It offers inputs and training to smallholder farmers. However, Madziyire

et al., (2022) and World Bank (2023) settle that reports show mixed results for elderly participants, citing labor-intensiveness and limited extension service reach to older, isolated women.

The Zimbabwe National Food and Nutrition Security Policy of 2012 establishes a multi-sectoral approach to food security and nutrition. While it identifies vulnerable groups including the elderly and women, ZimVAC (2022) notes that its implementation has been fragmented, with few interventions tailored for intersecting vulnerabilities. Additionally, there is also the Zimbabwe Social Protection Policy Framework of 2016 that aims to protect the most vulnerable through safety nets and social assistance. Chiripanhura (2010) notes that elderly-headed households are eligible for food aid and cash transfers, yet coverage is inconsistent and often underfunded. Moreover, assistance programs do not always align with agricultural initiatives like Pfumvudza, limiting collaborative support.

Despite a relatively robust legal and policy framework, the actual inclusion of elderly female-headed rural households in food strategies remains limited. The UNDP (2021) notes that most policies fail to disaggregate beneficiaries by both age and gender, masking the specific needs of elderly female-headed households. Also, there are implementation gaps as legal and policy commitments are often not backed by sufficient financial and institutional support, especially in rural areas. Programs like the Pfumvudza assume household capacity for physical labor, excluding elderly women without youth support as well as legal uncertainty around land tenure and ownership hinders elderly women from accessing farming inputs and credit.

Zimbabwe's legal and policy frameworks provide a strong normative base for promoting food security and gender equality. However, elderly female-headed rural households remain inadequately represented in implementation strategies. While initiatives like Pfumvudza offer potential for transformation, they must be aligned with inclusive legal instruments and supported by targeted policy action to ensure that no vulnerable group is left behind. Tailored implementation models, recognizing constraints faced by elderly women are key to achieve the intended goals of food security and resilience.

2.10 LITERATURE GAP

A review of existing literature on food security, gender, age and rural development in Zimbabwe reveals significant scholarly attention to general smallholder agriculture, gender inequalities and the impacts of climate change. However, there remains a marked gap in understanding how agricultural interventions particularly the Pfumvudza/ Conservation

Agriculture Program impact one of the most vulnerable groups that is elderly female-headed households in rural communities.

There is limited focus on elderly female-headed households as most literature on food security in Zimbabwe addresses gender and rural livelihoods but tends to treat women as a uniform group, with limited segmentation by age and household headship. For instance, studies such as those by Mukarumbwa and Mushunje (2010) and Moyo et al., (2017) broadly address female farmers or women in rural agriculture but do not isolate the unique experiences of elderly women heading households. This lack of age-disaggregated data masks the specific vulnerabilities and coping mechanisms of elderly women such as physical limitations, reduced labor capacity and caregiving responsibilities. Moreover, Mawere et al., (2013) highlight the food insecurity of older women but frame their analysis primarily within the context of social exclusion and community responses, rather than within formal agricultural systems. This represents a gap in linking agricultural policy interventions to elderly women's food security.

The Pfumvudza Program lacks specified impact assessments, and rendering to Madziyire et al., (2022) and World Bank (2023) while the Pfumvudza has received attention for its potential in improving food self-sufficiency through climate-smart agriculture, few studies have assessed its differentiated impact on various household types. Existing assessments often generalize smallholder farmers without considering household structure, gender of the household head or age. This absence is particularly significant given the program's dependence on manual labor and timely input use, which may not be feasible for elderly women managing households without younger, physically able family members. Mupangwa et al., (2016) identify a gap in empirical research focusing specifically on the adoption and impact of Pfumvudza among vulnerable populations, such as elderly female-headed households. They note that while general benefits of conservation agriculture are documented, little is known about how factors like age, gender and household composition influence program uptake and outcomes. This gap points to the need for more disaggregated studies that explore the socio-economic and demographic determinants of Pfumvudza adoption and food security impacts in elderly female-headed households compared to other groups.

The concept of intersectionality which recognizes the overlapping effects of multiple identities and social categorizations comprising of age, gender and socio-economic status is underutilized in Zimbabwean food security research. Kabeer (2015) notes that much of the literature addresses gender inequality in agriculture, but few studies consider how being both elderly and

female amplifies food insecurity risks. This theoretical gap means that policies and programs inspired by existing research may not fully capture or address the compound vulnerabilities of elderly female-headed rural households. Thus, the literature lacks a holistic understanding of how multiple marginalities interact to affect food access, land use and participation in agricultural programs.

Another noticeable gap lies in the policy-practice disconnect. While national frameworks such as the Zimbabwe National Food and Nutrition Security Policy (2012) and the Agricultural Policy Framework (2018-2030) call for inclusive, gender-sensitive approaches, their implementation has not been adequately evaluated in relation to elderly female-headed rural households. Scholars such as Chirisa and Chivenge (2020) note that elderly women remain largely invisible in program targeting, but do not explore why this invisibility persists or how it affects outcomes in food production. As such, there is scarcity of empirical research that critically examines how well these policies are operationalized for specific vulnerable groups like elderly female-headed rural households.

Additionally, much of the existing literature relies on cross-sectional surveys or national vulnerability assessments like ZimVAC reports, which provide useful overviews but lack the depth to capture the lived experiences and adaptive strategies of elderly female-headed households over time. There is also limited use of participatory methodologies that involve elderly women directly in articulating the challenges and opportunities they face within programs like Pfumvudza. This creates a methodological gap, as qualitative and participatory approaches could provide context-rich insights that inform more inclusive and responsive program design.

Existing literature provides valuable insights into food security, rural agriculture and gender dynamics in Zimbabwe, but fails to adequately address intersectional vulnerabilities of elderly female-headed rural households, particularly in relation to the Pfumvudza program. Key gaps include the lack of detailed data, limited intersectional analysis, underrepresentation in program impact evaluations and a weak focus on implementation outcomes. Addressing these gaps is critical to ensuring that agricultural interventions like Pfumvudza are equitable, inclusive and effective for all household types, especially the most vulnerable.

CHAPTER 3

METHODOLOGY

3.0 INTRODUCTION

Methodology is defined by Kumar (2018) as the combination of methods, strategies and tools used in the gathering and analysis of data in a study. Creswell, (2014) terms methodology as the systematic and structured approach used to collect and analyze data to answer research questions and test hypotheses. In the context of this study, the methodology is designed to investigate the impact of the Pfumvudza program on food security in elderly female-headed rural households in Zaka. This study explores the impact of the Pfumvudza program on food security among elderly female-headed rural households in Zimbabwe. To gain a deeper understanding of the lived experiences, perceptions and challenges faced by these households, a qualitative research methodology was employed. The qualitative approach is particularly suited for this study as it enabled for a detailed exploration of the complex socio-economic dynamics, cultural practices and the contextual factors that influence food security in rural Zimbabwe, especially among elderly women who are often marginalized in decision-making processes. The research used semi-structured in-depth interviews and focus group discussions as the primary data collection methods. These methods allowed for rich, in-depth responses and offered flexibility to explore unanticipated issues that emerged during the study. Through these interactions, the study sought to uncover the perceptions of elderly female-headed households on the effectiveness of the Pfumvudza program, their coping strategies in ensuring food security and the socio-cultural barriers they face. Furthermore, the study adopted snowball and purposive sampling strategies to identify key participants who are involved in the Pfumvudza program and represented the target population of elderly female-headed in rural areas. Data was analyzed thematically, with the aim of identifying recurring patterns, themes and insights regarding the relationship between the program and food security. By employing a qualitative approach, this study aimed to provide a comprehensive understanding of the nuances that affect food security among elderly women in rural Zimbabwe, contributing valuable insights for policymakers and development practitioners seeking to improve food security interventions in similar contexts.

3.1 RESEARCH PHILOSOPHY

A research philosophy is defined by Saunders, Lewis and Thornhill (2019) as a system of beliefs and assumptions about the development of knowledge and these assumptions influence every aspect of the research process, from the formulation of the research questions to the interpretation of results. This study adopted a constructivist research philosophy to explore the lived experiences of elderly female-headed households in Zaka rural and how their participation in the Pfumvudza program influences food security. Constructivism holds that reality is socially constructed and subjective, shaped by individual experiences and cultural context. Schwandt (2000) further suggested that constructivism is an interpretive epistemology where understanding is constructed by the researcher through interaction with the research participants, and meaning is shaped by context and experience thereby making constructivism particularly relevant in qualitative research, where the goal is to understand participants' perspective in their own words. This approach was appropriate for understanding how elderly women perceive and interpret the impacts of Pfumvudza, a conservation agriculture initiative implemented in response to food insecurity and climate changes.

Constructivism aligns with qualitative inquiry and emphasizes the importance of understanding phenomena through the meanings people assign to them. In this study, food security was not simply measured by statistics or indicators, but how these women experience food availability, access and utilization within their socio-cultural and economic environment. As Creswell and Poth (2018) argue, constructivist researchers seek to understand the complex world of lived experience from the point of view of those who live it. Thus, the research was designed to center the voices of elderly female heads of households an often-marginalized group in both agricultural programs and policy discourse.

The use of interviews and focus group discussions became vital under a constructivist paradigm, as they allowed the participants to express their own realities, coping strategies and interpretations of the Pfumvudza program. According to Schwandt (2000), constructivism values these subjective narratives and sees them as crucial data for understanding human behavior and social phenomena. Moreover, this philosophy recognized that the researcher is not a detached observer but an active participant in the co-construction of knowledge. This interaction helped uncover how cultural norms, gender roles and generational dynamics influence both participation and its perceived success or limitations.

In Zaka rural context, especially among elderly women, historical marginalization, lack of access to land and inputs, and traditional responsibilities intersect with agricultural programming. Constructivism allowed for an exploration of these dynamics, shedding light on how these women interpret food security not only in terms of quantity of food, but also dignity, self-sufficiency and resilience. The findings are thus grounded in the participants' terms, which enhances the relevance of the research to both local contexts and policy reform.

3.2 RESEARCH APPROACH

A research approach is defined by Creswell (2014) as a plan and procedure for conducting research that spans the steps from broad assumptions to detailed methods of data collection and analysis. In this study, the researcher employed a qualitative research approach to investigate the impact of the Pfumvudza program on food security in elderly female-headed households in Zaka District. Qualitative research is defined by Creswell (2013) as an approach that emphasizes understanding human behavior, experiences and social phenomena through in-depth exploration and interpretation of individual perspectives rather than through numerical analysis. Qualitative research is characterized by its emphasis on exploring phenomena in their natural settings and using non-statistical methods to gather rich, detailed data that reflect the experiences and perspectives of participants. It focuses on gaining an in-depth understanding of complex issues through interviews and focus groups. According to Denzin and Lincoln (2011), qualitative research is an interpretive and naturalistic approach to the world, focusing on how people make sense of their experiences and the meanings they attribute to them.

In this study, qualitative was used to address the central research question, how does the Pfumvudza program influence food security among elderly female-headed households in rural Zaka, Zimbabwe. The study aimed to understand how these households perceive and experience the program and the ways in which it has impacted their food security. Maxwell (2013) suggests that for a research that is exploratory, focusing on understanding people's perceptions, qualitative methods such as in-depth interviews and focus group discussions are fitting for data collection. The research aimed to gain insights on how the participants experience and make sense of the program's effects on their food security. By engaging with the elderly women in rural Zaka, the study uncovered underlying themes related to the Pfumvudza program participation, agricultural practices, challenges faced and perceived outcomes on food security. This approach allowed for a comprehensive exploration of factors like socio-economic conditions, cultural practices and local perceptions that influence how the Pfumvudza program affects food security in elderly female-headed rural households.

The study involved the collection of data through several qualitative techniques. First, semi-structured in-depth interviews conducted with elderly female-headed households who have participated in the Pfumvudza program. These interviews were designed to explore their challenges, experiences and outcomes associated with the program. Focus group discussions were also conducted to encourage a collective exploration of food security issues and the program's impacts. Data was transcribed, coded and analyzed using thematic analysis to identify recurring patterns, categories and themes. This process involved constant comparison between data points and theoretical concepts to ensure that the findings reflect the complexities of the participants' experiences.

The qualitative approach was particularly suitable for this study for several reasons. First, the study aimed to explore the subjective experiences and perspectives of elderly women who head households in rural Zaka, who are often marginalized in rural Zimbabwean society. Their lived experiences of food insecurity and participation in agricultural programs such as Pfumvudza are complex and multi-dimensional, making qualitative methods ideal for capturing these nuances. According to Creswell (2013), qualitative research is well suited for understanding people's lived experiences and the meanings they attach to those experiences.

The use of qualitative methods allowed for flexibility in data collection, enabling the researcher to adapt the process based on the participants' responses and the context in which the research takes place. Yin, (2018) mentioned that the qualitative approach is particularly important when working with rural communities, where local dynamics, cultural practices and socio-economic factors play a crucial role in shaping the outcomes of agricultural interventions like Pfumvudza. Qualitative research enabled the study to gain an in-depth understanding of the broader socio-political and economic factors affecting food security in elderly female-headed households such as access to land, gender roles and policy implementation challenges. These factors according to Silverman (2016) may not be fully captured through quantitative methods, which often fail to account for the complexity of human experiences.

The qualitative research approach was well-suited for exploring the relationship between the Pfumvudza program and food security in elderly female-headed households in rural Zaka. By focusing on the experiences and perspectives of the participants, this approach provided valuable insights on how the program impacts food security at a grassroots level. The flexibility and depth of qualitative methods enabled the researcher to capture the rich, contextual data

necessary to address the research questions and contribute to the understanding of rural food security in Zimbabwe.

3.3 RESEARCH DESIGN

Research designs according to Creswell (2014) refers to the plan or framework used to guide the collection and analysis of data in a research study. In this study, the researcher employed a case study design to investigate the impact of the Pfumvudza program on food security in elderly female-headed rural households of Zaka District, Zimbabwe. A case study design, according to Yin (2014) is a research methodology that involves an in-depth examination of a single case or a small number of cases. In this study, the case study design was used to examine the experiences and perspectives of elderly female-headed households who have participated in the Pfumvudza program. The design allowed for an in-depth examination of the impact of the program on food security in these households. The case study design was used to test hypotheses and answer research questions in several ways. The design allowed for the collection of rich and detailed data on the experiences and perspectives of elderly female-headed households who have participated in the Pfumvudza program. The data was collected through semi structured in-depth interviews and focus group discussions. The data was analyzed using thematic analysis, which allowed for the identification of patterns and themes in the data. The findings were used to test the hypotheses and answer the research questions.

The procedures for collecting and analyzing data involved steps, first, a sample of elderly female-headed households who have participated in the Pfumvudza program was selected. Second, in-depth interviews and focus group discussions (FGDs) were conducted with the selected households to collect data on their experiences and perspectives on the program. According to Creswell, (2014) FGDs are held to promote interaction among participants, encouraging the sharing of ideas and experiences which also provided valuable insights into community level factors that affect the program's success. The collected data was then transcribed, coded and analyzed thematically to identify patterns and key themes related to food security, program participation and the socio-cultural factors affecting outcomes.

The case study design was particularly appropriate for this study. First, the study focused on a specific context that is elderly female-headed households in rural Zaka which requires an approach that can capture the complexity and uniqueness of this situation. Yin (2018) submits that case studies are ideal for studying specific groups or settings and can provide deep on local practices, perceptions and challenges. The case study design allowed the researcher to closely examine how the Pfumvudza program is implemented and experienced within elderly female-

headed households of Zaka and how it interacts with their broader socio-economic environment. Creswell (2014) mentions that case study research allows for the triangulation of data sources, that is interviews and FGDs which enhances the validity and reliability of the findings. By using multiple data collection methods, the researcher developed a more nuanced understanding of the factors influencing food security in elderly female-headed households, which might be overlooked in other research designs.

According to Yin (2018) case study design is particularly effective for exploring complex issues where variables are interconnected, as in the case with the interaction between agricultural interventions, food security, gender and socio-economic factors. The case study design allowed for an in-depth exploration of such multifaceted issues in a way that general surveys or experiments may not be able to capture. Case study provided the opportunity for the researcher to work closely with participants in their natural settings, which is essential for understanding the real-world implications of the Pfumvudza program. This grounded contextual approach was crucial for understanding the nuances of food security in rural Zimbabwe and the barriers that elderly female-headed households face in achieving food security through programs like Pfumvudza.

The case study design was well-suited for this study because it allowed for a comprehensive, in-depth exploration of how the Pfumvudza program impacts food security among elderly female-headed households in rural Zaka. By focusing on the lived experiences of participants and utilizing multiple data sources, this design provided valuable insights into the program's effectiveness and the broader socio-economic factors affecting food security. The case study approach was particularly appropriate given the complex, context-dependent nature of the research problem and the need for detailed, qualitative data to inform policy and practice.

3.4 STUDY SETTING

Creswell (2014) defines a study setting as a physical, social and contextual environment in which a research investigation is carried out, encompassing the location, time frame and organizational context in which data are collected. The study was conducted in rural Zimbabwe, specifically in Masvingo province, Zaka which was chosen on the basis it is among the districts most vulnerable to food insecurity and poverty. The Pfumvudza program, which was the focus of this study has been implemented in the district, making Zaka ideal for studying the program's impact on food security in elderly female-headed households. Additionally, the rural setting provided a unique opportunity to explore the experiences and perspectives of elderly female-headed households in a context where access to resources and services is

limited. The selection of Zaka was also justified by the prevalence of elderly female-headed households in the area. According to the Zimbabwe National Statistics Agency (2019), Zaka district has a high percentage of female-headed households, with many of these households led by elderly women. This made the study setting ideal for exploring the specific challenges and experiences of elderly female-headed households in the context of food security and the Pfumvudza program.

The focus on female-headed households was essential because gender dynamics significantly influence access to resources and decision-making within rural Zimbabwean households. Tariro (2019) mentions that studies on gender and rural livelihoods have revealed that elderly women in such settings are often marginalized both socially and economically, which heightens their vulnerability to food insecurity. The study setting of rural Zimbabwe, Zaka provided a unique and relevant situation for exploring the impact of the Pfumvudza program on food security in elderly female-headed households. The qualitative research approach and case study design were well suited for this study setting and provided a comprehensive and in-depth understanding of the research questions.

3.5 TARGET POPULATION

Moyo (2020) suggest that in qualitative research, the target population is typically a well-defined subset of a larger population chosen based on specific criteria relevant to research questions. The study targeted elderly women who head households and participate or benefit from the Pfumvudza program in rural Zaka. It also targeted professionals under the drought relief committees in Zaka from which to draw key informants. These characteristics were significant because the study aimed to explore the experiences, challenges and outcomes related to food security within a specific demographic that faces unique socio-economic and cultural pressures.

In this qualitative research, the aim was to answer research questions by exploring the experiences and perspectives of participants. This study's research questions centered on how the Pfumvudza program influences food security in elderly female-headed rural households and what the specific challenges and outcomes of the program are in this context. The elderly female-headed households form the focal point for answering these questions, and Yin (2018) suggests that their lived experiences, perceptions of the program and daily struggles with food security provides rich, contextual data that are essential for understanding the broader impacts of the Pfumvudza intervention. The choice of this target population helped to answer questions about how agricultural programs like Pfumvudza are perceived and experienced by those who

are most likely to face challenges in accessing and utilizing agricultural resources. This population also enabled the study to delve into gendered and age-related dimensions of food security, which are critical in understanding the barriers to food security faced by elderly women in Zaka. Tariro (2019) reasons that by focusing on elderly female-headed households, the study generate insights and agricultural interventions in a vulnerable group.

The selection of elderly female-headed households in Zaka district was consistent with the qualitative nature of this study. Data was collected through semi-structured in-depth interviews and focus group discussions. Semi-structured in-depth interviews according to Creswell (2014) provide an opportunity to gather in-depth, personal narratives from elderly female household heads regarding their experiences with the Pfumvudza program as well as their broader perceptions of food security. Braun and Clarke (2006) suggest that focus group discussions allow for the exploration of communal perspectives and the sharing of experiences among participants, which can shed light on collective understandings of food security in the context of the Pfumvudza program. Maxwell (2013) claims that by using qualitative methods, the study captures the lived experiences of elderly women, which is crucial for understanding the multifaceted nature of food security and the factors that influence their ability to improve it through agricultural interventions. This approach allowed for the generation of rich, detailed data, as it was deeply embedded in the context of the target population's environment and everyday challenges.

Elderly women in rural Zimbabwe are among the most vulnerable groups when it comes to food security, and according to Chikazunga (2018) they face compound challenges due to their age, gender and often limited access to land, resources and social support networks. Given these vulnerabilities, understanding elderly female household heads' unique experiences and needs was essential for evaluating the effectiveness of the Pfumvudza program, which is aimed addressing food insecurity in rural households. Second, focusing on this specific target population enabled the study to explore the gendered dimensions of food security. Moyo et al., (2020) suggest that gender disparities in access to agricultural resources, decision-making power and social support are central to understanding food insecurity in Zimbabwe. Tariro (2019) suggested that elderly female-headed households often have limited bargaining power and face social and economic exclusion, which can severely hinder their ability to achieve food security. By examining the experiences of elderly female household heads, the study provided valuable insights into the intersection of gender, age and food security.

The target population of elderly female-headed rural households in Zaka was both appropriate and necessary for this qualitative study. This population provided critical insights into the effects of the Pfumvudza program on food security, while also shedding light on the broader socio-economic and gendered challenges these households face. The choice of target population ensured that the research questions are addressed comprehensively, and the findings offered valuable data for policymakers and organizations working to enhance food security and agricultural interventions for vulnerable populations in Zimbabwe.

3.6 SAMPLING TECHNIQUES

A sampling technique is defined by Creswell (2014) as a method used to select a subset of participants from a larger population to provide insights on specific research questions. Sampling techniques in qualitative research refer to the methods used to select participants who can provide the most relevant and rich data about the research topic. Patton (2002) suggests that the goal of sampling is to identify individuals or cases that provide deep insights on the research questions rather than ensuring a representative sample of the larger population hence, the goal is not to generalize findings to a broader population but to gain in-depth understanding of the phenomenon under study through rich, detailed data from a smaller, carefully chosen sample. For this study which sought to explore the impact of the Pfumvudza program on food security in elderly female-headed households in rural Zaka, availability sampling and purposive sampling techniques were employed as the sampling techniques. These techniques allowed the researcher to purposefully select participants who are directly involved in the Pfumvudza program and who meet specific criteria, such as being elderly women who head their households in rural areas.

3.6.1 AVAILABILITY/ CONVENIENCE SAMPLING

Availability sampling, also known as convenience sampling, is a non-probability sampling method where participants are selected based on their ease of access to the researcher. Participant selection was done using availability (convenience) sampling, a non-probability sampling method that involves selecting individuals who are easily accessible to the researcher. In this study, the researcher engaged with elderly female household heads who were referred by a local Counselor and an agricultural extension officer. These referrals were made during an initial meeting the researcher had with the two officials, during which the study's objectives were explained. The Counselor and extension officer, familiar with the local community and knowledgeable about participants in the Pfumvudza program, directed the researcher to elderly women they believed would be relevant and willing to participate.

Once the referrals were made, the researcher approached the suggested participants to seek their voluntary involvement. Ethical considerations were carefully observed, with the researcher obtaining informed consent from each participant. The consent process included explaining the purpose of the study, ensuring confidentiality and emphasizing that participation was voluntary and could be withdrawn at any time without consequence. This approach helped build trust and rapport, especially important when working with elderly individuals in a rural context. Data collection involved in-depth interviews that provided participants the opportunity to share their personal experiences with the Pfumvudza program and how it has affected their household food security. The interviews were conducted in a conversational manner, using open-ended questions that allowed participants to express themselves freely. In some cases, FGDs were implemented to get the collected perspectives of the elderly female heads concerning the impacts of the Pfumvudza program to their food security. These methods combined to provide a rich, detailed picture of the participants' realities.

In analyzing the data, the researcher likely used thematic analysis, which involves identifying, coding, and interpreting patterns or themes within the qualitative data. This process helped highlight common experiences, challenges, and benefits associated with the Pfumvudza program as perceived by the elderly female heads of households. While the use of availability sampling limited the generalizability of the findings, the study offered valuable insights into how the Pfumvudza program function on the ground and their implications for food security among this marginalized population. The research ultimately contributed to a deeper understanding of the intersection between agricultural policy, gender, aging and rural development in Zimbabwe.

3.6.2 PURPOSIVE SAMPLING

Purposive sampling, rendering to Palinkas et al., (2015) is also known as judgmental sampling and a non-probability sampling technique where the researcher selects participants based on specific criteria or characteristics that are relevant to the study's focus. In this study, the researcher purposefully selected elderly female-headed households in rural Zaka who are participants in the Pfumvudza program. This technique was ideal because it ensured that the sample consisted of individuals who are directly affected by the program and whose experiences are central to understanding the impact of the program on food security.

The researcher identified elderly women who are heads of households in rural Zaka, who are actively participating in the Pfumvudza program. These women were selected from rural Zaka where the Pfumvudza program is implemented. The researcher engaged local agricultural

extension officers and community leaders to assist in identifying these participants. The selection focused on individuals who could provide detailed information about the challenges they face with food security and their perceptions of the Pfumvudza program.

Purposive sampling was particularly effective for this study, rendering to Creswell (2014), purposive sampling enabled the researcher to select participants who have specific knowledge and experiences related to Pfumvudza program and its impact on food security in elderly female-headed households in rural Zaka. The study aimed to explore the experiences of elderly female heads of households who are engaged in the Pfumvudza program, purposive sampling ensured that the data was directly relevant to the research questions. This technique allowed for a focused exploration of the intersection of gender, age and food security, capturing in-depth insights on the participants' challenges, perceptions as well as outcomes related to the program.

3.7 SAMPLE SIZE

Creswell and Poth (2017) suggest that unlike quantitative research where sample size calculations are often based on statistical power, qualitative research prioritizes the depth and quality of data over the quantity of participants. They also postulate that in qualitative research, sample sizes are usually smaller, as the goal is not to generalize findings to a larger population but to understand complex phenomena from the perspective of participants. Sample size refers to the number of participants included in a research study. In this study titled the researcher employed both purposive and availability (convenience) sampling techniques to select a total of 12 participants. Of these, 9 were elderly female heads of households, chosen for their direct experience with the Pfumvudza program and their relevance to the study's central focus. This aligns with the principles of purposive sampling, where participants are selected based on specific characteristics and their ability to provide rich, relevant data. The remaining 3 participants were key informants including agricultural extension officers who provided broader insights into the implementation and impact of the program. These informants were chosen through convenience sampling, as they were accessible to the researcher and held valuable contextual knowledge.

A sample size of 12 participants is considered adequate for a qualitative case study, especially when the goal is to gain in-depth, contextualized understanding rather than statistical generalization. The combination of interviews and focus group discussions (FGDs) allowed the researcher to gather diverse perspectives while also achieving data triangulation, which enhances the credibility of the findings. While small, this sample size was appropriate for the

study's exploratory nature and the depth of interaction required to understand the lived experiences of elderly women in rural Zaka. Furthermore, the concept of saturation played a crucial role in determining sample size for this study. Charmaz (2014) suggests that saturation occurs when new data no longer adds significant insights or when themes begin to recur across interviews. The researcher closely monitored data to ensure saturation was reached during data collection. In this study, the focus was on elderly female-headed households in rural Zaka participating in the Pfumvudza program. The sample therefore consisted of participants who were likely to provide deep insights into how the program has affected their food security, considering socio-economic, cultural and geographical factors that are unique to these areas.

3.7.1 INCLUSION AND EXCLUSION CRITERIA

For this study, the inclusion and exclusion criteria was critical as it ensured that the research focused on a relevant and well-defined population. Given the specific research interest, the inclusion criteria encompassed elderly women aged 60 years and above who are primary heads of their rural households and have participated in the Pfumvudza program in Zaka District. These participants must have resided in the community for at least five consecutive years to ensure familiarity with local agricultural practices and the socio-economic impact of the program. Additionally, they were required to be willing and able to provide informed consent to participate in the study. This aligned with Creswell and Creswell (2018) who emphasize that inclusion criteria should reflect the characteristics necessary to address the research problem meaningfully.

In contrast, exclusion criteria applied to elderly women who do not head their households, those below the age of 60, or those residing outside the rural areas of Zaka District. Individuals who have not engaged with the Pfumvudza program or who have only recently relocated to the area were also excluded, as their experiences may not offer insights into long-term impacts on food security. Furthermore, individuals with cognitive impairments that inhibit their ability to provide reliable information or give informed consent were excluded for ethical and methodological reasons according to Palinkas et al., (2015).

3.8 DATA COLLECTION METHODS

A data collection method according to Creswell, (2014) refers to the technique or instrument used to gather data for a research study. Data collection methods can be qualitative, quantitative or mixed-methods and can include techniques such as surveys, interviews and observations. Bryman (2016) defines data collection methods as means by which researchers gather data to

answer their research questions. This qualitative research employed semi-structured in-depth interviews and focus group discussions as data collection methods.

3.8.1 SEMI STRUCTURED IN-DEPTH INTERVIEWS

In-depth interviews are a data collection method that involves conducting detailed, one-on-one conversations with individuals to gather information on their experiences, opinions and perspectives, (Patton, 2015). For this study, in-depth interviews were used to collect data on the experiences and perspectives of elderly female-headed households of Zaka rural regarding the Pfumvudza program and its impact on their food security. The in-depth interviews were conducted in the local language and audio-recorded with the participant's consent. The interviews were guided by a set of open-ended questions that explored the participants' experiences and perspectives on the Pfumvudza program, including its benefits, challenges and impact on their food security. This approach was appropriate as it allowed the researcher to explore the subjective experiences and individual narratives of elderly female heads of households whose voices are often marginalized in policy and development discourse.

The researcher used semi-structured in-depth interviews to interact with participants, combining both guided questioning and open-ended discussion to gain rich qualitative data. This method allowed the researcher to explore specific themes related to the Pfumvudza program such as input distribution, farming practices and food availability while also allowing participants the freedom to share their personal experiences and perspectives in detail. The researcher engaged five elderly female-headed households purposively selected for their direct involvement with the program. The interviews were held in familiar and private environments to create a comfortable setting that encouraged openness and trust. Conducting interviews in the local language (Shona) ensured clear communication and cultural sensitivity, with the researcher being fluent.

The interaction during these in-depth interviews was conversational and empathetic, aimed at building rapport with the elderly participants, many of whom had been hesitant or unfamiliar with formal research settings. The researcher used a flexible interview guide with prompts and follow-up questions to probe for deeper insights when necessary, such as asking how participants coped during periods of food shortage, or what challenges they faced in implementing Pfumvudza techniques. This adaptive approach allowed for the emergence of new themes and unexpected insights beyond the initial questions. Notes were taken throughout the sessions, and interviews were audio recorded with consent to ensure accuracy during analysis. This method of interaction allowed the researcher to gather nuanced, first-hand

accounts of how the Pfumvudza program influence the food security status of elderly female-headed households, while also uncovering broader social and environmental factors affecting their livelihoods.

According to Alshenqeti (2015), semi structured interviews offer flexibility in questioning while maintaining a consistent framework that ensures the relevance and comparability of responses across participants. This was crucial for understanding how different individuals perceive and experience the implementation of the Pfumvudza program, especially in relation to their food security status. Elderly women in rural communities often face unique challenges such as limited physical capacity, restricted access to resources and social exclusion. Semi-structured in-depth interviews provided a private and respectful setting where these participants shared their lived realities without the pressure of group dynamics. As Brinkmann (2018) explains, in-depth interviews are particularly effective for capturing complex personal experiences, emotions and the meanings individuals attach to social programs. In this context, interviews allowed elderly women to narrate their interactions with Pfumvudza, from their understanding of the program to its implementation, to its impact on household food availability offering nuanced data that might not emerge in group discussions.

3.8.2 FOCUS GROUP DISCUSSIONS

The researcher used focus group discussions (FGDs) as a key qualitative data collection method to complement individual interviews. The FGDs involved three separate groups, each comprising three elderly female heads of households, who were selected through a combination of purposive and availability sampling. These participants were chosen for their direct experience with the Pfumvudza program and their willingness to engage in group discussions. The small group size was ideal for fostering open and manageable conversations, especially considering the age of the participants and the potentially sensitive nature of discussing household food security. The FGDs provided a platform for participants to share, compare and reflect on their experiences collectively, which often helped validate or challenge individual views and highlight common themes. According to Nyumba (2018), FGDs are effective for generating qualitative data that reflect group norms, collective views and shared understanding, particularly in rural and development research, all of which were central to understanding the community based challenges faced by elderly female-headed households in rural Zaka, hence the room given through FGDs allowed for the exchange of ideas and experiences, which stimulated new insights that individual interviews failed to reveal.

The use of FGDs as a data collection method was fitting for this study, this is in relation to Nyumba (2018) who suggests that FGDs are effective for generating qualitative data that reflect group norms, collective views and shared understandings. FGDs were particularly useful for this study that involved elderly women as they offered a platform where individuals expressed themselves freely in a familiar, supportive setting. As noted by Braun and Clarke (2019), FGDs can uncover the socio-cultural dimensions of lived experiences, especially when addressing sensitive issues such as poverty, household food shortages and limited access to agricultural inputs. Elderly women felt more comfortable discussing about these challenges in the presence of their peers, which allowed the researcher to capture more authentic and detailed narratives about how the Pfumvudza program affects their households' food security.

Throughout the FGDs, the researcher took detailed notes and, where permitted, used an audio recorder to capture the discussions for later transcription and analysis. The FGDs were conducted in the local language (Shona) to ensure clear communication and cultural relevance. The researcher played an active role in guiding the discussions without imposing opinions, using probing questions and follow-up prompts to deepen understanding. In some cases, participants built on each other's responses, which added depth and revealed shared experiences, such as seasonal food shortages, support networks or the difficulties of accessing agricultural support services. These group interactions were instrumental in highlighting the broader social and community-based factors influencing food security among elderly female-headed households, offering insights that might not have been as easily surfaced through individual interviews alone.

3.9 DATA COLLECTION TOOLS

A data collection tool, according to Creswell, (2014) refers to the instrument or device used to gather data from participants or respondents in a research study. The researcher used a combination of data collection tools comprising of semi-structured in-depth interview guides and focus group discussion guides.

3.9.1 SEMI-STRUCTURED IN-DEPTH INTERVIEW GUIDES

Rendering Patton (2015), a semi-structured interview guide is a data collection tool that consists of a set of open-ended questions designed to gather in-depth information from a small number of people. In this study, semi-structured interview guides were used to collect data on the experiences and perspectives of elderly female-headed rural households regarding the Pfumvudza program and its impact on their food security. The semi-structured interview guides were used to collect data from a sample of elderly female-headed households in rural Zaka. It

consisted of a set of open-ended questions that were designed to gather in-depth information on the participants' experiences and perspectives regarding the Pfumvudza program. The questions were organized around themes such as participation in the Pfumvudza program, benefits and challenges of the program and impact of the program on food security. The interviews were conducted in a conversational style, allowing respondents to share their thoughts and experiences in detail. The interviews were audio-recorded with the participants' consent, and the data were transcribed verbatim for analysis.

The use of semi-structured interview guides as a data collection tool was appropriate for this study because it allowed for the collection of rich, in-depth data on the experiences and perspectives of elderly female-headed households. Semi-structured interview guides provided a flexible framework for data collection, allowing participants to share their thoughts and experiences in detail. Additionally, semi-structured interview guides enabled the researcher to explore themes and issues that were not anticipated, providing a deeper understanding of the research topic. Semi-structured interview guides were particularly suitable for this study because they allowed for the collection of data from a small number of respondents, which was ideal for in-depth, qualitative research. Rendering to Patton (2015) who praised the flexibility of semi-structured in-depth interview guides, the researcher engaged and noted that the flexibility of this interview style helped capture the voices of the elderly, whose articulation varied due to age-related factors, and it allowed the researcher to probe as well as rephrase questions for clarity. The use of semi-structured interview guides as a data collection tool was justified for this study because it allowed for the collection of rich, in-depth data on the experiences and perspectives of elderly female-headed households, as well as provided a flexible framework for data collection that enabled the researcher to explore themes and issues that were anticipated.

3.9.2 FOCUS GROUP DISCUSSION GUIDE

A focus group discussion guide is a data collection tool that involves gathering a small, diverse group of people to discuss a specific topic or issue (Krueger and Casey 2015). In the context of this study, a focus group discussion guide was used to collect data on the shared experiences and experiences of elderly female-headed households of Zaka rural regarding the Pfumvudza program and its impact on food security. The focus group discussion guide was used to collect data from a sample of elderly female-headed households in Zaka, in Masvingo province. The guide consisted of a set of open-ended questions that were designed to gather information on the participants' collective experiences and perspectives regarding the Pfumvudza program.

The questions were organized around themes such as participation in the Pfumvudza program, benefits and challenges of the program, and its impact on food security. The focus group discussion were conducted in a conversational style, allowing respondents to share their thoughts and experiences in detail. The discussions were audio-recorded with the participants' consent.

The use of focus group discussion as a data collection tool was fitting for this study because it allowed for the collection of data on the collective experiences and perspectives of elderly female-headed households. Focus group discussion provided a unique opportunity for participants to share their opinions and thoughts in a group setting, providing a richer understanding of the research topic. Additionally, focus group discussions enabled the researcher to explore themes and issues that were not anticipated, providing a more nuanced understanding of the research topic. Focus group discussions were suitable particularly for this study because they allowed for the collection of data from a small number of participants, which is ideal for in-depth, qualitative research. Hence, the use of a focus group discussion protocol as a data collection tool was acceptable for this study because it allowed for the collection of data on the collective experiences and perspectives of elderly female-headed households of rural Zaka, provided a unique opportunity for participants to share their thoughts and experiences in a group setting and enabled the researcher to explore themes and issues that were not anticipated.

3.10 DATA ANALYSIS

Data analysis is a crucial step in the research process that involves systematic examination and interpretation of data to identify patterns, themes and relationships (Bryman, 2016). For this qualitative study, data analysis was an iterative and interpretive process aimed at uncovering patterns, meanings and themes in textual data. For this study which explored how the Pfumvudza program affects food security among elderly female-headed households, the process followed thematic analysis which according to Braun and Clarke (2006) is a widely used method in qualitative research to identify, analyze and report patterns within data.

DATA PREPARATION AND FAMILIARIZATION

The first stage involved transcribing all recorded interviews and focus group discussions verbatim (word-for-word). This ensured accuracy and engagement in the data. During this phase, the researcher repeatedly read through the transcripts to become deeply familiar with the content. According to Creswell and Poth (2018), this familiarization helps the researcher

gain a holistic understanding and begin initial reflections on emerging insights. It also allows the researcher to note key ideas and potential patterns in a reflective journal.

CODING THE DATA

This stage involved systematically coding the data. Coding is defined by Saldana (2016) as the process of organizing data into meaningful groups. Codes are short phrases or labels assigned to segments of text that represent key features for the data relevant to the research questions. For this study, open coding were used first, allowing themes to emerge inductively from the participants' narratives, and this aligns with the constructivist paradigm, which values participants' subjective meanings.

DEVELOPING THEMES

After coding, the researcher examined and cluster related codes into broader categories or themes. Themes reflect significant patterns in the data that answer research questions for example, themes include perceptions of food sufficiency, access to agricultural inputs and gendered challenges in farming. Braun and Clarke (2006) emphasize that themes should not just summarize data but also interpret its meaning in relation to the research context and theoretical framework.

REVIEWING AND REFINING THEMES

This phase involves reviewing the initial themes to ensure they are coherent, distinct and well supported by the data. Some themes may be merged, split or discarded. At this stage, the researcher re-reads the data and checks whether the themes accurately reflect participants' perspectives, which according to Nowell et al., (2017) enhances the credibility and trustworthiness of the findings. Peer debriefing or member checking may be used to validate interpretations with fellow researchers or participants.

INTERPRETING THE DATA

The final stage involved interpreting the themes in relation to existing literature, theory and the socio-cultural context of rural Zaka. Interpretation goes beyond description to make sense of what the themes reveal about the experiences and food security status of elderly female-headed households. As Patton (2015) suggests, qualitative interpretation is about meaning making that is understanding how participants construct their reality and how this reality interacts with broader structures like agricultural policy and gender norms.

3.11 DATA PRESENTATION

In qualitative research and case study design, data presentation is not just about displaying findings but about telling a coherent, evidence-based story that brings participants' experiences to life. Because the study focuses on elderly female-headed households, a group often marginalized in agriculture and policy discourse, hence data presentation must emphasize voice, depth and contextual richness.

NARRATIVE PRESENTATION

In this study, narrative presentation was one of the most effective methods of presenting data where stories and lived experiences are told in detail. This method aligned with the constructivist paradigm and helped illuminate how these women make sense of the Pfumvudza program and food security in their lives. Narrative presentation allowed for the inclusion of direct quotations, life histories and personal reflections, which humanize the data and emphasize subjectivity. According to Riessman (2008), narrative methods are ideal in exploring individual experiences especially in marginalized populations, as they provide insight on how people construct meaning in their lives. This approach respects the depth and context that case study research demands.

THEMATIC TABLES AND CHARTS

While qualitative research does not typically use numerical data, thematic tables and matrices can be helpful to visually summarize patterns and themes across different cases or participants. For example, a table might list major themes like climate resilience, access to inputs or community support with supporting quotes or case examples from each participant. As suggested by Miles, Huberman and Saldana (2014), thematic matrices are effective for cross-case comparison, pattern recognition and clarity in thematic development. They offer a structured way to present large volumes of data without oversimplifying participant voices.

VERBATIM (WORD FOR WORD) QUOTATIONS

Including verbatim quotations from interview transcripts or focus group discussions added credibility and authenticity to the findings. In qualitative research, a verbatim quotation refers to the direct, unedited words of a participant taken from an interview or focus group discussion. Quotations allow participants to speak for themselves, preserving their language, emotions and interpretations of the Pfumvudza program's impact on food security. For example, "Before Pfumvudza program, we used to harvest very little. Now we, even with the small plots I can feed my grandchildren until the next season." According to Creswell and Poth (2018),

quotations help illustrate abstract themes with concrete examples and are especially powerful in portraying diverse and sometimes contradictory experiences. They serve as evidence of the themes developed in analysis and foster transparency in interpretation.

3.12 TRUSTWORTHINESS OF THE STUDY

This study on the Pfumvudza program and food security in elderly female-headed rural households in Zimbabwe aims to provide a trustworthy and rigorous examination of the research phenomenon. To establish the trustworthiness of the study, the researcher will take steps to ensure the credibility, dependability, transferability, reflexivity and confirmability of the findings.

3.12.1 CREDIBILITY

Clarke and Braun (2021) postulate that credibility refers to the extent to which the findings accurately reflect the experiences and perspectives of the participants. In this study, credibility is guaranteed using multiple data sources including in-depth interviews and focus group discussions, as well as the use of member checking and peer debriefing to validate the findings.

3.12.2 DEPENDABILITY

Dependability refers to the extent to which the findings are consistent and reliable. To ensure dependability, the study will use a systematic and transparent approach to data collection and analysis. The researcher will document the research process, including the data collection and analysis procedures and will make the data and findings available for external review. The use of a systematic and transparent approach to data collection and analysis will ensure that the study is dependable and that the findings are reliable. By documenting the research process and making the data and findings available for external review, the researcher will demonstrate transparency and accountability.

3.12.3 TRANSFERABILITY

Transferability refers to the extent to which the findings can be generalized in other contexts and populations. To ensure transferability, the study will provide a detailed description of the research context, including the population, setting and data collection procedures. The researcher will also use theoretical sampling to select participants. The use of a detailed description of the research context and theoretical sampling will ensure that the study is transferable and that the findings can be generalized to other similar contexts.

3.12.4 REFLEXIVITY

To ensure reflexivity, the researcher will acknowledge their own biases and assumptions and will use self-reflection to identify and address potential sources of bias. The use of reflexivity will ensure that study is free from bias and that the findings are reliable. By acknowledging own biases and assumptions, the researcher will demonstrate transparency and accountability.

3.12.5 CONFIRMABILITY

Confirmability refers to the extent to which the findings are supported by the data and are not influenced by the researcher's biases or assumptions. To ensure confirmability, the study will use an audit trail to document the research process including the data collection and analysis procedures. The researcher will also make the data and findings available for external review. The use of an audit trail will ensure that the study is confirmable and that the findings are reliable. By making the data and findings available for external review, the researcher will demonstrate transparency and accountability.

By ensuring the credibility, transferability, dependability, reflexivity and confirmability of the findings, this study aims to provide a trustworthy and rigorous examination of the Pfumvudza program and food security in elderly female-headed rural households in Zimbabwe.

3.13 ETHICAL CONSIDERATIONS

This study on the Pfumvudza program and food security in elderly female-headed rural households in Zimbabwe raises several ethical considerations that must be considered. As a researcher, it is essential to ensure that the rights and dignity of the study participants are respected and protected. This includes obtaining informed consent from participants, maintaining confidentiality and anonymity, and avoiding harm or exploitation. Also, the study must be conducted in a way that is culturally sensitive and respectful of the participants' values and beliefs. The researcher must also be aware of the potential power dynamics between the researcher and participants and take steps to mitigate any negative impacts. By being mindful of these ethical considerations, the researcher can ensure that the study is conducted in a responsible and ethical manner.

3.13.1 INFORMED CONSENT

Informed consent is a process by which a researcher provided potential participants with sufficient information about the research, including its purpose, procedures, risks and benefits so that they can make an informed decision about whether to participate. Informed consent was essential in this study because it ensured that the participants understood the purpose, risks and benefits of the study. Elderly female-headed rural households in Zaka may not be familiar with

research studies, and therefore it was crucial to provide them with clear and concise information about the study. The informed consent process involved providing participants with a consent form that explained the study's purpose, procedures, risks and benefits. Participants were required to sign the consent form before participating in the study.

3.13.2 CONFIDENTIALITY

Confidentiality refers to the protection of personal information and data collected during the research process, and the avoidance of disclosure of such information to unauthorized parties (Creswell, 2020). Confidentiality was crucial in this study because it ensured that participants' personal information and data were protected from unauthorized access or disclosure. Elderly female-headed rural households in Zaka were hesitant to share their personal information or experiences as they felt that their confidentiality would not be protected. The researcher ensured confidentiality by using codes to identify participants, and by storing the data in a secure location.

3.13.3 ANONYMITY

According to Bryman (2020), anonymity refers to the protection of the identity of research participants so that they cannot be identified either directly or indirectly. Anonymity was essential in this study because it ensured that the participants' identities are protected from being revealed. Elderly female-headed households of rural Zaka may be vulnerable to stigma or discrimination if their identities are revealed. The researcher ensured anonymity by not collecting any personal information that could be used to identify the participants, and by not revealing their identities in any publications or presentations resulting from the study.

3.13.4 BENEFICENCE

According to Creswell (2020), beneficence refers to the principle of doing well and promoting the welfare and well-being of research participants. It involved taking actions that were intended to benefit participants, either directly or indirectly, and to promote their physical, emotional and psychological well-being. Beneficence was crucial in this study because it ensured that the participants benefit from the study. The Pfumvudza program is designed to improve food security among rural households in Zimbabwe. By participating in this study, elderly female-headed rural households got the opportunity to share their experiences and perspectives on the program, which can help to improve its effectiveness. The researcher also provided participants with information and resources on food security and nutrition, which can benefit them directly.

3.13.5 NON-MALEFICENCE (AVOIDING HARM)

Non-maleficence refers to the avoidance of harm or injury to research participants, either physically, emotionally or psychologically. Non-maleficence was essential in this study because it ensured that the participants were not harmed or exploited in any way. The researcher ensured that the participants are not subjected to any physical, emotional or psychological harm during the study. The researcher also avoided exploiting the participants' vulnerability or lack of knowledge about research studies.

3.13.6 JUSTICE

Justice refers to the principle of fairness and equity in the distribution of benefits and burdens of research. It involved ensuring that the benefits and risks of research are distributed fairly and equitably among all participants, and that no one group bears an unfair burden or receives an unfair benefit. Justice was crucial in this study because it ensured that the participants are treated fairly and justly. The researcher ensured that the participants were selected fairly, and that the study's benefits and risks be distributed fairly among them. The researcher also ensured that the study's findings are used to benefit the participants and their communities.

3.13.7 CULTURAL SENSITIVITY

Cultural sensitivity refers to the researcher's awareness and respect for the cultural values, beliefs and practices of the research participants, and the avoidance of cultural imperialism or exploitation. Cultural sensitivity was essential in this study because it ensured that the researcher was aware of and respected the cultural norms and values of the participants. The researcher warranted that the study's methods and procedures were culturally appropriate and sensitive to the needs and values of elderly female-headed households of Zaka rural. The researcher also ensured that the study's findings were interpreted and presented in a culturally sensitive manner.

3.13 CHAPTER SUMMARY

Conclusively, this chapter outlined the research methodological framework underpinning the study, which sought to explore the impact of the Pfumvudza program on food security among elderly female-headed households in rural Zaka. Grounded in a constructivist research philosophy, the study adopted a qualitative research approach and a case study design to examine the lived experiences, challenges and perceptions of this marginalized demographic. Key methodological components were discussed, including participant selection through availability and purposive sampling, data collection techniques that is in-depth interviews and focus group discussions, as well as the ethical considerations that guided the study. Furthermore, the chapter detailed the use of thematic analysis as the primary method for

analyzing qualitative data, supported by strategies to ensure trustworthiness through credibility, dependability, confirmability and transferability. By employing a case study design, the research aimed to provide a rich, contextualized understanding of how the Pfumvudza program shapes food security outcomes for elderly women in rural setting. The next chapter will present and analyze the research findings, drawing connection between participants' narratives and broader themes that emerged from the data.

CHAPTER 4

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.0 INTRODUCTION

This chapter presents, interprets and discusses the findings of the study on the impact of the Pfumvudza program on food security in elderly female-headed rural households in Zaka. The analysis is guided by the research objectives, with findings organized and discussed in relation to each objective. The data were collected from participants through in-depth interviews and focus group discussions and analyzed thematically to identify key and recurring patterns and insights. The chapter aims to contextualize the findings within the broader literature and theoretical framework, offering a refined understanding of how the Pfumvudza program has influenced food security outcomes for this vulnerable group. Each section begins with a presentation of findings related to a specific objective, followed by an interpretation and discussion in relation to existing studies and local context.

4.1 DEMOGRAPHIC CHARACTERISTICS OF ELDERLY FEMALE HEADS PARTICIPANTS

Participant NAME	AGE	MARITAL STATUS	EDUCATION LEVEL	HOUSEHOLD size	CROPS GROWN	IRRIGATION SERVICES
G1	64	Widowed	Secondary	5	Maize, millet	YES
G2	60	Widowed	No formal	7	Maize, sorghum	YES
G3	69	Divorced	No formal	6	Maize, beans	YES
G4	70	Widowed	Tertiary	5	Maize, groundnuts	NO
G5	66	Divorced	Primary	3	Maize	NO
G6	65	Never married	Secondary	4	Maize, sunflower	YES

The demographic table above provides detailed profiles of the primary participants in this study, all of whom are elderly female heads from rural Zaka who are active in the Pfumvudza program. To ensure confidentiality, pseudonyms are used for each participant. The table comprise of several variables that is age, name, marital status, education level, number of household members, crop types grown and access to extension services and irrigation. This table serves as a foundational reference for analyzing the relationship between these demographic factors and the participant's experiences with the Pfumvudza program and its impact on food security, where the lack of formal education, advanced age and limited access to extension services hinder the efforts of elderly female heads, affecting both their food security and the effectiveness of agricultural programs like the Pfumvudza. Lack of formal education restricts their capacity to adopt new farming techniques, manage resources efficiently and make informed decisions, thereby affecting their food security. Access to extension services is also another factor, where in Zimbabwe, women farmers have historically had limited access to agricultural extension services which are often male-dominated and may not address the specific needs of female farmers. This disparity in access means that elderly female farmers may not receive the necessary training and support to implement best practices, thereby limiting the potential benefits of the Pfumvudza program.

4.1.1 DEMOGRAPHIC INFORMATION OF THE EXTENSION OFFICERS

DESIGNATION	GENDER	WORK EXPERIENCE
Agricultural extension officer	Female	4 years
District agricultural extension officer	Male	8 years

The table above presents the demographic profiles of secondary participants in this study, who are the extension officers involved in the Pfumvudza program targeting elderly female in rural Zaka. The table includes designation that is the official title of each extension officer, gender and work experience. This table serves as a foundation for analyzing how the characteristics of extension officers may influence their interactions with elderly female farmers participating in the Pfumvudza program. The work experience of extension officers plays a pivotal role in shaping their effectiveness in delivering agricultural support to elderly female farmers, where experienced officers possess a deeper understanding of local agricultural challenges, and are better equipped to tailor advice to the specific needs of elderly female farmers, though in this

case the benefits of experience are liable upon the officer's ability to adapt to the unique constraints faced by elderly female farmers such as limited mobility and time constraints due to domestic responsibilities.

4.2 PFUMVUDZA PROGRAM'S ACTIVITIES PERFORMED BY THE ELDERLY FEMALE HOUSEHOLD HEADS IN ZAKA.

It was one of my objectives to establish the activities performed by the elderly female household heads under the Pfumvudza program in Zaka district ward 12, and the study found that elderly female heads undertake a range of activities including land preparation through digging planting basins/holes, applying organic manure, planting crops, mulching and harvesting. These findings will be presented, interpreted and discussed below.

4.2.1 DIGGING PLANTING BASINS/ HOLES

The study found that digging planting holes or basins is one of the primary tasks as well as the most physically demanding activities performed by elderly female heads under the Pfumvudza program in Zaka. This activity involves preparing hundreds of small, evenly spaced basins on a 39 by 16 meters manually using hoes, often without the assistance of mechanized tools. Participants reported spending several hours each day on this activity during the land preparation phase, typically beginning before the beginning of the rainy season. Despite their advanced age and physical challenges, many elderly women persists in digging planting holes recognizing the long-term benefits of moisture retention, improved soil fertility and increased crop yields associated with this technique. In-depth interviews with key informants, particularly extension officers involved in the implementation of the Pfumvudza program in Zaka revealed that the digging of planting basins is a primary and foundational task undertaken by elderly female heads. Extension officers confirmed that they are responsible for training these women in the standard basin layout, typically a 39 by 16-meter plot with 52 rows and 28 holes per row to ensure uniformity and effectiveness in water and nutrition retention. Most elderly participants reported that they create planting basins all on their own due to the absence of younger labor force within the household. Some of the participants had the following to say;

“Before the rainy season, as early as the end of May to June, my grandchildren and I measure a plot that is 39 meters long and 16 meters wide, just as we were taught by the extension officer during training. After measuring, we dig holes in rows, 52 across and 28 down which should add up to 1456 holes.” (G2).

“On the 25th of May, we start by clearing land unwanted plants from our land. After that, we measure an area that is 39 meters by 16 meters where we dig uniform-sized holes, arranged in rows of 52 by 28.” (G3).

“Usually, we do on-ground teaching where we actually demonstrate while the elderly female participants watch and learn. We take them through the process of marking the holes, although we do not provide them with materials, they have to bring their own like ropes we use for marking and the hoes we use to dig.” (Extension Officer).

The activity of digging planting basins as carried out by elderly female-headed households under the Pfumvudza program in Zaka remains a critical, but physically demanding foundation of conservation agriculture. When analyzed through the Sustainable Livelihood Framework (SLF) by Scoones (1998), this task reveals both strengths and critical gaps in livelihood support mechanisms. Elderly women rely heavily on their human capital, namely traditional farming knowledge and training received from extension officers, but this is offset by age-related physical limitations and lack of access to supportive labor. The required labor intensity for digging over 1456 basins on a 39 meter by 16 meter plot underscores the insufficiency of physical capital for this demographic. Moreover, while the training component helps to build knowledge and capacity, the lack of tool provision as highlighted by key informants reflects systematic policy weaknesses. Programs like Pfumvudza tend to adopt a one-size-fits-all model, often overlooking the vulnerabilities of groups such as elderly female heads, thus limiting the transformative potential of such interventions.

In terms of policy effectiveness and social protection, Zimbabwe’s agricultural and social welfare policies often fall short of adequately addressing the intersection of aging, gender and rural poverty. Although Pfumvudza is embedded within broader climate-smart agriculture strategies supported by the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development, its success among elderly female-headed households is constrained by limited integration with social protection programs. Scholars like Devereux and Sabates-Wheeler (2015) emphasize that effective social protection must go beyond food aid to include transformative elements that challenge existing power relations and vulnerabilities. Yet, in rural Zimbabwe, programs such as BEAM and food handouts are often irregular, and fail to support labor-intensive agriculture like Pfumvudza. Chikazunga and Paradza (2013) argue that policies often prioritize productivity without assessing the socio-economic positioning of vulnerable farmers, leading to unequal access and adoption. Local evidence from Zaka suggests

that while women show resilience, often working with grandchildren or forming informal support networks, this reliance on social capital fills a gap that formal social protection should be addressing. Furthermore, Moyo et al., (2021) highlight that while conservation agriculture is promoted widely, actual uptake by marginalized groups depends on concurrent access to safety nets, credit and labor support. Therefore, the current implementation of Pfumvudza reflects a broader trend where well-intentioned rural development policies lack a holistic approach, undermining their ability to equitably enhance rural livelihoods.

4.2.2 APPLYING ORGANIC MANURE

Findings indicated that the application of organic manure stands out as a key agricultural task undertaken by elderly women as part of the program's conservation farming model. The Pfumvudza approach emphasizes the use of natural inputs to improve soil fertility and crop productivity on small, well-prepared plots. For elderly female heads of households, applying organic manure is a primary responsibility because it replaces costly chemical fertilizers and aligns with their limited financial resources. These women often collect manure from their own livestock or obtain it from neighbors, then manually spread it across planting basins before the rainy season begins. Many have acquired traditional knowledge on how to compost and apply the manure effectively, often mixing it with crop residues to enhance its potency. The effort required for this task can be overwhelming, even so, applying organic manure remains a central activity that reflects the resilience and commitment of elderly female heads in adopting sustainable farming promoted by the Pfumvudza. The following sentiments were shared by some of the respondents;

“Applying organic manure has been a game changer for me. I no longer depend on expensive fertilizers, and I have noticed that my soil holds moisture better now.” (G1).

“Since I started using organic manure as advised by extension officers, I have seen a big improvement in my soil's fertility. I cannot afford fertilizers, but now my crops are healthier and I am harvesting better than before.” (G4).

“I have been using organic manure for a few seasons now through Pfumvudza, and I have seen less soil erosion. My crops can now survive dry spells better, and I am getting more consistent harvests than before.” (G6).

“We have seen a significant increase in crop yields among farmers who apply organic manure. It's a simple yet effective practice that improves soil health and reduces the

need for synthetic fertilizers. We are encouraging all our farmers to adopt this practice.”
(Extension Officer).

The application of organic manure stands out as both a strategic adaptation and a core agricultural activity among elderly female heads within the Pfumvudza conservation farming model. Interpreted through the lens of the Sustainable Livelihood Framework developed by Scoones (1998), this practice illustrates how rural households, particularly those led by older women leverage natural capital in this case organic inputs to sustain and enhance their livelihood outcomes namely food security, income stability and agricultural resilience. Organic manure application plays a vital role in improving soil structure, fertility and water retention, which is especially critical in Zimbabwe’s semi-arid regions such as Zaka. As Zimbabwe faces increasing climate variability and prolonged droughts, elderly female farmers have found organic manure to be not only affordable but also highly effective in maintaining crop performance under stress. Scholars such as Mupangwa et al., (2016) observed that organic matter significantly enhances soil moisture retention and reduces erosion in conservation agriculture systems, findings which mirror the participants’ lived experiences. Chikowo et al., (2015) suggests that use organic manure is crucial in a country like Zimbabwe where economic instability and recurrent droughts have eroded the purchasing power of rural households and reduced their access to chemical fertilizers.

The reliance on organic manure also reflects broader structural issues in Zimbabwe’s economy. Due to ongoing economic challenges including hyperinflation, high unemployment and constrained agricultural support, most elderly women in rural areas cannot afford commercial fertilizers (FAO, 2020). This has necessitated the adoption of low-cost, locally available alternatives, positioning organic manure as a viable solution within the Pfumvudza initiative. Furthermore, the activity empowers elderly women by enabling them to maintain agricultural productivity with minimal financial input, thereby enhancing their self-reliance and adaptive capacity which are core aspects of the SLF’s focus on resilience and sustainability. The use of organic manure has been shown to contribute to long-term soil health and household food security. Chivenge et al., (2015) found that integrated soil fertility management, including the use of organic inputs leads to sustainable productivity gains in smallholder farming systems in sub-Saharan Africa. In the context of Zaka, elderly women applying organic manure are effectively building a resilient agricultural base, one that buffers them against both climate shocks and economic pressures. This practice embodies the SLF principle that livelihood strategies must be tailored to available assets and local realities, especially for marginalized

groups like elderly female-headed households. Therefore, the application of organic manure under Pfumvudza is not merely an agronomic technique but it is a livelihood strategy rooted in necessity, knowledge and resilience. It addresses the intersecting vulnerabilities of aging, gender and poverty, while simultaneously enhancing the sustainability of farming systems in an economically constrained national context. This practice, as highlighted by both participants' testimonies and supporting literature affirms the critical role of low-cost, context-specific solutions in achieving food security and sustainable livelihoods in rural Zimbabwe.

4.2.3 PLANTING CROPS

Planting crops emerges as a core activity performed by elderly female heads as part of the program's conservation agriculture model. Pfumvudza emphasizes precision farming on small plots, where planting is done in standardized basins to maximize moisture retention and nutrient efficiency. For elderly women, planting is a hands-on and time-sensitive task that requires thorough effort and adherence to training provided by agricultural extension officers. These women are often responsible for preparing the planting basins and sowing seeds using specific spacing and timing guidelines. Despite their age and limited physical strength, they carry out this task diligently, viewing it as the foundation of food production for their households. The women often prioritize staple crops such as maize, sorghum, cowpeas, beans, groundnuts and sunflowers which are drought tolerant and essential for household consumption. Several participants expressed the following views;

"I used to struggle with planting because of poor rains but with Pfumvudza, I have learned to plant in basins that help keep moisture in the soil it has made a big difference for me." (G2).

"Planting crops in basins has really helped me stop soil from washing away and keep moisture in the ground. Now I am getting better harvests, and my family is eating well because of the increased food." (G4).

"We have seen a big improvement in crop yields and soil condition among elderly female farmers who are using Pfumvudza. Planting in basins has really helped them conserve moisture and reduce erosion. It is encouraging to see how this is improving food security and livelihoods in these rural communities." (Extension Officer).

The activity of planting crops, as highlighted in the participant's views above illustrates a critical livelihood strategy that contributes directly to food security and poverty alleviation among elderly female-headed households in rural Zaka. Implemented under the Pfumvudza

program, this activity aligns well with the Sustainable Livelihood Framework developed by Scoones (1998), which emphasizes the importance of enhancing various forms of livelihood capital. In this context, planting crops enhances natural, human and financial capital thereby strengthening resilience and reducing vulnerability to climate-induced shocks and socio-economic instability. According to Scoones (1998), the SLF outlines five key forms of livelihood capital that is natural, social, human, physical and financial. Conservation agriculture practices promoted under Pfumvudza such as basin planting, enhance natural capital by reducing soil erosion and improving water retention, which in turn sustains land fertility and ensures the continued availability of essential natural resources (FAO, 2017). Human capital is developed through training provided by agricultural extension officers, which empowers elderly women, many of whom may have limited formal education to adopt innovative and sustainable farming practices. Nyamupingidza and Moyo (2020) submit that increased yields from these practices contribute to financial capital by reducing dependence on food aid and enabling surplus production that can be sold or stored, improving economic stability.

The Pfumvudza program, introduced by the Zimbabwean government in 2020, was designed to promote climate-proof agriculture especially among vulnerable populations. For elderly female-headed households in Zaka who often face challenges such as limited access to draught power and mechanized farming equipment, basin planting is a practical and inclusive approach. Chikodzi (2021) suggests that this method allows for participation in agricultural production using simple tools and household labor, making it highly suitable for marginalized groups. Moreover, the program supports the objectives of Zimbabwe's National Development Strategy 1 (NDS1), which emphasizes inclusive economic growth through enhanced agricultural productivity. Mandizvidza et al., (2021) affirm that Pfumvudza has significantly increased household food stocks, particularly in semi-arid areas like Zaka, thus improving food security at the grassroots level.

Various studies support the effectiveness of conservation agriculture in addressing food insecurity and enhancing rural livelihoods. A foundational research by Mazvimavi and Twomlow (2009) demonstrated that basin planting could improve yields by up to 50% in marginal agricultural zones due to improved moisture conservation. Nhira and Matondi (2016) found that women and elderly-headed households were often among the earliest adopters of conservation techniques when they witnessed tangible benefits such as improved food availability. Similarly, Moyo et al., (2020) revealed that conservation agriculture in Zimbabwe

led to more stable livelihoods, particularly in communities adversely affected by climate variability. The FAO (2019) further emphasized that climate-smart agricultural approaches like those embedded in Pfumvudza contribute to higher yields and greater resilience to environmental and economic shocks across sub-Saharan Africa.

Improving agricultural productivity among elderly female-headed households also has broader economic implications. It enhances household economic participation, reduces dependence on state assistance and contributes to local food systems, thereby supporting the local economy. These improvements align with Zimbabwe's broader development goals including poverty alleviation, gender equity and rural transformation. At scale, initiatives like Pfumvudza help ensure national food security, reduced reliance on costly food imports and promote inclusive and sustainable economic growth, particularly in vulnerable rural districts such as Zaka. The activity of planting crops under the Pfumvudza program, particularly using conservation methods like basin planting plays a pivotal role in sustaining rural livelihoods. When interpreted through the lens of SLF, it becomes evident that this activity enhances key forms of capital and fosters resilience among elderly female heads. Supported by recent studies and aligned with national policy frameworks, this strategy not only empowers vulnerable populations but also contribute meaningfully to Zimbabwe's economic and sustainable development objectives.

4.2.4 MULCHING

Results demonstrated that mulching is one of the key conservation agriculture practices adopted by elderly female heads under the Pfumvudza program. This practice involves covering the soil with organic materials such as dry grass, maize stalks and leaves to conserve moisture, regulate soil temperature and suppress weed growth. For elderly women in rural Zaka who often face limited access to irrigation, fertilizers and labor, mulching is a practical and low-input method that significantly improves soil conditions and crop yields. Mulching helps retain water in the planting basins, especially during dry spells making it easier for elderly female to sustain their crops with minimal resources. The use of mulching also reduces the frequency of weeding, an activity that is physically demanding for older women, thus making farming more manageable and less labor-intensive. Elderly female farmers, who often rely on traditional knowledge and limited external support, find mulching to be an accessible technique that enhances land productivity without the need for expensive inputs. By improving soil fertility and moisture retention, mulching allows these women to harvest more consistently even under harsh climatic conditions. Some participants gave the following sentiments;

“Mulching has really helped me retain soil moisture and reduce weeds. My crops are doing much better now, and I am getting better yields.” (G3).

“Mulching is a game-changer for me. It has reduced my workload, and my crops are now more resilient to drought. I am getting more consistent yields, and my family is benefiting from the increased food production.” (G6).

“We have seen a significant improvement in soil health and crop yields among farmers who have adopted mulching. It is a simple yet effective practice that promotes soil conservation and reduces erosion.” (Extension Officer).

“Mulching is a critical component of conservation agriculture, and we are seeing excellent results among elderly female heads in Zaka. It is improving soil fertility, reducing weeds and promoting more resilient crops.” (Extension Officer).

The sentiments expressed by elderly female heads reflect a positive livelihood outcome resulting from the adoption of mulching under the Pfumvudza program. This conservation farming technique, integral to Pfumvudza offers multiple benefits including improved soil moisture retention, weed control, reduced labor input and enhanced crop performance. For elderly female-headed households, these outcomes represent critical gains, particularly in a context where labor, income and productive resources are scarce. Analyzed through the SLF by Scoones (1998), this experience showcases the strengthening of several livelihood capitals. Firstly, natural capital is enhanced through mulching, which conserves soil moisture and reduces degradation thereby supporting sustainable land use and climate resilience (Chikobvu and Mapuranga 2021). Given the semi-arid conditions of Zaka, these benefits are especially crucial. Chikowo et al., (2019) supports that the practice also improves human capital by equipping elderly women with skills and knowledge on climate-smart agriculture, thus enhancing their adaptive capacity. Additionally the reduction in workload is significant, given the age and gender related labor constraints faced by elderly women in rural households (Mukarumbwa et al., 2020).

In terms of physical capital, mulching often utilizes locally available crop residues, which require minimal financial input and thus are accessible even to resource-poor households. Mutambara et al., (2021) affirm that the resulting improvements in crop growth enhance food availability and reduce the risk of crop failure. These gains are linked to financial capital through decreased reliance on food purchases and potentially increased income if surplus produce is sold. Makate (2016) insists that social capital is built through participation in

Pfumvudza training sessions and community farming groups, which provide peer support, access to extension services and the sharing of farming methods. The vulnerability context of Zaka District marked by frequent droughts, soil infertility and high poverty rates intensifies the significance of such outcomes. According to FAO (2019), elderly female heads are particularly at risk due to age-related health challenges, reduced mobility and limited economic issues. Conservation agricultural practices such as mulching according to Manyevere et al., (2020) mitigate these vulnerabilities by reducing dependence on external inputs and enabling consistent yields even after erratic weather patterns.

Empirical evidence supports these observations. For instance, Mutambara et al., (2021) found that households participating in Pfumvudza experienced increased food security and maize yields, particularly among vulnerable groups. Similar studies highlight that conversation agriculture significantly reduces labor demands and enhances land productivity in semi-arid zones (Mazvimavi et al., 2016; Chinsembu, 2021). IFAD (2020) and FAO (2019) also underscore the importance of accessible, low-cost agricultural interventions in empowering elderly and female-headed households. The expressed sentiments represents more than just satisfaction with a farming technique, it captures the tangible livelihood improvements brought about by Pfumvudza. Viewed through the SLF, mulching contributes to strengthening multiple forms of capital while shielding against local vulnerabilities. In the Zaka District context, where climate and socio-economic pressures converge, such practices have the potential to transform the food security status of elderly female-headed households by promoting sustainability, resilience and self-reliance.

4.2.5 HARVESTING

Under the Pfumvudza program, harvesting stands out as a crucial activity that elderly women actively participate in, reflecting both resilience and commitment to ensuring household food security. Harvesting involves gathering mature crops from the small, intensively managed plots introduced by Pfumvudza, often using simple hand tools due to limited mechanization. For elderly female-headed households in Zaka, this process is physically demanding yet vital, as it directly translates to food availability and survival. Despite their age-related limitations, these women often engage in harvesting to avoid crop losses and to maximize yields from their efforts during the planting and growing seasons. Harvesting under the Pfumvudza is typically done with efficiency in mind, as timely collection of produce is critical to preserve quality and quantity. Elderly women have adapted their harvesting schedules to suit their physical capacity, often involving support from younger family members. The process not only provides food for

immediate consumption but also surplus for storage and sale, contributing to household income. In the context of food security, successful harvesting under the Pfumvudza allows these women to reduce dependency on food aid and increase resilience to climate-induced shocks, marking it as a key driver of improved livelihoods among elderly female-headed rural households in Zaka. Insights from participants included the following statements;

“The harvest is always a celebration for us. We are getting better yields, and our food security has improved. We are grateful for the training and support.” (G1).

“This year’s harvest has been the best I have had in a long time. Pfumvudza has really helped me improve my crop yields, and I am grateful for the support.” (G3).

“We are seeing excellent harvests among elderly female heads who have adopted Pfumvudza practices. The program is making a significant impact on food security and livelihoods in rural communities.” (Extension Officer).

“The harvests this season have been impressive, and we are proud of the progress our farmers have made. Pfumvudza is empowering elderly female heads to take control of their food security, and that’s a great outcome.” (Extension officer).

The sentiments shared by elderly female heads in Zaka reflect the positive impact of the Pfumvudza program on food security and rural livelihoods. This success is largely due to the adoption of conservation agriculture principles, which are central to Pfumvudza including mulching, minimum soil disturbance and crop rotation. These practices according to Mazvimavi and Nyakudya (2015) have been proven to increase productivity on small plots of land, especially in marginal areas like Zaka. Elderly women, often the primary caregivers and providers in rural households, now experience improved yields that directly enhance their household food security. The SLF by Scoones (1998) offers a useful lens to understand how harvesting, as part of Pfumvudza, contributes to sustainable livelihoods. Harvesting is the culmination of a farming season’s efforts and directly translates into food (natural capital) and potential income (financial capital). Elderly women have benefited from enhanced human capital through training provided under Pfumvudza, allowing them to adopt better harvesting techniques and storage methods. Rendering to Mafongoya and Ajayi (2017), the support systems and training fostered under the program have strengthened social capital with communities, enabling shared labor and knowledge exchange during the harvesting period.

In Zaka, a region prone to erratic rainfall and recurrent droughts, Pfumvudza has emerged as a climate-resilient strategy that aligns with local ecological conditions. Studies by Baudron et al., (2015) and Mupakati and Chitongo (2020) have shown that smallholder farmers who adopt conservation agriculture are more likely to withstand climatic shocks and achieve better yields compared to those using conventional farming methods. For elderly female-headed households with limited labor and financial resources, harvesting becomes more manageable due to the reduced scale of Pfumvudza plots and the increased efficiency of yield per hectare. These women, often marginalized in mainstream agricultural programming, are now active participants in improving their own livelihoods. The celebration of harvests among elderly women also highlights a shift from dependence to empowerment. This aligns with research by Ncube et al., (2019) which emphasizes that when women have access to agricultural inputs and training, they are better equipped to achieve food security and build resilience. Shava and Manyumwa (2018) suggest that integrating local knowledge with the conservation principles promoted under Pfumvudza further boosts the effectiveness of the program. Thus, the activity of harvesting is not only a physical act of gathering food but also a symbolic and practical outcome of strengthened livelihood assets, enhanced self-sufficiency and improved well-being for elderly female-headed households in rural Zaka.

4.3 CHALLENGES ASSOCIATED WITH PFUMVUDZA IN ELDERLY FEMALE-HEADED HOUSEHOLDS IN RURAL ZAKA

This research sought to investigate the barriers encountered by elderly women heading households in Zaka rural in the implementation and outcomes of the Pfumvudza program. The study found that elderly female-headed households face challenges including limited access to financial resources, labor constraints due to their age and household responsibilities, insufficient extension services and technical support, late distribution of inputs such as seeds and fertilizers and the physical demands of manual labor required for conservation agriculture practices due to the lack of mechanization. These findings will be presented, interpreted and discussed below.

4.3.1 LIMITED ACCESS TO FINANCIAL RESOURCES

Findings indicated that limited access to financial resources is a critical challenge that affects the participation of elderly female-headed households in the Pfumvudza program. These households lack the income or savings necessary to supplement the inputs provided by the government such as fertilizers, seeds or tools. While the Pfumvudza aims to provide inputs as part of its support, distribution is not always timely and sufficient forcing beneficiaries to purchase additional materials on their own. For elderly women, whose main sources of income

are small pensions, remittances and informal earnings, this creates a barrier to fully engaging in the program. Elderly female-headed households' limited financial capacity restricts their ability to hire labor, especially for tasks like basin digging which are labor-intensive and physically demanding. This financial constraint also limits their ability to invest in complementary agricultural needs such as irrigation, fencing and transport to markets which are crucial for sustaining productivity and income generation beyond subsistence farming. The lack of access to credit or formal financial services further exacerbates this challenge, as many elderly women either lack collateral or are excluded due to age and gender biases in financial institutions. Several participants expressed the following views;

“I wish the government could provide more financial support to elderly female-headed households like mine. We are finding it hard to afford the inputs required for Pfumvudza, which affects our productivity.” (G5).

“As an elderly female head, I struggle to access financial resources to purchase necessary inputs like seeds and fertilizers or even to hire local labor for assistance with farming activities. This hinders my ability to fully participate in the Pfumvudza program.” (G2).

“With numerous dependents to support, it is difficult for me to allocate resources effectively toward the Pfumvudza program. Financial constraints hinder my ability to expand my plot or invest in improved farming techniques.” (G3).

“One of the significant challenges elderly female-headed households face is limited access to financial resources. This affects their ability to purchase inputs, leading to lower productivity and program effectiveness.” (Extension Officer).

The findings highlight a critical barrier to the effective implementation and success of the Pfumvudza program by elderly female-headed households which is limited access to financial resources. This challenge directly impacts the ability of these households to purchase necessary agricultural inputs such as seeds, fertilizers and tools, thereby compromising their productivity and ultimately their food security. Observing this through the lens of the SLF by Scoones (1998), financial capital emerges as a fundamental asset that is currently lacking among this vulnerable group. The absence of sufficient financial support constraints their capacity to leverage other livelihood assets and undermines the potential benefits of Pfumvudza as a climate-smart agriculture initiative. Scoones' SLF emphasizes the interconnectivity of five key livelihood assets, human, social, natural, physical and financial capital. In this case, the

deficiency in financial capital hinders access to physical capital (inputs and tools) and reduces the capacity to effectively utilize available natural capital (land and rainfall). This SLF also encourages examination of institutional processes and policies, suggesting that the limited financial support from government programs reflects structural gaps that affect elderly women in rural settings. Without deliberate efforts to improve financial inclusion, such households remain marginalized in national food security initiatives.

Tambo and Wunscher (2017) found that resource-poor households in rural Ghana faced barriers to adopting sustainable agricultural practices due to a lack of financial support and limited institutional backing. Likewise, a study by Mutenje et al., (2019) in Zimbabwe revealed that although Pfumvudza has potential to enhance resilience and productivity, its implementation has been uneven, particularly among vulnerable groups such as elderly women who lack the financial means to access inputs. These findings underscore the need for targeted financial interventions to support marginalized groups within agricultural programs. In Zaka, this issue is compounded by demographic and socio-economic dynamics. Elderly female-headed households lack remittances, pensions or alternative income sources, placing them at a greater disadvantage. According to Mhlanga and Sithole (2021), rural women in Zimbabwe face structural gender inequalities that limit their access to land, land and extension services, further entrenching their vulnerability. The participants' plea for more government support is thus not merely a request but a reflection of broader systematic exclusions that must be addressed to make Pfumvudza truly inclusive and effective.

4.3.2 LABOR CONSTRAINTS

The study found that labor constraints present a significant challenge for elderly female-headed households participating in the Pfumvudza program. The model relies heavily on manual labor, particularly during land preparation where farmers must dig numerous planting basins by hand. For elderly women, this physically demanding task is especially difficult due to age-related limitations such as reduced strength, mobility issues and chronic health conditions. Without adequate labor support, many of these households struggle to complete the required work on time, resulting in reduced planting areas, lower crop yields or even total abandonment of the plots. Additionally, these households lack the financial means to hire labor from within the community. The burden of caring for dependents, combined with limited income sources means that paying for help is not a viable option for many. Younger family members who might otherwise assist are often away in search of employment or even too young to contribute effectively. This labor shortage not only undermines productivity but also contributes to the

exclusion of elderly female-headed households from fully benefiting from the Pfumvudza program. Insights from participants included the following statement;

“My health is not good, and it is challenging to keep up with demands of Pfumvudza. I need more labor support to maintain my farm and ensure a good harvest.” (G2).

“I don’t have many family members to help me with farm work. It is hard for me to implement all the Pfumvudza practices without sufficient labor support.” (G5).

“As an elderly woman, I find it challenging to manage the farm work on my own. Pfumvudza requires a lot of physical labor, which is difficult for me to handle alone.” (G1).

“Elderly female-headed households face significant labor constraints, which can limit their ability to implement Pfumvudza practices effectively. We need to find ways to support them with labor-saving technologies or additional labor resources.” (Extension Officer).

“We are exploring community-based solutions to address labor constraints, such as labor-sharing arrangements of farmer cooperatives. This can help elderly female-headed households access the labor they need to implement Pfumvudza practices.” (Extension Officer).

The research highlights a crucial and often overlooked barrier in the successful implementation of the Pfumvudza program among elderly female-headed households in rural Zaka, which is labor constraints. The participants cited poor health and a lack of labor support as key challenges to meeting the physical demands of conservation agriculture. This situation aligns closely with the SLF by Scoones (1998), particularly in relation to human and social capital. Human capital includes health, knowledge and the ability to work, all of which are compromised in elderly female-headed households. When physical strength diminishes due to age or illness, labor-intensive farming methods such as Pfumvudza become difficult to sustain without external support. According to the SLF, the ability to access and combine various livelihood assets determines the sustainability of livelihoods. In this case, the erosion of human capital due to ageing and ill health intersects with limited social capital, which in this case is defined as access to family or communal labor networks. Without labor support from family members or community initiatives, elderly women are unable to implement Pfumvudza practices consistently, leading to inadequate harvests and undermining food security. The lack

of institutional mechanisms to address labor deficits in such households highlights a policy gap that reduces the program's inclusivity and effectiveness.

This finding is consistent with literature across Africa that has examined the intersection of labor availability and agricultural productivity. A study by Nyasimi and Huyer (2017) in East Africa found that elderly and female-headed households face severe labor shortages limiting their capacity to adopt labor-intensive, climate-smart agricultural practices. Similarly, Nhemachena et al., (2020) reported that while Pfumvudza had positive potential in Zimbabwe, the success of its implementation was largely dependent on household labor availability and physical capability. These studies emphasize the need for complementary support systems such as community labor sharing schemes or targeted government subsidies to ensure that vulnerable groups can meaningfully participate. In Zaka, elderly women often live in households where young members have migrated to urban areas or abroad, further reducing the available labor pool. Moyo and Mazuru (2016) noted that rural Zimbabwean households headed by elderly women face compounded vulnerability due to both labor scarcity and health challenges, which are rarely accounted for in national agricultural programs. As such, the participants' concern reflects a broader structural issue within the rural livelihood system that needs to be addressed through inclusive policy design.

4.3.3 INSUFFICIENT EXTENSION SERVICES AND TECHNICAL SUPPORT

Research revealed that elderly female-headed households in Zaka face a significant challenge due to insufficient extension services and technical support in the implementation of the Pfumvudza program. Many of these women lack the physical strength, formal education and agricultural knowledge needed to effectively apply the conservation farming principles promoted under Pfumvudza. With limited access to trained extension officers, these households often miss out on crucial training sessions, demonstrations and follow-up support. As a result, they are unable to properly prepare planting basins, manage soil fertility or apply pest control measures, which undermines the productivity and sustainability of their farming efforts. The absence of tailored technical support for elderly farmers also means that innovations introduced under Pfumvudza are not effectively adapted to their unique needs and capacities. Extension services in Zaka are often understaffed and lack gender and age sensitive approaches, leading to the exclusion of these vulnerable groups from meaningful participation in the program. Some of the participants reported the following experience;

“As an elderly woman, I don’t have easy access to extension services. Sometimes extension officers do not visit us regularly and we struggle to get the technical support we need.” (G6)

“I am hard of hearing, and sometimes I struggle to understand the extension officers when they explain things. I wish they could provide more visual aids or written materials to help me understand better.” (G5).

“We are understaffed and under-resourced, which makes it challenging to provide regular extension services to all farmers, especially elderly female-headed households. We need more support to reach all our target beneficiaries.” (Extension Officer).

“We need to provide targeted support to elderly female-headed households, taking into account their unique challenges and needs. This could include specialized training programs or adapted extension services that cater to their requirements.” (Extension Officer).

The findings underscore a critical barrier faced by elderly female-headed households as they confirm to having limited access to extension services and technical support. Within the Sustainable Livelihood Framework by Scoones (1998), this issue intersects with human and social capital as well as the broader institutional context that shapes access to livelihood resources. Extension services are key for equipping farmers with knowledge about climate-smart agricultural techniques. However, when services are irregular or inaccessible, particularly for elderly women, the benefits of such programs are undermined. Human capital, as defined in the SLF includes knowledge and skills which are often delivered through extension services. Elderly women, who have limited formal education and face challenges in mobility and communication rely heavily on these services for technical guidance. The participants’ experiences reflect a structural exclusion from vital institutional support, which in turn affects their ability to implement Pfumvudza practices correctly and consistently. Moreover, social capital reflected in networks and relationships with service providers is weakened when extension agents prioritize younger or male-dominated households.

Past research in Africa verifies this concern. For instance, Ragasa et al., (2016) found in Malawi that female farmers, particularly those in older age groups were significantly less likely to receive visits from extension officers compared to their male counterparts, limiting their access to new farming knowledge. Similarly, a study by Gido et al., (2015) in Kenya emphasized that extension services often fail to account for the specific needs and limitations of elderly farmers,

leading to low adoption of agricultural innovations among this group. In Zimbabwe, Mujeyi and Mudhara (2021) noted that although Pfumvudza was designed as a national climate resilience strategy, its rollout lack tailored outreach to marginalized groups such as elderly rural women, diminishing its overall impact. In Zaka, logistical and infrastructural constraints further inhibit the regular visitation and reach of extension services. Poor road networks, understaffing in agricultural offices and lack of gender-sensitive programming exacerbate the marginalization of elderly women in the agricultural advisory system. As Mhlanga and Dzimiriri (2020) point out these systemic limitations reflect a broader issue of institutional inefficiency and gender insensitivity within Zimbabwe's rural development framework.

4.3.4 LATE DISTRIBUTION OF INPUTS

The study found that elderly female-headed households in Zaka face significant challenges due to the late distribution of inputs under the Pfumvudza program. The government's outstanding debts to suppliers have hindered timely procurement and delivery of essential farming inputs such as seeds and fertilizers, leading to delays in input distribution to farmers. These delays are particularly detrimental to elderly women who often lack the physical strength and resources to compensate for the lost planting time. Late input distribution exacerbates their vulnerability, leading to reduced crop yields and diminished food security. Moreover, the financial constraints faced by these households make it difficult to purchase additional inputs or invest in alternative livelihood strategies, further entrenching their marginalization and hindering the overall success of the Pfumvudza initiative in the region. The impacts of these delays are particularly severe for elderly female farmers in Zaka who lack the physical strength and resources to compensate for the lost planting time. Late input distribution worsens their vulnerability, leading to reduced crop yields and diminished food security. The following sentiments were shared by some of the participants;

“When inputs are distributed late, we are forced to use whatever is available, even if it's not of good quality. This affects our crop performance and overall productivity.” (G2).

“Late distribution of inputs like seeds and fertilizers delays our planting schedule. This affects our crop yields and food security, making it harder for us to benefit from the Pfumvudza program.” (G3).

“The late distribution of inputs is often due to logistical challenges, like transportation delays or procurement issues. We need to streamline our supply chain to ensure timely delivery of inputs to farmers.” (Extension Officer).

“Late distribution of inputs affects the overall effectiveness of the Pfumvudza program. We need to work with stakeholders to identify solutions and ensure that inputs are delivered on time to support our farmers.” (Extension Officer).

The study’s findings revealed a pressing concern regarding the late distribution of inputs, showing a systemic challenge in the implementation of the Pfumvudza program that significantly impacts agricultural productivity and food security among elderly female-headed households in rural Zaka. From the perspective of the Sustainable Livelihood Framework by Scoones (1998), this issue directly relates to access to physical capital, specifically agricultural inputs such as seeds and fertilizers which are essential for productive farming. Timely access to these resources is critical for ensuring optimal crop performance, especially in Zaka, a climate vulnerable region where seasonal rainfall patterns are increasingly unpredictable. When inputs arrive late, households are compelled to use inferior or inadequate materials, which compromises the quality and quantity of yields. This scenario reduces the effectiveness of Pfumvudza’s climate-smart approach, which is based on precision and timely implementation of farming activities. Moreover, delayed input provision undermines farmer’s ability to plan effectively and erodes confidence in public agricultural programs. For elderly women who lack the financial means to purchase substitute inputs, the situation becomes even more uncertain, increasing their vulnerability to food insecurity and economic hardship.

This finding is consistent with studies across sub-Saharan Africa that highlight the importance of timing in agricultural input distribution. For example, a study by Mapfumo et al., (2017) in Zimbabwe found that late distribution of government-supplied inputs under various support schemes reduced adoption rates of conservation agriculture practices and negatively impacted yields. Similarly, Sheahan and Barret (2017) argue that in African smallholder systems, delays in input delivery compromise farmer’s ability to adapt to climatic conditions and optimize production. The adverse effects are magnified for marginalized groups such as elderly women, who often depend solely on government support due to limited alternative income sources. In Zaka, logistical challenges such as poor road infrastructure and limited transport capacity often delay the delivery of inputs to remote rural areas. Elderly female-headed households, already marginalized in resource allocation processes, are frequently the last to receive inputs, if at all.

According to Mhlanga and Dube (2020), administrative inefficiencies and poor coordination between local agricultural offices and communities exacerbate the late delivery problem in Zimbabwe's input distribution programs. This leads to missed planting windows and decreased productivity, undermining the intended benefits of the Pfumvudza program.

4.3.5 LACK OF MECHANIZATION/ PHYSICAL DEMANDS OF MANUAL LABOR

Results showed that elderly female-headed households in Zaka face significant challenges in implementing the Pfumvudza program due to the lack of mechanization and the physical demands of manual labor. The Pfumvudza method, which involves digging planting basins, collecting mulch and applying manure is labor-intensive and physically demanding. For elderly women, these tasks can be overwhelming especially in the absence of draught power. Without access to mechanized tools such as fuel-powered basins diggers, these households struggle to prepare their plots adequately, leading to delays and reduced yields. The physical strain also increases the risk of health issues among elderly female farmers, further hindering their ability to maintain consistent agricultural practices. While some mechanization initiatives have been introduced in other regions, such as the provision of auger machines in Matabeleland South, similar support has been limited in Zaka. The lack of access to appropriate-scale machinery means that elderly farmers continue to rely on manual labor, which is not only time-consuming but also less efficient. This situation underscores the need for targeted interventions to provide mechanization support tailored to the capacities of elderly female farmers in Zaka. Insights from the participants included the following statements;

“The manual labor required for Pfumvudza is too much for me. I am elderly and it is taking a toll on my health. I wish we had access to mechanization to reduce the physical demands.” (G1).

“Without mechanization, I am limited in how much I can produce. Manual labor is time-consuming and exhausting, which affects my productivity and overall yield.” (G3).

“Land preparation is a challenge for me, especially with manual labor. I wish I had access to tractors or other machinery to make it easier and more efficient.” (G6).

“Elderly female-headed households need access to labor-saving technologies, like mechanization to reduce the physical demands of farming. This would help them

increase their productivity and participate more effectively in the Pfumvudza program.” (Extension Officer).

“We are exploring options to introduce mechanization to elderly female-headed households, such as tractor hire services or other forms of mechanized farming. This would help reduce the physical burden and increase their productivity.” (Extension Officer).

The participants’ reflection reveals a pressing issue within the Pfumvudza program's implementation that is the heavy reliance on manual labor, which places a disproportionate burden on elderly female-headed households in rural Zaka. Analyzing this through Scoones' (1998) Sustainable Livelihood Framework (SLF), the concern primarily highlights constraints in human and physical capital. Human capital, which encompasses the ability to work, is diminished by age and health limitations. When physically demanding agricultural programs like Pfumvudza do not consider these limitations, they risk excluding or overburdening the very populations they aim to support. Pfumvudza’s model based on conservation agriculture principles such as digging planting basins by hand and applying mulch requires substantial physical effort. For elderly farmers, particularly women who may lack help from younger family members, this model becomes unsustainable without mechanization. Physical capital, which in the SLF includes tools and equipment that facilitate production, is evidently lacking in this context. Mechanization, however could significantly ease the workload, preserve the health of elderly participants, and improve their productivity and food security outcomes. The absence of such support is a critical barrier to the inclusive success of Pfumvudza.

This finding aligns with broader African research, which has shown that the lack of mechanization is a key constraint for smallholder farmers, especially women and the elderly. According to Nyanga et al., (2016), in Zambia, conservation agriculture's adoption was limited among vulnerable populations due to its labor intensity, particularly when not complemented with appropriate tools. Similarly, a study by Mutenje et al., (2019) in Zimbabwe highlighted that while Pfumvudza improved resilience among smallholders, its success is hinged on labor availability and access to basic mechanized tools. Without mechanization, elderly women struggle to sustain the effort required, leading to reduced participation and lower yields. Locally, in districts like Zaka, elderly female-headed households often lack access not only to mechanized tools but also to basic implements such as hoes or wheelbarrows. Structural poverty and inadequate agricultural infrastructure exacerbate these challenges. Moyo and

Chikodzi (2020) observed that elderly rural women in Zimbabwe face compounded vulnerabilities due to limited access to capital-intensive assets, further hindering their ability to benefit from modern agricultural interventions. The lack of mechanization not only reduces efficiency but also has long-term negative effects on participants' health and wellbeing. The testimonies of elderly female heads from Zaka reveal a fundamental mismatch between the physical demands of Pfumvudza and the capabilities of elderly female-headed households.

4.4 COPING STRATEGIES ADOPTED BY ELDERLY FEMALE HEADS IN RURAL ZAKA

The research aimed to examine the coping strategies employed by elderly women heads in Zaka, in response to the faced challenges during the implementation and outcomes of the Pfumvudza program. The study found that among the coping strategies that elderly female heads implement to address challenges during the implementation and outcomes of the Pfumvudza program is forming cooperative groups, engaging family support, adopting low-labor conservation techniques, saving and rotating inputs, participating in training and extension services as well as promoting food storage and preservation. These findings will be presented, interpreted and discussed below.

4.4.1 FORMING COOPERATIVE GROUPS

The study found that one of the key coping strategies adopted by elderly female-headed households in Zaka during the implementation of the Pfumvudza program is the formation of cooperative groups. These informal or semi-formal groups allow elderly women to pool labor, share farming knowledge, and provide mutual support in executing physically demanding tasks such as digging planting basins, mulching, and weeding. Given the physical limitations associated with old age, many female heads struggle to meet the labor-intensive requirements of the Pfumvudza model. Through cooperation, these women are able to divide workloads equitably, rotate labor among members' plots, and ensure timely completion of critical farming activities, thereby improving their participation in the program and enhancing productivity. Beyond addressing labor constraints, cooperative groups also serve as a platform for information exchange and collective problem-solving. Elderly women share farming tips, climate information, and coping mechanisms for input shortages or pest outbreaks. In some cases, the groups also function as savings clubs, where members contribute small amounts of money to collectively purchase seeds, fertilizers and other essential farming inputs. This collective approach enhances resilience, reduces isolation, and fosters a sense of solidarity among elderly women, ultimately contributing to improved food security outcomes under the Pfumvudza program. Some of participants had the following to say;

“When I struggle to dig basins or carry manure, I call on other women from our group. We take turns working in each other's fields. It has helped me complete my tasks on time without paying for labor, which I cannot afford.” (G4).

“To make things easier, we agreed to rotate work among us. I used to delay planting, but now, with the group's help, I can meet deadlines. Sharing knowledge also helps me do things better and more efficiently.” (G5).

“The cooperative group has worked best for me because we support each other not only with labor but also emotionally. When someone falls sick or struggles, we step in. I tried doing everything alone before, and it was too much. This strategy is what keeps me going.” (G6).

“We've seen that elderly women who form work groups are more consistent with Pfumvudza requirements. These groups help cover each other's labor gaps and improve overall compliance with the program guidelines.” (Extension Officer).

“From our monitoring, cooperative groups are a practical adaptation for elderly farmers. They improve productivity and morale. We encourage more women to organize themselves this way, especially during land preparation and planting seasons.” (Extension Officer).

The strategy of forming cooperative groups by elderly female-headed households in rural Zaka aligns closely with the Sustainable Livelihoods Framework (SLF) developed by Scoones (1998), particularly in its emphasis on social capital. Within the SLF, social capital refers to the networks, associations and relationships that individuals use to pursue their livelihoods. In the case of Pfumvudza, which demands labor-intensive land preparation and strict adherence to conservation farming principles, elderly women who are physically constrained benefit significantly from labor-sharing arrangements. These cooperative groups facilitate the pooling of resources and rotational labor, enabling timely implementation of key agricultural tasks. As noted by Mafa and Monga (2021), such collaborative strategies are essential in contexts where formal support is limited and labor shortages are common among elderly populations. In addition to strengthening social capital, these groups enhance human capital by fostering the exchange of agricultural knowledge and practical experience. Members of the cooperative groups often share farming tips, discuss crop performance and collectively troubleshoot challenges related to Pfumvudza. This aligns with findings by Chikulo and Nhamo (2016), who observed that knowledge-sharing platforms significantly improve adoption rates of climate-

resilient farming techniques among vulnerable rural farmers. Furthermore, the emotional and psychosocial support provided within these groups contributes to improved mental well-being and a sense of community belonging, both of which are vital to sustaining agricultural activity among the elderly.

The formation of cooperative groups is also reflective of a broader socio-economic adaptation in Zimbabwe and across Sub-Saharan Africa. Research by Tambo and Wunscher (2017) in Ghana and Uganda showed that farmer-based organizations helped smallholders adopt sustainable agricultural practices more effectively than when working individually. Similarly, in Zimbabwe, traditional labor-sharing arrangements such as traditional communal work party (Nhimbe) have historically played a vital role in maintaining agricultural productivity, especially during periods of economic hardship. Given the current economic instability marked by high inflation, erratic input distribution, and underfunded extension services such grassroots responses are not only culturally embedded but economically necessary (Chikobvu and Mabvurira, 2020). This strategy compensates for policy gaps within the Pfumvudza program, which, while laudable in its objectives, often lacks inclusive mechanisms for vulnerable groups. As observed by Mhlanga and Muzamhindo (2022), the one-size-fits-all approach of many agricultural programs in Zimbabwe fails to consider the differential capacities of beneficiaries, especially the elderly and female-headed households. In this context, cooperative groups act as an informal safety net, allowing elderly women to mitigate program challenges and improve food security outcomes. Thus, forming cooperative groups emerges as both an adaptive strategy and a manifestation of local resilience in the face of structural economic and policy constraints.

4.4.2 ENGAGING FAMILY SUPPORT

The findings revealed that elderly female heads of households participating in the Pfumvudza program in Zaka have increasingly turned to family support as a vital coping strategy to navigate the physical and logistical challenges associated with the program's implementation. Given the labor-intensive nature of preparing Pfumvudza plots such as digging planting basins, mulching and applying organic manure, many elderly women rely on the assistance of younger family members, especially children and grandchildren. This intergenerational cooperation not only eases the physical burden on the elderly women but also fosters a sense of shared responsibility and continuity in agricultural knowledge and practice. In households where male family members are absent due to urban migration or death, daughters or daughters-in-law often assume key roles in supporting these elderly heads. Beyond the physical labor, family

support also plays a crucial role in ensuring that elderly women effectively manage inputs such as seed, fertilizer and record-keeping required by the Pfumvudza program. Family members with higher literacy levels help in interpreting program guidelines, filling out required documentation and attending training sessions on behalf of the elderly participants. This support network enables the elderly to remain active in the program and improves overall household food security. Moreover, the emotional support from family members reinforces resilience among elderly women, helping them stay motivated and engaged despite their age and the increasing climate-related agricultural risks. Some participants shared the following sentiments;

“When I face difficulties with digging basins or carrying manure, I usually ask my grandchildren to help me. They come during weekends or school holidays. Without them, I would not be able to finish preparing the plots on time.” (G1).

“To make Pfumvudza easier for myself, I now involve my daughter-in-law in the planning and planting stages. We share the workload, and she also helps me attend training sessions when I am not feeling well or when the meetings are far.” (G2).

“Looking back, involving my family especially my nephews and nieces has been the most effective strategy. They understand my limitations and help me meet the requirements. I tried hiring labor once, but it was expensive and unreliable, so family support works better.” (G4).

“We've observed that elderly female-headed households that receive consistent help from family members tend to meet Pfumvudza timelines better and produce more reliable yields. Encouraging family involvement is something we stress during trainings.” (Extension Officer).

“While some elderly women struggle alone, those who mobilize household members often cope better. In our extension work, we've started promoting intra-household cooperation, especially encouraging youth to participate during school breaks.” (Extension Officer).

Engaging family support as a coping strategy by elderly female-headed households in Zaka aligns closely with the Sustainable Livelihood Framework (SLF) developed by Scoones (1998), which emphasizes the role of five core assets that is human, social, natural, physical, and financial capital in sustaining livelihoods. In Zaka, social capital is crucial, with family

members acting as vital support systems that compensate for the limited physical capacity of the elderly. As revealed by the findings, elderly women depend on younger relatives to perform labor-intensive tasks and manage the technical requirements of Pfumvudza. This informal safety net enhances their ability to adapt to program demands, thus contributing to livelihood sustainability in the absence of formal support structures. Empirical studies across sub-Saharan Africa have affirmed the importance of family labor in enhancing agricultural resilience among vulnerable populations. For instance, Mutopo (2015) found that in Zimbabwe, female farmers often draw on kinship networks for labor and resource sharing, particularly in patriarchal rural settings where state assistance is limited. Similarly, Mutenje et al., (2019) emphasized that elderly farmers who integrate family support into climate-smart agriculture programs tend to have better outcomes in terms of food security and plot productivity. In Zaka, where aging and feminization of household heads intersect with poverty, family involvement is a key adaptation mechanism within constrained economic environments.

The country's economic instability marked by recurrent inflation, low formal employment, and underfunded agricultural support systems has forced rural households to rely heavily on internal family mechanisms (ZIMSTAT, 2020). Public policy efforts like Pfumvudza aim to address food insecurity, yet they often lack adequate logistical and financial backing, especially for the elderly and female-headed households. Consequently, family-based labor fills this gap. However, this strategy may not always be sustainable, especially as youth migrate to urban areas or abroad in search of work, thereby weakening household labor pools (Chikulo, 2021). Moreover, while Zimbabwe's National Gender Policy (2017–2021) recognizes the need for inclusive support to female farmers, implementation often falls short at the grassroots level. The policy environment, though supportive on paper, has yet to deliver robust mechanisms that substitute the informal support elderly women receive from their families. Thus, while family support proves essential and effective in the short term, it reflects both a strength in community cohesion and a weakness in systemic institutional support. As such, integrating family labor into program planning and offering complementary formal support would better align with the SLF principles and enhance the long-term viability of such coping strategies.

4.4.3 ADOPTING LOW-LABOUR CONSERVATION SKILLS

The research revealed that during the implementation of the Pfumvudza program in Zaka, elderly female-headed households increasingly adopted low-labor conservation techniques as a key coping strategy to address their age-related physical limitations and labor shortages. Given their vulnerability and limited capacity to perform physically demanding agricultural

tasks, these women turned to conservation methods such as mulching, minimum tillage, and permanent planting basins. These practices required less manual labor and reduced the need for repeated land preparation, which aligned well with their constrained energy levels and lack of access to mechanized tools or youthful labor. By adopting these techniques, elderly women are able to remain active in food production despite their challenges, thereby improving household food security and resilience. The outcomes of adopting low-labor conservation techniques under the Pfumvudza program were generally positive for elderly female heads in Zaka. These methods enabled more efficient use of limited labor while preserving soil moisture and fertility which are critical factors in the semi-arid climate of the district. Several participants expressed the following views;

“Mulching helps me a lot. It keeps the soil moist, so I don’t have to water the crops often or weed as much. At my age, that’s a big help.” (G4).

“Before, I struggled with preparing the land each season. But now with Pfumvudza, I use the same plot every year, and it’s easier for me to manage.” (G5).

“We observed that elderly women quickly adapted to conservation methods like basin planting because it matches their physical capacity and allows them to continue farming without relying heavily on others.” (Extension Officer).

“Training on conservation practices was especially beneficial for older women. Once they saw how these methods required less effort and still gave good harvests, they became some of the most consistent adopters.” (Extension Officer).

The Sustainable Livelihoods Framework by Scoones (1998) highlights how households utilize five key capital assets, human, natural, physical, financial, and social to construct livelihood strategies in response to vulnerabilities and institutional influences. Elderly women in rural Zaka typically possess limited financial capital and weakened physical capabilities, yet maintain access to land (natural capital) and experience (human capital). Through Pfumvudza, these women gained access to training and inputs that enhanced their capacity to utilize low-labor conservation techniques such as mulching, basin planting, and crop rotation. These methods reduce the physical demands of farming, allowing elderly female-headed households to remain productive despite age-related labor shortages. This strategic use of limited assets reflects a shift toward sustainable and adaptive livelihoods as proposed in the SLF. The research shows that these women were able to overcome the seasonal challenges of land preparation and soil fertility by consistently using low-labor techniques, leading to increased

crop yields and reduced dependency on external food aid. This aligns with wider regional studies in Southern Africa, such as Thierfelder et al., (2017), which found that conservation agriculture is particularly beneficial for labor-constrained groups like the elderly, as it lowers time and energy input while improving soil productivity. Furthermore, the localized training offered through Pfumvudza improved the elderly women's human capital and knowledge base, enhancing their capacity for self-reliant food production.

In the local context of Zaka, these conservation techniques emerged not only as coping mechanisms but as deliberate adaptive strategies responding to both environmental stresses and institutional gaps in social welfare. Given Zimbabwe's persistent economic challenges from marked by inflation, limited access to agricultural inputs, and weak rural infrastructure programs like Pfumvudza became crucial for vulnerable households (ZIMSTAT, 2020). The study's findings suggest that these women strategically engaged with the program by choosing practices that minimized their labor burden while maximizing productivity. This behavior exemplifies agency within structural constraints and supports Scoones' argument that sustainable livelihoods are formed through dynamic responses to vulnerability, asset access, and policy context. Therefore, the adoption of low-labor conservation practices under Pfumvudza demonstrates both the resilience and adaptability of elderly female-headed households in Zaka.

4.4.4 SAVING AND ROTATING INPUTS

The study found that elderly female-headed households in Zaka have adopted saving and rotating inputs as a key coping strategy to manage the challenges associated with the Pfumvudza program. With limited access to consistent support and resources, these women have formed informal groups to pool and rotate agricultural inputs such as seeds, fertilizers, and tools. This rotational system ensures that even when official distributions fall short or are delayed, at least a portion of the group can continue planting under the Pfumvudza model. By prioritizing one household per season or sharing inputs in staggered cycles, they maintain some level of productivity while reducing dependency on unreliable external aid. Additionally, saving small amounts of inputs from previous harvests has become an essential part of their resilience strategy. Despite the high risk of low yields due to erratic weather and poor soil conditions, these women preserve leftover inputs such as seed and organic compost to buffer against future shortages. This deliberate conservation helps sustain their farming activities through tough seasons and ensures continued participation in Pfumvudza without total reliance on government-provided packages. The approach reflects a strong culture of resourcefulness

and collective action among elderly women in Zaka, enabling them to navigate the program's limitations with a degree of stability. Some of the participants reported the following experiences;

“I divide the seed and fertilizer I get into two parts. I plant one part and keep the other for the next season, just in case the program delays or fails to deliver inputs on time again.” (G6).

“We take turns using inputs within our women's group. If I receive fertilizer this year, another woman gets it next year. That way, we all get something eventually and avoid total crop failure.” (G4).

“When the Pfumvudza inputs are late or not enough, I use my traditional sorghum and millet seeds that I saved from last year. They don't need as much fertilizer and still give us food.” (G3).

“We teach the elderly to store inputs properly and only use them on Pfumvudza plots, not on large fields. This helps preserve the effectiveness of the program and avoids wastage.” (Extension Officer).

The activity of saving and rotating agricultural inputs among elderly female-headed households in Zaka can be interpreted as a critical adaptive strategy aimed at enhancing livelihood resilience under the constraints of the Pfumvudza program. Within the SLF, livelihoods are shaped by five capital assets namely human, social, physical, financial, and natural (Scoones, 1998). These women demonstrate the strategic use of social capital by relying on community-based arrangements such as rotating input access and seed-sharing networks. This collective action compensates for their limited access to formal agricultural support and unreliable government input supply systems. The saving of inputs represents a means of financial capital preservation. By reserving a portion of fertilizer or seed, households build a buffer against future uncertainties aligning with strategies noted by Mavhura (2017), who found that smallholder farmers in Zimbabwe engage in indigenous practices to build resilience to climate and institutional variability. Likewise, input rotation fosters social cohesion and reciprocity, allowing for shared access to scarce resources without requiring immediate financial expenditure, a critical adaptation for elderly women with limited income streams.

Recent studies reinforce the significance of such coping strategies in rural Zimbabwe. According to Mazvimavi et al., (2020), the Pfumvudza program while promising increased

productivity through conservation agriculture has faced challenges such as inconsistent input delivery and a one-size-fits-all model, which disproportionately affects vulnerable groups like elderly women. In response, strategies like saving inputs and sharing them rotationally offer context-specific solutions rooted in local knowledge and trust-based networks. In Zaka, where poverty levels are high and elderly female-headed households often lack male labor and capital-intensive equipment, input saving is both a practical and necessary adaptation. As observed by Chitongo and Munemo (2021), elderly rural women in Zimbabwe often rely on traditional resilience-building practices and community support systems, which are frequently ignored by formal agricultural interventions. Hence, saving and rotating inputs as a coping strategy exemplifies how elderly female-headed households in Zaka mobilize available capital within the Sustainable Livelihood Framework. It highlights their resilience in the face of institutional inadequacies and environmental uncertainty. The practice not only fosters local-level sustainability but also points to the need for agricultural interventions like Pfumvudza to be more responsive to diverse household dynamics and traditional knowledge systems.

4.4.5 PARTICIPATING IN TRAINING AND EXTENSION SERVICES

The study's findings show that participation in training and extension services has emerged as a key coping strategy adopted by elderly female heads in addressing challenges encountered during the implementation of the Pfumvudza program. These services equip them with vital knowledge on climate-smart agriculture, proper land preparation techniques, crop rotation, and resource management. Through regular engagement with agricultural extension officers and organized training sessions, elderly women gain confidence in applying recommended practices, which helps them overcome physical limitations, limited formal education, and lack of prior exposure to modern farming methods. This increased access to information empowers them to adapt the Pfumvudza model more effectively and improve their yields despite the constraints they face. Moreover, training and extension services provide elderly female heads with ongoing support and problem-solving guidance throughout the farming season. Extension officers serve as accessible resources for addressing emerging issues such as pest outbreaks, fertilizer use, and water conservation. These interactions also foster a sense of community and collaboration among participants, reducing the isolation often experienced by elderly women in rural areas. By staying informed and supported, they are better able to navigate the technical demands of the Pfumvudza program, translating knowledge into practical solutions that enhance productivity and food security for their households. Insights from participants included the following statements;

“Attending training sessions helped me understand how to prepare the planting holes properly and conserve moisture, which was difficult at first because of my age. But now I follow the steps taught, and my field is more productive.” (G3).

“Before the trainings, I didn’t know how to deal with pests affecting my crops, but the extension officers taught us simple methods using available resources. That knowledge saved my harvest last season.” (G5).

“I always thought farming was just digging and planting, but through these trainings, I learned the importance of timing and following the correct procedures. It’s not easy at my age, but the support has helped me farm better and feed my grandchildren.” (G1).

“We noticed that elderly women struggle with some technical aspects of Pfumvudza, so we break down the training into simple, practical steps and conduct frequent follow-ups. This helps them cope better and boosts their confidence.” (Extension Officer).

“By involving elderly female heads in group training and field demonstrations, they learn from each other and feel supported. It reduces the burden of isolation and encourages them to try new practices despite their age.” (Extension Officer).

The participation in training and extension services by elderly female heads in rural Zaka, as a coping strategy under the Pfumvudza program, aligns closely with the Sustainable Livelihood Framework by Scoones (1998). The SLF emphasizes access to five core assets that is human, social, natural, financial, and physical capitals that are central to building resilience and sustaining livelihoods. Training and extension services directly enhance human capital, by improving agricultural knowledge and skills and social capital, through group learning and support networks. This engagement enables elderly women to make informed decisions, adopt climate-smart practices, and better manage risks associated with changing weather patterns and resource scarcity. In contexts like Zaka where rural elderly women often face marginalization due to age, gender and limited formal education, strengthening their human and social assets becomes a vital component in achieving livelihood sustainability.

Studies by Moyo and Nyikahadzoi (2016) observed that agricultural extension services in Zimbabwe contribute significantly to improved adoption of new farming practices, particularly among marginalized groups. Similarly, Chitongo and Munyati (2020) found that elderly female farmers who engaged in government-supported training programs reported better crop performance and higher food security levels. In the local context of Zaka, where traditional

gender roles and limited access to resources often impede female-headed households, training sessions have served not only as educational platforms but also as empowerment spaces. These services compensate for limited access to financial and physical capital by equipping elderly women with the know-how to maximize minimal inputs, an essential aspect under resource-efficient programs like Pfumvudza (FAO, 2021). Thus, training and extension services play a crucial role in strengthening livelihoods and fostering resilience among elderly female heads in rural Zimbabwe.

4.4.6 PROMOTING FOOD STORAGE AND PRESERVATION

Findings revealed that promoting food storage and preservation has become a crucial coping strategy for elderly female heads to address the challenges associated with the Pfumvudza program. Given the limited land size and strict input use under Pfumvudza, yields are often just enough to meet basic household needs, making it essential to prevent post-harvest losses. Elderly women are increasingly adopting traditional and improved food preservation methods such as sun-drying vegetables, storing grains in sealed containers, and using ash to protect stored maize from pests. These techniques help extend the availability of food throughout the year, especially during the lean season, and reduce the risk of hunger in periods of crop failure or delayed rains. In addition, food storage and preservation allow elderly female heads to manage their household food security more effectively without relying on external aid. By storing surplus produce and preserving perishable crops, they are able to plan better for household consumption and even set aside small quantities for sale, which contributes to income generation. A number of participants showed the following points;

“We have started drying vegetables and fruits to preserve them for the lean season because the Pfumvudza program focuses on small plots, so the harvest is sometimes limited.” (G6).

“Storing maize properly in airtight containers has helped reduce post-harvest losses caused by pests and moisture, ensuring we have enough food to last through difficult times.” (G2).

“We use traditional granaries and improve them with plastic linings to keep grains safe, as this prevents weevils and mold, allowing us to save food from one season to the next.” (G1)

“Training on proper food storage methods is essential, hence, we conduct demonstrations on the use of modern storage facilities alongside traditional methods to ensure food security throughout the year.” (Extension Officer).

The practice of promoting food storage and preservation among elderly female heads of households in Zimbabwe, particularly in rural areas, serves as a critical coping strategy in response to the challenges posed by the Pfumvudza program. This initiative, aimed at enhancing food security through conservation agriculture, has faced implementation issues, including inadequate training, limited access to inputs, and climatic unpredictability. Consequently, elderly women, often the primary caregivers and agricultural workers, have turned to traditional methods of food preservation to mitigate food shortages and ensure household nutrition. In the context of the Sustainable Livelihoods Framework (SLF) by Scoones (1998), this coping strategy aligns with the framework's emphasis on adaptive strategies to enhance resilience. Elderly female-headed households, characterized by limited access to capital assets such as financial resources, education and physical strength, leverage social and human capital to employ indigenous food preservation techniques. These methods, including drying, smoking and fermenting, are not only cost-effective but also culturally ingrained, allowing these women to maintain food security despite external agricultural challenges. Comparative studies across Africa reveal that similar coping strategies are prevalent among elderly women facing agricultural challenges. These practices enable elderly women to sustain their households during periods of food scarcity, highlighting the importance of traditional knowledge in contemporary food security strategies. Kairiza et al., (2019), these households are typically more susceptible to food insecurity and tend to rely on consumption-based coping strategies such as reducing meal portions or skipping meals. Due to their unique socio-economic challenges, these women adopt practices like food storage and preservation not only to mitigate hunger, but also to maintain nutritional quality over time.

Despite the significance of these strategies, most policy frameworks tend to under recognize the role of elderly women in sustainable food systems. Chikozho and Mpafumo (2016) suggests that there is a need for gender and age-sensitive programming within the Pfumvudza that provides training in improved storage techniques and subsidizes access to preservation equipment. Food storage and preservation remain critical coping strategies for elderly female-headed households navigating the limitations of the Pfumvudza program.

4.5 FOOD SECURITY SUSTAINABILITY AMONG OLDER FEMALE-HEADED HOUSEHOLDS IN RURAL ZAKA

The study intended to capture a multidimensional understanding of food security sustainability from older women heading households in rural Zaka considering not only food availability and access but also cultural, structural and environmental factors that influence food systems in rural Zaka. The presentation of findings is organized around key sub-themes that emerged during the data collection process and these comprise of gender and household dynamics, livelihood strategies, government and NGO interventions, cultural beliefs and practices, market access and infrastructure as well as policy and structural factors.

4.5.1 GENDER AND HOUSEHOLD DYNAMICS

The study in rural Zaka revealed that households led by older women play a pivotal role in sustaining food security, yet they face unique challenges rooted in gendered responsibilities and socio-cultural norms. These women often bear the dual burden of managing both productive and reproductive tasks. While they are primarily responsible for agricultural activities such as planting, weeding and harvesting, they also shoulder domestic duties including cooking, childcare, and water collection. This extensive workload lead to time poverty, limiting their capacity to engage in income-generating activities and community decision-making processes. The gendered division of labor in these households often results in women having limited access to resources and decision-making power. Despite their central role in food production, older female household heads frequently encounter barriers to accessing land, credit and agricultural inputs due to patriarchal inheritance systems and cultural norms that prioritize male authority. These women lack the necessary resources to implement long-term agricultural strategies, rendering them more reliant on short-term coping mechanisms such as reducing meal sizes or skipping meals during periods of food scarcity. Some of the participants shared the following sentiments;

"I wake up at 4 a.m. to fetch water, prepare meals, tend to the garden and care for my grandchildren. My husband passed away years ago and my sons are in the city. I have no one to help me." (G1).

"I tried to apply for agricultural inputs at the local office, but they said I need a letter from my son. How can I get that when he's far away?" (G2).

"Even though I am the head of this house, I must consult the village head before selling any crops. It's like my word doesn't count." (G3).

"To improve food security, we must engage with older women directly, recognizing their leadership roles and providing tailored support." (Extension Officer).

The Sustainable Livelihoods Framework, as articulated by Scoones (1998), emphasizes the importance of various capital assets that is human, social, natural, physical and financial in shaping the livelihoods of individuals and households. In the context of older female-headed households in rural Zaka, gender dynamics significantly influence access to and control over these assets. According to Casimir and Tobi (2011) studies have shown that female-headed households are more susceptible to food insecurity, often resorting to short-term coping strategies like reducing meal sizes or skipping meals, due to limited access to resources and decision-making power. Furthermore, patriarchal norms often restrict women's access to land and credit, hindering their ability to invest in sustainable agricultural practices. These gendered constraints limit the effectiveness of the Pfumvudza program in promoting sustainable livelihoods for older women in rural Zimbabwe.

The marginalization of older female-headed households due to gendered household dynamics has broader implications for economic growth. When women are excluded from decision-making processes and denied access to resources, their potential to contribute to agricultural productivity and economic development is diminished. The study have highlighted that female farmers face challenges such as smaller farm sizes and less government assistance compared to their male counterparts, leading to lower productivity and increased food insecurity, yet Samaratunge and Nyirenda (2020) emphasize the importance of women empowerment on food security sustainability. Additionally, the underrepresentation of women in leadership roles and climate change initiatives further exacerbates their vulnerability and limits their capacity to adapt to environmental changes, thereby hindering overall economic resilience. Addressing these gender disparities is crucial for unlocking the full economic potential of rural communities in Zimbabwe.

4.5.2 LIVELIHOOD STRATEGIES

The findings showed that in rural Zaka, elderly female-headed households often employ diverse livelihood strategies to navigate food insecurity, yet their effectiveness is constrained by limited access to resources. These households frequently rely on small-scale agriculture, utilizing conservation farming techniques such as the Pfumvudza program, which provides inputs like seeds and fertilizers. While this initiative has enhanced food production for some, challenges persist. Elderly women often face difficulties in accessing these resources due to requirements like the need for male intermediaries, which can exclude them from participation.

Additionally, the physical demands of agriculture, combined with limited mobility hinder their ability to fully engage in these livelihood strategies. Beyond agriculture, elderly female-headed households in Zaka also engage in informal income-generating activities such as petty trading and remittances from family members. However, these strategies are often insufficient to meet their nutritional needs. The study indicated that female-headed households are more likely to employ consumption-based coping strategies, like reducing meal sizes or skipping meals, rather than long-term livelihoods-based strategies, due to socio-cultural constraints and limited access to resources. The lack of access to credit, land and extension services further exacerbates their vulnerability, limiting their capacity to adopt sustainable agricultural practices and diversify income sources. Addressing these barriers is crucial for enhancing the effectiveness of livelihood strategies and improving food security sustainability in elderly female-headed households in rural Zaka. Some participants shared the following views;

“I rely on my small garden to grow vegetables like tomatoes and spinach. It helps feed my family and sometimes I sell the surplus to buy other necessities.” (G3).

“I keep chickens and goats. They provide eggs, milk, and sometimes I sell them to pay for medicines or school fees.” (G4).

“We are working to include more women in our training programs. It's essential to empower them with knowledge and skills to improve their farming practices.” (Extension Officer).

The Sustainable Livelihoods Framework (SLF) by Scoones (1998) underscores the significance of various capital assets namely natural, physical, human, financial and social in shaping rural livelihoods. In rural Zaka, elderly female-headed households face constraints in accessing these capitals. The findings of the study showed that female-headed households are more likely to employ consumption-based coping strategies such as reducing meal sizes or skipping meals, rather than livelihoods-based coping strategies, due to socio-cultural constraints and limited access to resources. Additionally, the physical demands of agriculture, combined with limited mobility and time constraints, further hinder elderly women's capacity to fully utilize available resources as a study by Mutenje et al., (2019) in Zimbabwe highlighted that while Pfumvudza improved resilience among smallholders, its success is hinged on labor availability and access to basic mechanized tools.

The limited access to resources and the reliance on short-term coping mechanisms among elderly female-headed households have broader implications for economic growth. When

women are excluded from decision-making processes and denied access to resources, their potential to contribute to agricultural productivity and economic development is diminished.

For instance, studies by Gibbens and Schoeman (2010) have highlighted that female farmers often face challenges such as smaller farm sizes and less government assistance compared to their male counterparts, leading to lower productivity and increased food insecurity, hence stress the need of micro-level planning in achieving sustainable rural livelihoods. Additionally, the underrepresentation of women in leadership roles and climate change initiatives further exacerbates their vulnerability and limits their capacity to adapt to environmental changes, thereby hindering overall economic resilience. Addressing these gender disparities is crucial for unlocking the full economic potential of rural communities in Zimbabwe

4.5.3 GOVERNMENT AND NGO INTERVENTIONS

The study found that in rural Zaka, government and non-governmental organizations (NGOs) have implemented various interventions to address food security challenges faced by elderly female-headed households. The Zimbabwean government has introduced programs such as the Harmonized Social Cash Transfer (HSCT) and Command Agriculture to support vulnerable populations, especially older women heading households. Command Agriculture, on the other hand, offers inputs like seeds and fertilizers to farmers under a contract farming model, focusing on staple crops like maize and wheat. However, these initiatives have faced challenges, including limited community participation in planning and implementation stages, which has affected their effectiveness in addressing the specific needs of elderly female-headed households. NGOs have also played a crucial role in supporting food security in these households. For instance, CARE has provided food assistance and established water infrastructure in Zaka, benefiting thousands of individuals. Despite these efforts, challenges persist, including the need for more inclusive and gender-responsive interventions that consider the unique circumstances of elderly female-headed households. Addressing these challenges requires a more participatory approach in the design and implementation of food security programs to ensure they effectively meet the needs of this vulnerable group. Some participants shared the following views;

“The cash I received from the NGO helped me buy seeds and fertilizer. I could plant on time and feed my grandchildren better.” (G3).

“When the NGO leaves, we are left without support. The food is finished, and we have to go back to struggling.” (G5).

“Many programs are designed without consulting the community. If we don't involve them from the start, the programs won't work.” (Extension Officer).

“Elderly women are often not aware of available programs. We need to find better ways to communicate and reach them.” (Extension Officer).

The participants' views illustrated the diverse perspectives on government and NGO interventions aimed at enhancing food security in elderly female-headed households in rural Zaka. While some interventions have had positive impacts, challenges such as accessibility, sustainability and inclusivity remain. Addressing these issues requires a more participatory and context-specific approach to ensure the effectiveness and sustainability of food security programs. The Sustainable Livelihoods Framework (SLF) by Scoones (1998) emphasizes the interplay between various capital assets that is natural, physical, human, financial, and social and how they shape rural livelihoods. In rural Zaka, elderly female-headed households often face constraints in accessing these capitals, which affects their ability to implement effective livelihood strategies. Government initiatives like the Pfumvudza program aim to address these challenges by promoting conservation agriculture practices, such as mulching and crop rotation, on small plots of land. These practices conserve soil moisture and improve soil fertility, making farming more sustainable and accessible for elderly women with limited resources. However, the effectiveness of such programs is contingent upon inclusive design and implementation that consider the specific needs and constraints of elderly female farmers.

NGOs have also played a significant role in supporting food security among elderly female-headed households in Zaka. For instance, organizations like Practical Action have supported the scaling up of the Pfumvudza approach, which was initially developed by a local NGO, to enhance food security through sustainable agricultural practices. Additionally, the Microloans Foundation provides small loans and business training to women in rural areas, empowering them to start businesses, increase household incomes, and improve food security. Despite these efforts, challenges persist, including the need for more inclusive and gender-responsive interventions that consider the unique circumstances of elderly female-headed households. Addressing these challenges requires a more participatory approach in the design as noted by Muchomba (2017) who conducted a systematic review on community-based participatory interventions and found that interventions guided by formative research data and agro ecological practices were effective in enhancing food security and its dimensions.

4.5.4 CULTURAL BELIEFS AND PRACTICES

Findings revealed that in rural Zaka, cultural beliefs and practices significantly influence food security sustainability among elderly female-headed households. Traditional institutions such as the Zunde raMambo, a communal food storage system managed by local chiefs serve as a safety net during times of food scarcity. This system relies on collective labor and communal contributions, fostering a sense of unity and shared responsibility. Elderly women often participate in these communal activities, which not only provide immediate food relief but also strengthen social bonds within the community. Additionally, cultural practices like community labor-sharing (Nhimbe) and share-rearing arrangements enable elderly women to access resources they might not own, such as draught power or livestock. These practices are deeply rooted in social capital and reciprocity, allowing for mutual support among community members. However, the effectiveness of these traditional practices can be hindered by modern challenges such as migration, changing gender roles and limited access to resources. While these cultural mechanisms offer resilience, their sustainability requires adaptation to contemporary socio-economic dynamics.

“When I host a nhimbe, I feel the strength of our community. We work together, share food, and ensure no one goes hungry.” (G5).

“I learned to preserve food using traditional methods like drying vegetables and storing grains in the dura. These practices have kept my family nourished during tough times.” (G5).

“The younger generation is moving away from our traditions. They don't see the value in nhimbe or preserving food the old way.” (G4).

“While nhimbe is valuable, we encourage integrating it with modern farming techniques to improve productivity.” (Extension Officer).

“We incorporate indigenous knowledge into our training programs to ensure sustainability and cultural relevance.” (Extension Office).

The study's findings exposed that in the context of Zaka, cultural beliefs and practices significantly influence the food security strategies of elderly female-headed households. The Sustainable Livelihoods Framework (SLF) by Scoones (1998) highlights the importance of various assets namely natural, physical, human, social, and financial in shaping livelihood outcomes. For elderly women, cultural norms often dictate that family assets, especially those of deceased relatives, should not be sold or exchanged for food due to fears of angering

ancestral spirits. This belief system restricts their ability to utilize available resources to alleviate food insecurity. Additionally, traditional practices such as the Zunde raMambo, a communal farming initiative led by chiefs, play a crucial role in supporting vulnerable groups, including elderly women. While these practices provide a safety net, they often place the burden of labor on women, who are expected to contribute significantly to cultivation and food preservation, thereby impacting their well-being.

Past studies have documented the challenges faced by elderly female-headed households in Zimbabwe. These households often experience lower income levels and limited access to resources compared to male-headed households, exacerbating their vulnerability to food insecurity. According to a report by FAO (2019), cultural expectations further constrain their ability to diversify livelihoods or access support, as traditional norms prioritize male authority in decision-making processes. The SLF's emphasis on social capital is relevant here, while bonding social capital within communities can provide support, the patriarchal structure may limit the effectiveness of such networks for elderly women. In the local context, these intersecting factors that is cultural beliefs, gender roles and limited access to resources collectively hinder the ability of elderly female-headed households to achieve sustainable food security, thereby affecting their overall livelihood outcomes.

4.5.5 MARKET ACCESS AND INFRASTRUCTURE

The research found that in rural Zaka, elderly female-headed households face significant challenges in accessing markets and essential infrastructure, which impedes their ability to achieve sustainable food security. Limited access to reliable transportation and poor road conditions hinder the timely delivery of agricultural produce to markets, leading to increased post-harvest losses and reduced income opportunities. Additionally, inadequate storage facilities and lack of processing equipment result in the deterioration of perishable goods, forcing farmers to sell at lower prices or discard unsold produce. These infrastructural deficiencies not only affect the profitability of agricultural activities but also constrain the capacity of elderly women to engage effectively in value chains and access higher-value markets. Furthermore, the absence of market information and extension services exacerbates these challenges, leaving farmers vulnerable to exploitation by middlemen and limiting their bargaining power in market transactions. Addressing these infrastructural and market access challenges is crucial for enhancing food security among elderly female-headed households in Zaka. Improving transportation networks, establishing community-based storage and processing facilities and providing access to market information and extension services can

empower these households to increase their agricultural productivity and income. The following quotes reflect the perspectives of some participants;

“The roads are bad, and when it rains, it's impossible to get to the market. My vegetables spoil before I can sell them.” (G3).

“I have no place to store my maize, it gets damaged by pests and rain. I end up selling it cheaply or losing it.” (G4).

“I have to sell to the middleman because I can't reach the main market. They offer low prices, and I have no choice.” (G5).

“The poor road networks make it difficult to reach farmers, especially during the rainy season. This delays the dissemination of crucial information.” (Extension Officer).

“Providing extension workers with airtime and data bundles would enable more consistent engagement with farmers through digital platforms, improving market linkages.” (Extension Officer).

The findings captured the perspectives of elderly female heads that illustrate the multifaceted challenges faced by elderly female-headed households in rural Zaka concerning market access and infrastructure. Addressing these issues requires a concerted effort to improve rural infrastructure, provide adequate storage facilities, and enhance digital connectivity to empower these households and improve their food security and livelihoods. The Sustainable Livelihoods Framework (SLF) by Scoones (1998) underscores the significance of access to markets and infrastructure as pivotal assets influencing household food security. For elderly female-headed households, particularly in rural areas, these factors are critical yet often limited. Inadequate infrastructure such as poor road networks and unreliable transportation hampers their ability to access markets to sell agricultural produce or purchase essential goods, thereby affecting their economic stability and food security. Additionally, the lack of storage facilities and inconsistent electricity supply further exacerbate food insecurity by leading to post-harvest losses and reduced shelf life of perishable goods. Addressing these infrastructural deficits is essential for enhancing food security and promoting sustainable economic development in Zimbabwe.

4.5.6 POLICY AND STRUCTURAL FACTORS

Findings revealed that policy and structural factors significantly influence food security sustainability in rural Zaka, particularly for elderly female-headed households. Government

initiatives such as the Command Agriculture program have aimed to boost agricultural productivity by providing inputs like seeds and fertilizers. However, these programs often overlook the unique needs of elderly women, such as limited physical capacity and lack of access to draught power. Additionally, the centralized nature of such programs may exclude these women from decision-making processes, leading to interventions that are not tailored to their specific circumstances. Furthermore, historical land tenure systems have disadvantaged women, with many elderly women having limited control over land, affecting their ability to engage in productive agriculture and access credit. This structural inequity hinders their capacity to achieve food security and sustainable livelihoods. The research findings indicated that existing social protection programs are underfunded and fragmented, lacking a cash transfer component that could enhance household resilience and asset accumulation. These policies also tend to neglect the multiple vulnerabilities faced by elderly women, such as limited mobility and caregiving responsibilities, which are crucial for effective food security interventions. Without a targeted and inclusive approach, these structural and policy shortcomings perpetuate food insecurity among elderly female-headed households in rural Zaka. Some of the participants expressed the following views;

“We are grateful for the Presidential farm input support scheme, but the agro-dealers don't supply us with enough seed and their prices are too high. We can't afford them and the seeds they provide are often of poor quality, leading to low yields.” (G4).

“We do not own land, it's recorded in our late husbands' names. We cannot access loans because we do not have collateral. The banks want land as security, but we do not have it.” (G5).

“The roads are bad, we cannot get our produce to the market. Even if we manage to transport it, the prices are too low, and we end up with nothing. We need better roads and regulated markets.” (G6).

“Policies are often designed without considering the specific needs of elderly women. We need inclusive policies that address their unique challenges, such as limited mobility and access to resources.” (Extension Officer).

“Agricultural support programs should be gender-sensitive, providing women with the necessary tools, training and access to markets. Without these, their contributions to food security remain undervalued.” (Extension Officer).

The elderly female heads' views illustrated the multifaceted challenges faced by elderly female-headed households in rural Zaka concerning policy and structural factors. Addressing these issues requires targeted interventions that promote equitable access to resources, decision-making processes, and supportive infrastructures. In Zimbabwe, policy and structural factors significantly influence the food security and sustainability of elderly female-headed households, as articulated through the Sustainable Livelihoods Framework (SLF) by Scoones (1998). The SLF emphasizes the role of policies and institutions in shaping access to resources and opportunities. Elderly women often face systemic barriers, including limited access to land, credit and agricultural inputs, which are compounded by gendered norms and discriminatory practices. For instance, despite legal frameworks aimed at promoting gender equality, traditional customs and patriarchal structures often restrict women's land ownership and decision-making power, thereby limiting their capacity to enhance food security and economic resilience. These policy and structural challenges not only hinder the well-being of elderly women but also impede broader economic growth by limiting the productive potential of a significant demographic group. Addressing these issues requires a comprehensive approach that includes targeted social protection, equitable access to resources, and the transformation of discriminatory gender norms to foster inclusive economic development.

4.6 INTERVENTIONS STRATEGIES TO ENHANCE SUSTAINABLE FOOD SECURITY IN ELDERLY FEMALE-HEADED HOUSEHOLDS

This study focused on identifying and proposing practical intervention strategies aimed at enhancing sustainable food security in households in rural Zaka headed by older women, drawing on both local knowledge and external support mechanisms. The research revealed the need to strengthen agricultural support systems, promote livelihood diversification, enhance nutrition and health services, facilitate access to land and resources, strengthen social protection and safety nets, build community and institutional support as well as climate resilience building. This will be presented, interpreted and discussed below.

4.6.1 STRENGTHEN AGRICULTURAL SUPPORT SYSTEMS

The findings discovered that strengthening agricultural support systems is a critical intervention strategy to enhance sustainable food security in rural Zaka households under older female headship. Many of these women depend heavily on subsistence farming for survival, yet they face significant barriers such as lack of access to appropriate farming tools, limited extension services and reliance on outdated agricultural practices. To address these challenges, the intervention proposes targeted support that includes the provision of drought-resistant seed varieties, organic fertilizers and low-cost, labor-saving farming tools suitable for elderly users.

These inputs are intended to increase productivity, improve crop resilience to climate variability and reduce the physical burden on older women who often manage farms without younger labor support. Additionally, the strategy emphasizes the importance of personalized agricultural extension services. In many cases, older women are overlooked by mainstream agricultural programs, leading to poor adoption of improved techniques. By deploying extension officers who offer home-based, culturally sensitive training, this ensures that older women receive direct guidance on sustainable farming practices such as mulching, crop rotation, and integrated pest management. These approaches not only enhance food availability but also promote environmentally sustainable agriculture. Ultimately, this strategy seeks to empower elderly female farmers in Zaka by building their capacity, ensuring they can consistently produce enough food to meet household needs while preserving their health and dignity. Some of the participants shared the following sentiments;

“We need simple farming tools that we can use at our age. If we get proper hoes, watering cans, and seeds that grow well even when there’s little rain, we can produce more food without overworking ourselves.” (G1).

“Sometimes we cannot walk long distances to attend training meetings. If they come to our homesteads and show us how to farm better from here, it would help us a lot.” (G3).

“Older female farmers need tools and methods that consider their physical limitations. We recommend promoting raised garden beds and small-scale irrigation kits that reduce strain and water usage.” (Extension Officer).

“Consistent visits and home-based demonstrations allow us to monitor their progress and give feedback. This builds trust and ensures they adopt the practices effectively for better food security.” (Extension Officer).

Strengthening agricultural support systems is a critical intervention for enhancing sustainable food security in households headed by older women, especially within the framework of the Sustainable Livelihood Framework (SLF) developed by Scoones (1998). The SLF emphasizes the importance of five forms of capital namely human, social, natural, physical, and financial in achieving sustainable livelihoods. For older women, particularly in rural settings, access to these capitals is often constrained due to gender, age and socio-economic vulnerabilities. Agricultural support systems such as access to inputs, extension services, credit facilities, markets, and adaptive technologies can help bridge these gaps, facilitating improved food security and resilience. From a human capital perspective, older women often possess

indigenous agricultural knowledge but may lack access to modern farming techniques and training due to marginalization in extension services. Mubangizi and Gray (2018) propose that strengthening agricultural extension systems that are age- and gender-sensitive can help improve productivity and adaptive capacity.

Studies by Mmasa and Msuya (2017) show that in Tanzania improved access to agricultural training significantly enhanced food production among female-headed households, reinforcing the importance of targeted human capital interventions. Social capital, including networks and group associations, plays a key role in disseminating agricultural knowledge and mobilizing collective action. Older women often have strong ties within their communities, and leveraging these networks through cooperatives or women's groups can increase access to resources, markets, and information. For example, in Kenya, according to Kiptot and Franzel (2015) women's agricultural groups have been shown to facilitate resource-sharing and enhance market access, thereby improving household food security. Physical and financial capital are equally vital as access to farming tools, irrigation systems, and affordable credit can significantly improve agricultural output and household food security. However, older women often face discrimination in financial markets and lack collateral for loans. Hence, strengthening agricultural support systems is a multidimensional strategy that aligns well with the SLF and addresses key vulnerabilities faced by older women in rural areas. By enhancing access to all five livelihood capitals, these interventions can improve food security, resilience, and overall wellbeing.

4.6.2 PROMOTE LIVELIHOOD DIVERSIFICATION

The study found that promoting livelihood diversification is a vital strategy to enhance sustainable food security in rural Zaka, especially for households headed by older women. These households often rely on rain-fed subsistence farming, which is highly vulnerable to climate variability, poor soils and aging labor. Diversifying income sources can reduce dependence on agriculture and create alternative streams of food and income security. This can include activities such as poultry rearing, basket weaving, small-scale vending, or producing traditional crafts, options that are culturally relevant, physically manageable and income-generating. These livelihoods not only offer financial cushioning during agricultural off-seasons but also enable women to purchase supplementary food and basic household needs, contributing to greater household stability. Furthermore, supporting older women in accessing microfinance, community savings groups and training in business skills strengthens their capacity to sustain alternative livelihoods. Local NGOs and government agencies can play a

key role by offering small grants, forming cooperatives and facilitating market access for their goods and services. Livelihood diversification aligns well with the reality of rural Zaka where economic opportunities are limited but traditional skills and community networks are strong. By promoting diversification tailored to the physical capacity and interests of older female heads of households, this strategy builds resilience and helps ensure consistent food availability, even in the face of agricultural failure or external shocks. Insights from participants included the following statements;

“I started raising chickens because it’s something I can manage without much strength and I can sell eggs or meat to buy food when our crops fail.” (G2).

“We can make and sell mats and baskets from local materials. It gives us some money when farming doesn’t provide enough.” (G4).

“Being in a women’s savings club helps me borrow small amounts of money to start something like selling vegetables or cooking oil, which helps us buy food when there’s none at home.” (G6).

“We organize workshops where older women can learn soap-making or food processing, which they can do from home and sell within the village.” (Extension Officer).

“Helping them link with local markets or cooperatives to sell their crafts or poultry products increases income and reduces their dependence on just farming.” (Extension Officer).

Promoting livelihood diversification is a strategic intervention that aligns well with the Sustainable Livelihood Framework (SLF) by Scoones (1998), which emphasizes the need for access to multiple forms of capital that is human, social, financial, physical, and natural for sustainable livelihoods. For households headed by older women, livelihood diversification offers a pathway to reduce vulnerability and enhance resilience by broadening income sources beyond subsistence agriculture. This diversification can include petty trading, livestock rearing, craft-making, or informal sector employment. Livelihood diversification reduces dependence on a single income stream, helping households to better cope with shocks such as drought, crop failure or market volatility. Antwi-Agyei et al., (2018) postulate that in Ghana, older women who engaged in both farming and small-scale trading experienced greater food security compared to those relying solely on agriculture. Thus, promoting access to training,

markets and small business development can significantly improve households under the headship of older women's adaptive capacity and food security.

From a local context, diversification must be sensitive to the social and economic constraints older women face, including limited mobility, access to credit and cultural expectations. Studies by Mudege et al., (2017), Tanga and Tangwe (2020) reveal that in South Africa and Malawi older women when supported with microfinance, vocational training and social networks, they are more likely to engage in viable off-farm activities that supplement household food needs. Additionally, livelihood diversification enhances financial capital, allowing older women to purchase food during lean seasons and can improve social capital by integrating them into community-based economic activities. However, as Shackleton et al., (2019) caution, diversification must be sustainable and not exploitative, ensuring that it empowers rather than burdens older women. In this context, government and NGO support in creating enabling environments such as rural infrastructure and age-inclusive enterprise policies is critical to making diversification a viable and empowering food security strategy.

4.6.3 ENHANCE NUTRITION AND HEALTH SERVICES

The research's findings show that enhancing nutrition and health services is a critical intervention to improve sustainable food security in households headed by older women in rural Zaka. These households often face a double burden of poor access to nutritious food and limited healthcare, which directly affects their ability to maintain productive livelihoods. Many elderly women are caregivers to grandchildren and dependents, yet they themselves are at risk of malnutrition and chronic illnesses. Strengthening nutrition services involves community-based education on balanced diets using locally available foods, regular health screenings and the provision of nutritional supplements where necessary. This can improve the overall health status of both the household heads and their dependents, enabling them to engage more effectively in food production and income-generating activities. Mobile health clinics and outreach services are particularly crucial in rural settings like Zaka, where access to formal health infrastructure is limited. These services can deliver age-sensitive healthcare and promote preventive health practices, reducing time lost to illness and medical travel. Integrating nutrition education with agricultural programs ensures that elderly women understand not only how to grow food, but also how to maximize its nutritional value. Furthermore, collaboration between health workers and agricultural extension officers can strengthen food security outcomes by aligning dietary needs with farming practices. Ultimately, this strategy supports

sustainable food security by fostering healthier, more resilient households under older female leadership. A number of participants highlighted the following points;

“We often cook the same foods without knowing what is healthy. If someone teaches us how to make nutritious meals from what we grow, it would help our families eat better.” (G4).

“Walking to the clinic is hard at my age. If nurses could come to the village to check on our health and talk about food, it would help us manage better.” (G5).

“Some of us have diabetes and high blood pressure, but we don’t know what to eat. Health workers could guide us on the right foods to grow and eat.” (G6).

“We set up regular check-ins in villages to track nutrition in elderly-headed households and guide them with simple health tips to reduce malnutrition.” (Extension Officer).

Enhancing nutrition and health services is a crucial intervention for achieving sustainable food security in households headed by older women, particularly when analyzed through the lens of the Sustainable Livelihood Framework (SLF) developed by Scoones (1998). The SLF identifies human capital that is skills, knowledge, health and nutrition as a core component of sustainable livelihoods. Older women often face age-related health challenges that limit their capacity to engage in productive activities, exacerbating food insecurity. Improving access to age- and gender-sensitive health services, nutrition education and regular health screenings can boost their capacity to manage household food production and caregiving responsibilities. Studies in Ethiopia and Kenya have shown that integrated nutrition programs targeting older women resulted in improved dietary diversity and overall household food utilization (Nigatu et al., 2019; Muriithi et al., 2017). These improvements in health and nutrition status are directly linked to the enhancement of livelihood outcomes and food security.

In the African context, poor access to health infrastructure, combined with socio-cultural marginalization often leaves older women underserved by formal health and nutrition systems. Yet, these women are often responsible for the care of grandchildren and ill family members, placing further strain on their health and food resources. Local studies in South Africa and Zimbabwe highlight that when nutrition-sensitive interventions such as fortified food distribution, community clinics and mobile health services are directed at older women, both individual health outcomes and household food security significantly improve (Tanga and Tangwe, 2020). Moreover, enhanced health services reduce the economic burden of illness,

freeing up financial capital that can be redirected toward food and agricultural investments. Thus, enhancing nutrition and health services is not only a public health imperative but a strategic livelihood intervention that supports multiple capitals within the SLF, ultimately fostering resilience and sustainability in food-insecure, female-headed households.

4.6.4 FACILITATE ACCESS TO LAND AND RESOURCES

Findings revealed that facilitating access to land and productive resources is a crucial intervention to enhance sustainable food security in households headed by older women in rural Zaka. In many traditional settings, older women often face barriers to land ownership and decision-making, despite being primary food producers. Without formal land rights, these women struggle to invest in long-term agricultural improvements, access credit, or receive government and NGO support. Securing land tenure for elderly female heads of households through legal recognition, communal agreements or policy advocacy empowers them to farm confidently, plan for future seasons and make decisions that improve food security for their families. When land ownership is secure, women are more likely to adopt sustainable farming practices and maintain food-producing plots with continuity and care. In addition to land rights, access to critical resources such as water, fencing materials and organic manure is essential for boosting food production. Many older women are limited by their physical capacity and need closer access to water for gardening and small-scale livestock. Community-based support programs can play a pivotal role by establishing shared infrastructure like boreholes or protected gardens designated for elderly-headed households. Furthermore, local leadership and development agencies should prioritize distributing inputs and small grants directly to elderly women who often lack transportation and social connections to benefit from existing aid. By addressing both legal and practical barriers to land and resources, this strategy ensures that elderly women are not only recognized as farmers but are also equipped to achieve sustainable food security for their households. The following quotes reflect the perspectives of some participants;

“Even though I have worked on this land for years, it’s still under my late husband’s name. If I had proper documents, I could get help or loans to farm better.” (G1).

“Fetching water from far is hard at my age. If there was a borehole closer to my garden, I could grow vegetables throughout the year.” (G2).

“Sometimes we don't farm enough because we can't afford things like seeds, manure, or fencing. If we had access to these, we could grow more food for our families.” (G4).

“Many elderly women need help navigating land registration or inheritance processes. We support them by working with local leaders to secure their tenure rights.” (Extension Officer).

“We prioritize input distribution and small grants for older female-headed households, especially those who lack other support systems. It helps them use their land more productively.” (Extension Officer).

Facilitating access to land and productive resources is a pivotal intervention for enhancing sustainable food security in households headed by older women, particularly through the lens of Scoones’ (1998) Sustainable Livelihood Framework. The SLF emphasizes natural capital, such as land and water, as foundational to sustainable livelihoods. In many African contexts, however, older women face systemic barriers to land ownership and control due to patriarchal inheritance systems and discriminatory customary practices. Without secure land rights, they struggle to invest in long-term food production or access other support services tied to land tenure, such as agricultural inputs or credit. Research in Tanzania and Uganda reveals that when older women gain legal recognition and security of land tenure, their agricultural productivity and food self-sufficiency markedly improve (Bomuhangi et al., 2017; Namubiru-Mwaura, 2016). Ensuring tenure security empowers older women to manage land sustainably, contributing to long-term food availability and household resilience.

In the local and broader African context, facilitating access to land must go beyond formal titling to include supportive infrastructure and resources such as irrigation, seeds and tools. In Zimbabwe, for instance, targeted programs that provided both land access and input subsidies to older female-headed households significantly enhanced food production and dietary diversity (Mutangi, 2018). This aligns with the SLF’s emphasis on interlinked capitals, secure land rights (natural capital) can lead to improved access to financial capital (credit), physical capital (tools and infrastructure) and human capital (extension services). Moreover, inclusive land reform and resource distribution strategies must be culturally sensitive and accompanied by community sensitization to address gender and age biases. As emphasized by Place and Fakihi (2019), policy interventions that integrate legal reform, community-based land governance and resource allocation mechanisms are essential to transforming land access into meaningful food security outcomes for marginalized older women.

4.6.5 STRENGTHEN SOCIAL PROTECTION AND SAFETY NETS

The study found that strengthening social protection and safety nets is a vital intervention to enhance sustainable food security in households headed by older women in rural Zaka. These households are often among the most vulnerable due to limited income, poor health and a lack of consistent support. Many elderly women care for orphaned grandchildren or other dependents, placing further strain on already stretched resources. Introducing or expanding targeted cash transfers, food aid programs and pension schemes can help reduce the immediate threat of hunger and provide a foundation for stability. Such safety nets act as buffers during periods of crop failure, illness or economic shocks enabling these households to maintain a minimum standard of food access and dignity. In addition to direct assistance, community-based support systems such as food banks, public works programs and village savings and loan associations (VSLAs) can play a complementary role in reinforcing food security. For older women, participation in social support groups or cooperatives fosters a sense of inclusion and ensures they are not left behind in development efforts. Government and NGO programs should also be tailored to ensure accessibility for elderly beneficiaries, including mobile distribution systems or home visits. By institutionalizing these protective mechanisms, this strategy reduces long-term vulnerability and helps older female-headed households build resilience against the cyclical nature of poverty and food insecurity in rural Zaka. Some participants had the following to say;

“Sometimes we go days without proper food. If we received a small monthly grant or pension, it would help us buy essentials when we can’t grow enough.” (G2).

“During droughts or when the harvest is poor, food aid would help a lot. It’s hard to depend on farming alone, especially at my age.” (G4).

“If there were local groups where we could share food or support each other with small savings, it would make things easier for women like me.” (G5).

“We identify the most vulnerable, especially older female-headed households, and link them with food or cash transfer programs tailored to their needs.” (Extension Officer).

“We advise that social protection programs be made elderly-friendly, home visits, simplified registration and clear communication so older women can access help without barriers.” (Extension Officer).

Strengthening social protection and safety nets is a vital intervention strategy for enhancing sustainable food security in households headed by older women, especially when viewed

through the Sustainable Livelihood Framework by Scoones (1998). The SLF emphasizes access to various forms of capital particularly financial and social capital which are often severely limited for older women due to age, gender and socio-economic marginalization. Social protection mechanisms such as cash transfers, pensions, food subsidies and public works programs provide essential buffers against shocks and income insecurity, directly influencing a household's ability to access adequate food. Studies across Sub-Saharan Africa, including in Malawi and South Africa, have demonstrated that regular social grants and pensions significantly improve food consumption and reduce hunger in elderly-headed households (Devereux and Sabates-Wheeler, 2015; Tanga and Tangwe, 2020). These safety nets provide stable financial capital, allowing older women to purchase food, invest in small-scale agricultural inputs and meet basic needs without depleting other livelihood assets.

In the African context, where extended family support systems are weakening due to urban migration, HIV/AIDS and economic pressures, formal safety nets are increasingly crucial. Older women often become caregivers for orphaned grandchildren and sick relatives, placing additional financial strain on already vulnerable households. Research in Kenya and Lesotho shows that targeted social protection especially when combined with nutrition education or agricultural inputs can enhance both food availability and long-term resilience (Koehler, 2021; Mudege et al., 2017). Moreover, safety nets strengthen social capital by enabling participation in community groups and cooperative networks, which in turn improve access to information, credit and collective farming initiatives. However, for these interventions to be truly effective, they must be age- and gender-responsive, timely and supported by robust implementation frameworks. Integrating social protection with other livelihood support strategies ensures a comprehensive approach to sustainable food security for older women in rural Africa.

4.6.6 BUILD COMMUNITY AND INSTITUTIONAL SUPPORT

The research found that building community and institutional support is a key intervention strategy to enhance sustainable food security in households headed by older women in rural Zaka. These women often face social isolation, limited mobility and marginalization in decision-making spaces, which hinders their access to essential services and collective resources. By strengthening local support structures such as women's cooperatives, community farming groups and village savings and loan associations (VSLAs), older women can gain access to shared knowledge, labor and financial resources. Participation in these community-based groups enhances social inclusion and allows elderly household heads to benefit from group savings, bulk purchasing of inputs and rotational labor support, which collectively

improve their agricultural productivity and food security. On the institutional side, collaboration between traditional leaders, local government, NGOs and agricultural extension services is vital to ensure that the needs of elderly female-headed households are prioritized in food security programs. Institutions should facilitate platforms where older women can voice their concerns and help shape interventions that reflect their lived realities. Community training workshops, awareness campaigns and public-private partnerships can further strengthen these efforts by promoting gender-sensitive programming and inclusive development planning. Strengthening both community and institutional support ensures that older female household heads in Zaka are not left to navigate food insecurity alone, but are actively integrated into resilient and responsive support networks. Several participants expressed the following views;

“If we had a women’s group or farming club, we could help each other with labor and share seeds or tools. It’s hard to work alone.” (G1).

“Sometimes we are left out when leaders plan farming programs. We want to be included so they understand what older women need.” (G2).

“The church and community leaders could organize food-sharing or support days, especially during droughts or when we are sick.” (G3).

“We encourage the formation of elderly women’s committees within communities so they can represent their needs in food security planning.” (Extension Officer).

“Our role is to connect local groups with NGOs and government programs so that even small communities receive consistent and structured support.” (Extension Officer).

Building community and institutional support is a critical intervention strategy that aligns with the Sustainable Livelihood Framework (SLF) by Scoones (1998), particularly in strengthening social and institutional capital for sustainable food security in households headed by older women. These women are often marginalized in development planning, limiting their access to essential services, decision-making platforms and support networks. Community-based structures, such as cooperatives, farmer groups and village savings and loan associations (VSLAs), can serve as inclusive platforms for older women to access agricultural inputs, credit, information and collective bargaining power. According to Kiptot and Franzel (2015), women’s involvement in community agricultural groups in Kenya led to improved knowledge exchange and more efficient resource use, which enhanced food availability and stability at the household level. Furthermore, linking these grassroots structures to supportive institutions such

as local governments and NGOs ensures that older women benefit from broader agricultural and social welfare programs.

In the African and local context, institutional neglect and fragmented support systems often exclude older women from the mainstream development agenda. However, studies in Ghana, Uganda and South Africa show that when community and institutional actors collaborate through inclusive governance, extension services and capacity-building initiatives older women become more resilient to food insecurity (Tadesse et al., 2016; Tanga and Tangwe, 2020). For example, community-driven extension models that engage older women as peer educators according to Mudege et al., (2017) have proven effective in increasing both agricultural productivity and confidence among marginalized groups. Building these networks not only strengthens social capital but also reinforces human and physical capital, thereby improving access to services, knowledge and infrastructure. Institutionalizing support through policies that recognize the unique needs of older female-headed households is essential for long-term sustainability. Thus, fostering strong community linkages and institutional accountability provides an enabling environment where older women can thrive and ensure food security for their families.

4.6.7 CLIMATE RESILIENCE BUILDING

Findings indicated that climate resilience building is a critical intervention strategy proposed to enhance sustainable food security in households headed by older women in rural Zaka. These households are highly susceptible to climate-induced shocks such as droughts, erratic rainfall and soil degradation, which directly threaten their already fragile livelihoods. Strengthening their capacity to adapt involves promoting climate-smart agricultural practices like mulching, composting, crop rotation and the use of drought-tolerant seed varieties. These methods help conserve soil moisture, improve yields and extend the growing season, making them well-suited for elderly farmers with limited physical energy. Additionally, introducing low-cost water harvesting technologies such as small dams or drip irrigation systems can ensure more reliable access to water, reducing dependence on unpredictable rainfall. Beyond farming techniques, building climate resilience also requires raising awareness and providing timely information. Older female household heads often lack access to climate forecasts, early warning systems or disaster preparedness training. Community-based climate information services can bridge this gap, allowing them to plan their planting and harvesting more effectively. Institutional support is also key, including policy frameworks that prioritize vulnerable groups in climate adaptation programs. Training sessions led by extension officers

or NGOs, can ensure that older women understand how to apply resilience practices in their specific contexts. Through these combined efforts, climate resilience building not only protects their food production but also reinforces their long-term sustainability and independence. The following sentiments were shared by some of the participants;

“We need to learn how to grow crops that can survive when rains delay or end early. If they teach us those farming methods, we will not lose everything.” (G4).

“Our usual seeds no longer grow well. We need seeds that grow faster and don’t need too much rain so we can still harvest something.” (G5).

“If we had simple ways to store rainwater, like tanks or small pits, we could use that water for gardens when the dry season comes.” (G6).

“We are working to provide older farmers with timely weather updates and seasonal forecasts through local leaders or radio so they can prepare early.” (Extension Officer).

“We run demo plots showing climate-resilient techniques like mulching and intercropping. Elderly women can visit and see what works before applying it at home.” (Extension Officer).

Building climate resilience is an essential intervention for enhancing sustainable food security in households headed by older women, especially when analyzed through the Sustainable Livelihood Framework by Scoones (1998). The SLF emphasizes the importance of strengthening various forms of capital that is natural, human, physical and financial to enable households to adapt to shocks and sustain livelihoods. Older women in rural Africa are particularly vulnerable to the adverse effects of climate change, such as erratic rainfall, droughts and soil degradation, which directly affect food production. Climate resilience strategies, including the promotion of drought-resistant crops, water harvesting, agroforestry and conservation agriculture, enable these women to maintain or even improve food availability under changing climatic conditions. Studies in Ethiopia and Malawi show that female-headed households that adopted climate-smart agriculture practices were better able to cope with climate shocks and maintain household food security (Nigatu et al, 2019; Fisher and Carr, 2015).

In the African and local context, building climate resilience must also consider age and gender dynamics that affect access to information, resources and technologies. Older women often lack access to formal extension services and climate information systems, limiting their

capacity to anticipate and adapt to environmental risks. Community-based adaptation initiatives that include older women in planning and decision-making processes have been shown to be more effective in addressing localized vulnerabilities. For instance, according to Bryan et al., (2018) in Kenya, participatory climate adaptation planning improved the responsiveness of interventions to the needs of elderly women farmers. Moreover, integrating resilience-building efforts with institutional support such as grants for climate-resilient inputs and training enhances human and physical capital, reinforcing long-term adaptive capacity. Thus, fostering climate resilience among older women-headed households is not only a protective measure against food insecurity but a transformative approach that ensures sustainable livelihoods in a changing climate.

4.7 CHAPTER SUMMARY

This chapter presented, interpreted and discussed the key findings from the study titled ‘Pfumvudza Program and Food Security in Elderly Female-Headed Households in Rural Zaka’. Using data collected through semi-structured in-depth interviews and focus group discussions, the chapter explored the lived experiences of elderly female household heads in Zaka regarding the implementation of the Pfumvudza program and its impact on their food security status. The findings revealed that the Pfumvudza program plays a significant role in enhancing food availability and access among elderly women in rural Zaka. Many participants indicated that the program, through its provision of agricultural inputs and training in conservation farming techniques, had improved their crop yields compared to previous years. However, the chapter also highlighted persistent challenges that limited the full benefits of the program, and these comprised limited labor capacity due to age, delayed input distribution and inadequate support for elderly women with physical limitations. The discussion emphasized that while the program has potential, its design does not fully consider the specific needs and vulnerabilities of elderly female-headed households. The study found that while availability of food improved during harvest seasons, access and long-term stability remained problematic due to structural and socio-economic constraints, hence the need for policy that specifically address age and gender-related barriers to ensure more inclusive and equitable outcomes in agricultural interventions.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5. INTRODUCTION

This chapter provides a comprehensive overview of the major findings derived from the investigation into the role of the Pfumvudza program in enhancing food security among elderly female-headed rural households in Zaka District, ward 12. The study sought to examine the extent to which this conservation agriculture initiative has contributed to improving household food availability, accessibility and stability within a particularly vulnerable demographic group. The chapter is structured into three main sections, the first presents a summary of the key research findings, systematically aligned with the study's objectives and research questions. The second section offers conclusions drawn from the analysis, reflecting on both the theoretical and practical implications of the findings. The final section provides evidence-based recommendations aimed at informing policy formulation, program design and future research. The discussion throughout this chapter is grounded on the empirical data collected during the study and framed within relevant conceptual and contextual frameworks. Through this synthesis, the chapter seeks to contribute to a deeper understanding of the effectiveness of targeted agricultural interventions in addressing food insecurity among marginalized rural populations.

5.1 SUMMARY OF FINDINGS

This section presents a concise synthesis of the key findings that emerged from the study on the Pfumvudza program and its impact on food security among elderly female-headed rural households in Zaka. The findings are organized in accordance with the study's objectives, providing an analytical overview of how the program has influenced various dimensions of food security including availability, accessibility and stability. Findings include activities done by elderly female heads under Pfumvudza, challenges associated with Pfumvudza in elderly female-headed households, coping strategies adopted by elderly female heads, food security sustainability among older women-headed households and interventions strategies to enhance sustainable food security in elderly female-headed households. These findings will be summarized as follows.

5.1.1 ACTIVITIES DONE BY ELDERLY FEMALE HEADS UNDER PFUMVUDZA IN RURAL ZAKA WARD 12

One of the key findings of the study relates to the specific agricultural activities undertaken by elderly female-headed households under the Pfumvudza program. The study established that despite physical and resource-related challenges, elderly female heads of households in Zaka are deeply engaged in all stages of this farming model. These activities include digging planting basins, which is a foundational conservation agriculture practice aimed at improving water retention and crop productivity and as well requires precision and physical effort as each basin must be evenly spaced and measured to ensure optimal growth conditions. In addition, participants reported applying organic manure, often sourced from livestock or compost, as a substitute for or supplement to chemical fertilizers, thereby enhancing soil fertility in a cost-effective and sustainable manner.

The study also found that elderly female heads are directly involved in planting crops, primarily staple grains such as maize and small grains suited to the local agro-ecological conditions. Furthermore, mulching, another essential aspect of the Pfumvudza model, who gather and spread organic materials such as leaves, grass or crop residues to preserve soil moisture, suppress weed growth and protect soil structure. The final stage of the agricultural cycle, harvesting, is also predominantly undertaken by the female household heads themselves, sometimes with alternating support from family members or neighbors. This activity involves careful collection and storage of produce to minimize losses.

These findings underscore the active participation and resilience of elderly women in the implementation of Pfumvudza activities, despite age-related limitations. Their involvement from the initial land preparation to final harvesting underscores their central role in the success of the Pfumvudza program. The findings suggest that elderly female heads are not merely participants but important drivers of agricultural resilience at the household level. Therefore, policy and program interventions should recognize their contributions and consider providing tailored support to enhance their capacity and alleviate the physical burden of these activities.

5.1.2 CHALLENGES ASSOCIATED WITH PFUMVUDZA IN ELDERLY FEMALE-HEADED HOUSEHOLDS IN ZAKA

The research revealed that elderly women encounter a range of interrelated challenges that limit their participation and reduce the potential success of the Pfumvudza initiative. One major issue is limited access to financial resources, which affects their ability to purchase essential farming

inputs and hire labor when needed. As sole providers in their households, many of these women carry the full burden of providing for their families with minimal economic support.

Labor constraints also pose a significant challenge, as the physical demands of the Pfumvudza program are considerable. Due to their age, many elderly women experience reduced physical strength and stamina, yet Pfumvudza demands intense manual work, that is elderly women must dig planting basins, apply manure and carry out other labor-intensive tasks, often without help due to their limited financial means. These efforts are further complicated by their age-related physical limitations and the added burden of domestic responsibilities such as caregiving, cooking and fetching water and firewood. As a result, the amount of land they can cultivate under Pfumvudza is often restricted, limiting their potential harvest.

Another major challenge identified is the lack of consistent and sufficient extension services and technical support. Many elderly female farmers have limited access to training and follow-up support from agricultural officers, which affects their ability to correctly implement Pfumvudza techniques. The late distribution of crucial inputs, such as seeds and fertilizers, further undermines the program's effectiveness, as it delays planting and affects yields. This issue is particularly unfavorable in rural areas where growing seasons are short and weather patterns can be unpredictable.

Finally, the absence of mechanization greatly affects these elderly women, as all tasks under Pfumvudza are done manually. The physical strain of conservation farming methods becomes a serious barrier, particularly for elderly women with health issues and reduced mobility. Without access to basic tools and support labor, the sustainability of their participation in the program is at risk. The study's findings suggest that while Pfumvudza offers important opportunities for climate-resilient farming, its success among elderly female-headed households hinge on addressing these specific structural and support-related challenges.

5.1.3 COPING STRATEGIES ADOPTED BY ELDERLY FEMALE HEADS IN RURAL ZAKA

The study also focused on identifying how elderly women navigate and address the challenges they face in implementing the Pfumvudza program in Zaka area. The research revealed that despite numerous obstacles such as limited resources, labor constraints and insufficient support, elderly female heads employ a variety of adaptive strategies to ensure their continued participation in the program. One key strategy is the formation of cooperative groups, where women come together to share labor, tools, and knowledge. These informal networks help reduce the individual burden of physical tasks and foster mutual support.

Engaging family members, especially younger relatives, also plays a crucial role in easing the labor demands of Pfumvudza practices. When available, family support helps elderly women manage time-consuming and physically demanding tasks such as digging basins and applying manure. In addition, many adopt modified, low-labor conservation farming techniques that align better with their physical capabilities. These adjustments enable them to maintain productivity without overstraining themselves, helping to sustain their participation over time.

To cope with irregular input distribution and financial constraints, some elderly women practice input saving and rotation. By preserving leftover seeds, fertilizers or organic matter from previous seasons, they reduce dependency on external aid and ensure continuity in their farming activities. Others actively participate in training and extension programs when available, which helps them stay informed on improved farming methods, climate-smart practices and resource management. This knowledge empowers them to make better decisions and enhance their farm efficiency.

Additionally, food storage and preservation have become essential strategies for ensuring elderly female-headed households food security, particularly in times of poor harvest or delayed support. Techniques such as drying, fermenting and proper storage help extend the shelf life of produce, allowing elderly female heads to manage food supplies during off-seasons or emergencies. Overall, these coping strategies reflect the resilience, adaptability and resourcefulness of elderly female heads in overcoming the constraints of the Pfumvudza program and striving for sustainable livelihoods despite their vulnerabilities.

5.1.4 FOOD SECURITY SUSTAINABILITY AMONG OLDER WOMEN-HEADED HOUSEHOLDS IN ZAKA

The study aimed to uncover the lived experiences, challenges and strategies of elderly women heads in maintaining consistent and adequate food access. This demographic group is uniquely positioned at the intersection of age, gender and rural poverty which creates specific vulnerabilities and resilience mechanisms worth exploring. The study highlighted on the multifaceted nature of food security, revealing that sustainability is influenced by a web of social, economic, cultural and policy-related factors. One of the key findings revolves around gender and household dynamics. Older women experience systemic gender inequality, particularly in decision-making roles and access to resources such as land and agricultural inputs. Despite heading households, they are still marginalized in broader community structures. Their responsibilities as caregivers for grandchildren or ill family members further

reduce their capacity to engage in productive labor, thus compromising food production and income generation.

In terms of livelihood strategies, many of these households rely on subsistence farming, informal trading and periodic remittances. However, these income-generating activities are constrained by age, physical limitations and lack of access to credit or training. This forces many older women to adopt coping mechanisms such as reducing meal portions or prioritizing food for younger household members, which compromises their own nutritional needs and overall well-being. The study also revealed the role of government and NGO interventions. While some programs aim to address rural food insecurity, they often fail to effectively reach or meet the specific needs of older women. Interventions are sometimes short-term, poorly coordinated and overlook the voices of the very people they aim to support. As a result, the impact on long-term food security sustainability remains limited.

Cultural beliefs and practices further influence food access and distribution. While some cultural norms encourage communal sharing and support for the elderly, others reinforce patriarchal systems that limit women's control over land and inheritance. These traditional structures often place older women in dependent positions, reducing their autonomy over resources critical for achieving food security. Another significant factor is market access and infrastructure. Poor road conditions, long distances to markets and lack of transport limit the ability of older women to sell surplus produce or purchase diverse food items. Inadequate storage facilities and limited access to market information also reduce their potential to generate income or diversify diets, contributing to chronic food insecurity.

Lastly, policy and structural factors play a crucial role. Many national food security and agricultural policies are not effectively implemented at the local level. There is a lack of tailored programs targeting older rural women and social protection mechanisms are either underdeveloped or inconsistently applied. Structural inequalities in land distribution and economic opportunities further disadvantage this vulnerable group. Food security sustainability for older women-headed households in rural Zaka is shaped by a complex combination of gender roles, economic hardship, cultural norms and institutional shortcomings. Addressing these issues requires holistic, inclusive and context-sensitive approaches that empower older women and integrate their perspectives into development planning and policy implementation.

5.1.5 INTERVENTIONS STRATEGIES TO ENHANCE SUSTAINABLE FOOD SECURITY IN ELDERLY FEMALE-HEADED HOUSEHOLDS IN RURAL ZAKA

The study sought to explore and identify effective intervention strategies that could enhance sustainable food security among elderly female-headed households in rural Zaka. Findings showed that this demographic is particularly vulnerable due to a combination of aging, gender-based inequalities, limited access to resources and the increasing impacts of climate change. Through direct engagement with the elderly women themselves, the study revealed that sustainable solutions must address both immediate food needs and long-term resilience. One of the primary strategies identified is the strengthening of agricultural support systems. Participants emphasized the need for access to quality seeds, farming tools and training on modern, climate-resilient agricultural practices. Many of these women rely on subsistence farming and improved support in this area could directly enhance their food production and reduce dependence on external aid.

Another critical area is the promotion of livelihood diversification. The study found that relying solely on farming is increasingly weak due to erratic weather patterns and soil degradation. Elderly women expressed interest in alternative income-generating activities such as small-scale trading, poultry rearing and crafts. Supporting these initiatives can improve household incomes and buffer against seasonal food shortages. The research also highlighted the importance of enhancing nutrition and health services. Aging women often face health challenges that affect their ability to work and maintain a balanced diet. Access to basic healthcare, regular check-ups and nutrition education would contribute significantly to their well-being and ability to sustain food security.

Access to land and productive resources remains a major barrier. Many elderly women do not have secure land tenure, limiting their ability to invest in or expand their farming activities. The participants stressed the need for fair land allocation policies, access to water sources for irrigation and availability of credit facilities to purchase inputs as well as to start small businesses. In addition, strengthening social protection and safety nets was identified as essential. Many of the women are widowed, caring for grandchildren or living alone. Reliable social safety nets such as pensions, food aid during droughts and community-based care systems could reduce their vulnerability and ensure a minimum standard of living.

The women also called for greater community and institutional support. Partnerships with NGOs, local government and community groups can create a support network that shares resources, information and services. Such collaboration can also amplify their voices in local

decision-making processes. Finally, the participants stressed the need for climate resilience building. As climate change increasingly affects crop yields and water availability, it is vital to adopt strategies such as drought-resistant crops, water harvesting technologies and early warning systems for weather-related events. These measures would ensure that elderly female-headed households can better cope with environmental shocks and continue to meet their food needs. The study underscores that enhancing sustainable food security for elderly female-headed households in rural Zaka requires a holistic, integrated approach. By addressing agricultural productivity, income diversification, health, resource access, social protection, institutional support and climate resilience, these households can become more self-reliant and secure in the face of persistent challenges.

5.2 CONCLUSIONS

Deducing from the findings of the research, the study arrived at the following conclusions;

The findings from the study on the Pfumvudza program and food security in elderly female-headed rural households in Zaka have clear and far-reaching implications for Zimbabwe's government policies, particularly in relation to the country's developmental vision under Vision 2030 and the National Development Strategy 1 (NDS1). While the government has made commendable efforts to promote climate-smart agriculture through initiatives like Pfumvudza, the study revealed that vulnerable groups, specifically elderly women are not fully benefiting from the program due to structural and logistical limitations. This calls into question the inclusiveness of current national food security strategies and highlights the need to realign program implementation with the diverse needs of rural populations.

One significant implication is that while Pfumvudza is positioned as a star program to boost productivity and resilience to climate change, it is currently designed in a one-size-fits-all manner that overlooks the physical and financial limitations of elderly female farmers. Labor-intensive practices such as digging planting basins and manual application of mulch are unsuitable for aged women with limited help, suggesting a mismatch between policy and reality. Zimbabwe's aging rural population, particularly widows and women left to care for orphaned children due to the HIV/AIDS pandemic and migration of working-age adults, requires that agricultural programs be less-labor intensive or be accompanied by targeted labor assistance. To achieve true inclusivity and program effectiveness, the government must consider redesigning Pfumvudza support models to include labor-saving tools, labor support programs, and alternative conservation farming techniques that are less physically demanding.

The challenges reported such as late delivery of inputs, limited extension services and lack of financial resources also highlight critical gaps in service delivery at the grassroots level. This has direct implications for the government's decentralization policy under NDS1, which seeks to empower local authorities to deliver development more effectively. The coverage of extension officers is sparse and inconsistent, and elderly women lack access to timely technical guidance. Strengthening the capacity of ward and district-level agricultural officers, improving logistical coordination and increasing accountability in input distribution will be essential steps to ensure that vulnerable groups are not left behind.

Gender inequality is another key area of concern. Despite Zimbabwe's progressive policies on gender equality and women empowerment, the study demonstrates that many elderly women lack secure access to land, decision-making power and critical farming resources. This undermines both their economic independence and food security. The government must therefore take deliberate steps to enforce gender-sensitive land policies, promote women-led agricultural cooperatives and expand targeted financial and technical support for elderly female-headed households. These efforts will be instrumental in closing the gender gap in agriculture and advancing the government's commitments under both Vision 2030 and the Constitution. Implications for social work are significant as the findings highlight the intersection of age, gender and food security. Social workers must advocate for policies that prioritize the unique needs of elderly women in rural areas, ensuring that social protection systems are inclusive and responsive.

Moreover, the insights from the study present an opportunity for the government to adopt more integrated development approaches. Food security cannot be addressed in isolation from social protection, health and infrastructure. The elderly participants' own recommendations such as promoting livelihood diversification, enhancing nutrition services and building community support systems highlight the need for multi-sectoral coordination that is lacking. Ministries responsible for agriculture, social welfare, health and women's affairs must work collaboratively to implement comprehensive support frameworks for vulnerable households. The elderly participants themselves called for improvements in health, nutrition and social protection services. This highlights the gap as food security cannot be addressed in isolation from other sectors. The Zimbabwean government, along with NGOs and donors should adopt an integrated rural development approach that links agriculture with social welfare, health, water, sanitation and education.

In terms of political and policy performance, the findings also served as a benchmark for evaluating the success of the current Zimbabwean government's rural development agenda. While many initiatives have been rolled out with substantial media coverage and national pride, the lived experiences of marginalized groups such as elderly women in Zaka suggest that policy outcomes on the ground may not be matching the intended impact. If these gaps are not addressed, the government risks weakening public trust and undermining the credibility of its development programs. This suggests that empowering marginalized groups to participate in the design and evaluation of food security programs can improve both relevance and outcomes. Programs like Pfumvudza lack participatory planning frameworks that incorporate the voices of elderly women and other vulnerable groups.

The conclusions and implications of the study stress that for food security programs like Pfumvudza to be effective in Zimbabwe, they must move from a 'one-size-fits-all' model to a context-sensitive, inclusive and integrated approach. Addressing the specific challenges faced by elderly female-headed households through improved extension services, access to inputs gender-sensitive land policies and community-based support systems can significantly enhance food security and social well-being in rural Zimbabwe. This approach aligns with Zimbabwe's broader development goals under Vision 2030 and the SGDs, particularly those related to zero hunger, gender equality and reduced inequalities.

5.3 IMPLICATIONS FOR SOCIAL WORK PRACTICE

The findings from the study 'Pfumvudza Program and Food Security in Elderly Female-Headed Rural Households in Zaka' have significant implications for the practice of social work, particularly within rural, aging and gendered contexts. These implications extend across methods of practice, settings for intervention, training needs for practitioners and ethical considerations. Below is a breakdown of how each domain is affected;

5.3.1 SOCIAL WORK METHODS AND APPROACHES

The study underscores the need for community-based and participatory social work methods. The involvement of elderly female-headed households in labor-intensive Pfumvudza activities such as digging, mulching and planting highlights the necessity for interventions that build collective capacity and mutual aid systems. Social workers must therefore utilize group work and community organizing approaches to facilitate cooperative structures, such as farming collectives or self-help groups, which were already adopted as coping strategies. Additionally, casework should address individualized challenges like physical strain and lack of income through linkages to health services, financial assistance and psychosocial support.

5.3.2 SETTINGS FOR SOCIAL WORK PRACTICE

The rural setting of Zaka necessitates that social work expands its reach beyond urban and institutional centers. The findings demand a decentralized, mobile approach where social workers engage in field-based practice and maintain presence in villages and farming communities. Given the intersection of agricultural practices and food security, interdisciplinary collaboration with agricultural extension officers, health practitioners and development agencies is crucial. Social work practice must be situated in multi-sectoral rural development programs, targeting both the economic and psychosocial aspects of food insecurity.

5.3.3 TRAINING AND CAPACITY BUILDING FOR SOCIAL WORKERS

Social workers operating in such rural contexts must receive specialized training in rural livelihoods, aging, gender-responsive programming and food security. The findings emphasize that elderly women face unique vulnerabilities such as labor constraints, age-related health issues and socio-cultural marginalization. Thus, practitioners need social work training focusing on aging processes combined with knowledge of sustainable agriculture and resilience-building strategies. Training should also include policy advocacy skills, enabling social workers to influence resource allocation, land access and rural infrastructure development, which were key barriers identified in the study.

5.3.4 ETHICAL CONSIDERATIONS IN PRACTICE

The study highlights ethical concerns surrounding equity, dignity and justice. Elderly women are managing households with limited support and access to resources, often under physically demanding conditions. Social workers must uphold the ethical principle of promoting self-determination while recognizing the structural injustices that limit agency. Advocacy for timely distribution of agricultural inputs, accessible extension services and inclusive policy planning becomes an ethical mandate. Moreover, there is a need to ensure culturally sensitive practice, respecting traditional norms while challenging those that perpetuate gender-based exclusion or land insecurity.

The findings suggest that social work in rural Zimbabwe especially in areas like Zaka must advance to include holistic, context-sensitive and rights-based approaches. Practitioners must act not only as facilitators of social welfare but also as community mobilizers, policy advocates and agents of structural change, ensuring that elderly female-headed households are empowered to achieve sustainable food security and dignified living conditions.

5.4 RECOMMENDATIONS

This section presents a set of targeted recommendations derived from the study's findings. These recommendations are directed toward key stakeholders including the government, local communities, researchers and extension officers. The purpose of these recommendations is to support evidence-based decision-making, promote inclusive development and enhance the effectiveness of interventions in the study area. By addressing the specific responsibilities and capacities of each stakeholder group, the recommendations aim to foster coordinated efforts that contribute to long-term impact. These are organized as follows;

5.4.1 RECOMMENDATIONS TO THE GOVERNMENT

The government should prioritize strengthening agricultural support systems for elderly female-headed households. This includes ensuring the timely distribution of agricultural inputs such as seeds, fertilizers and tools well before the planting season to prevent delays that negatively impact crop production. Expanding access to extension services is also important, that is more trained extension officers who are sensitive to the unique needs of elderly women farmers should be deployed to rural areas. Additionally, promoting the use of simple and affordable mechanized tools will help reduce the physical demands of manual labor, making farming more manageable for older women.

Improving access to financial resources is another key area. The government should develop tailored microfinance schemes that offer low-interest loans specifically designed for elderly women engaged in farming. Agricultural grants or subsidies targeted at this demographic would also alleviate the burden of input costs and encourage greater participation in the Pfumvudza program. These financial interventions will empower elderly female farmers to invest in their farms and diversify their livelihoods.

Community-based support structures and continuous training programs should be strengthened as well. Encouraging the formation of women-led agricultural cooperatives can foster collective action, shared labor and improved market access. Regular training on climate-smart agriculture, modern farming techniques and post-harvest management tailored to elderly women will enhance their farming knowledge and productivity. Delivering these trainings in local languages and accessible formats will ensure inclusivity.

To reduce dependency on a single source of income, the government should promote livelihood diversification by supporting small-scale income-generating projects such as poultry keeping, small livestock rearing and food processing. Improving access to local and regional markets

through better rural infrastructure and marketing support will enable elderly women to sell their produce more effectively and sustainably.

Nutrition and health services must be integrated with agricultural support to address food security comprehensively. Mobile health units offering medical check-ups alongside nutrition education should be deployed in rural areas. Educating elderly women about balanced diets, food preservation and storage will improve their household nutrition and help them cope better with seasonal food shortages.

Access to land and other productive resources should be enhanced by ensuring secure land tenure rights for elderly women and improving access to water through small-scale irrigation and water harvesting projects. These measures will provide a more stable foundation for sustainable farming and food production.

Social protection and safety nets are critical for cushioning elderly female-headed households against shocks. The government should expand pension schemes and social cash transfers to reach more vulnerable elderly women. Additionally, integrating these households into disaster risk reduction programs and emergency food relief will improve their resilience to climate variability and other crises.

Climate resilience building should be a core component of government interventions. Training elderly women in climate-smart agricultural practices, such as mulching and crop rotation, alongside investments in community-level adaptation initiatives like reforestation and soil conservation, will strengthen their ability to cope with environmental challenges.

Finally, it is essential to mainstream gender and age considerations into agricultural policies, ensuring that the specific needs of elderly female-headed households are recognized and addressed. Establishing community-based monitoring systems will help track the effectiveness of food security programs and provide a platform for elderly women to voice their concerns and feedback.

5.4.2 RECOMMENDATIONS TO THE COMMUNITY

The community should take active steps to support elderly female-headed households by encouraging the formation and strengthening of cooperative groups. These groups can facilitate shared labor, collective purchasing of inputs and mutual support, which will help reduce the workload and financial burden on individual elderly farmers. By fostering collaboration, community members can pool resources and knowledge to improve overall productivity and resilience.

Family and neighbors within the community should be encouraged to provide more consistent support to elderly women, especially with labor-intensive tasks such as digging planting basins and harvesting. Promoting a culture of shared responsibility will help alleviate the physical demands faced by elderly farmers and ensure timely completion of critical farming activities.

Community-based training and knowledge-sharing platforms should be established to circulate low-labor agricultural techniques and climate-smart practices. Elders and experienced farmers can mentor others, creating a local network of support that enhances skills without relying heavily on external extension services, which may be insufficient or delayed.

Local groups and leaders can play a role in facilitating food storage and preservation initiatives, helping elderly households reduce post-harvest losses and ensure food availability during lean periods. Community grain banks or collective storage facilities could be explored as practical solutions to enhance food security.

The community should advocate for better access to local markets by working together to improve infrastructure such as roads and transport services. Improved market access will empower elderly women to sell surplus produce and generate additional income, thereby supporting livelihood diversification.

Additionally, the community can support nutrition and health education initiatives tailored for elderly women and their families, by promoting awareness about balanced diets and hygiene practices that improve household well-being.

To strengthen social protection at the grassroots level, community members can organize and participate in savings groups or informal social safety nets that provide financial assistance in times of need. This communal approach can complement government programs and fill gaps where formal support is lacking.

Finally, the community should engage actively in climate resilience efforts by participating in environmental conservation activities such as tree planting, soil conservation and water harvesting projects. Building local resilience to climate change will directly benefit elderly farmers who are most vulnerable to its impacts.

5.4.3 RECOMMENDATIONS FOR EXTENSION OFFICERS

Extension officers should prioritize providing age-appropriate and gender-sensitive support to elderly female-headed households. This involves tailoring advice and farming techniques that

consider the physical limitations and unique challenges elderly women face, such as labor constraints and household responsibilities. Using simple, low-labor conservation techniques and promoting the use of affordable tools can help ease their workload.

Timely and regular contact with elderly women farmers is essential. Extension officers need to ensure that inputs like seeds, fertilizers and organic manure are distributed well in advance of planting seasons. This will help elderly farmers prepare adequately and avoid delays that negatively impact crop yields.

Building strong relationships with the community is key. Extension officers should encourage and facilitate the formation of cooperative groups and family support networks, which can provide elderly women with shared labor opportunities and social support. Group-based training sessions can be more effective and empowering, allowing for peer learning and collective problem-solving.

Continuous training and follow-up visits are important for reinforcing good agricultural practices and climate-smart techniques. Extension officers should organize regular workshops and demonstrations on mulching, planting basins, organic manure application, crop rotation and food preservation, using local languages and accessible formats.

Extension officers should also serve as connectors between elderly farmers and relevant government and NGO programs. They can facilitate access to nutrition and health services, social protection schemes and market opportunities. Raising awareness about these resources will help elderly women diversify their livelihoods and improve household food security. To address the labor challenges elderly women face, extension officers should advocate for and help introduce labor-saving technologies and innovations that are affordable and easy to use. Demonstrating the benefits of such tools can encourage uptake and reduce the physical demands of farming.

Finally, extension officers should document and communicate the needs and challenges faced by elderly female-headed households to policymakers and program planners. Their frontline experience is crucial for informing adjustments to the Pfumvudza program and related interventions to better support this vulnerable group.

5.4.4 RECOMMENDATIONS FOR FURTHER RESEARCH

Further research is recommended to explore the long-term impact of the Pfumvudza program on food security and livelihood outcomes specifically among elderly female-headed households. A longitudinal study could provide deeper insights on how sustainable these

interventions are over multiple agricultural seasons and whether they contribute to lasting improvements in income, nutrition and well-being.

It would be valuable to investigate the role of labor-saving techniques and innovations tailored for elderly farmers in rural areas. Research could focus on identifying affordable, accessible tools or mechanization options that can reduce the physical demands of farming for elderly women, thereby improving their productivity and health outcomes.

Another area for further research is the effectiveness of cooperative groups and community-based support systems in enhancing the Pfumvudza program's reach and impact. This could include studying how social networks, collective action and knowledge-sharing influence adoption of agricultural practices and food security resilience among elderly women.

Given the challenges around input distribution, studies examining supply chain and logistics management within the Pfumvudza program would be useful. This could identify blockages and propose solutions to ensure timely delivery of seeds, fertilizers and other necessary inputs to elderly farmers.

Further inquiry is needed into the intersection of gender, age and household dynamics in influencing food security outcomes. Research could focus on how decision-making power, intra-household support and caregiving responsibilities affect elderly female-headed households' ability to engage effectively in agricultural activities.

Additional research could also assess the impact of livelihood diversification strategies on food security sustainability. Investigating which alternative income-generating activities are most feasible and profitable for elderly women and how these complement Pfumvudza activities, would provide useful guidance for program design.

Nutrition-focused research that examines the relationship between agricultural productivity and dietary diversity among elderly women's households could help design integrated programs that address both food quantity and quality. Finally, climate resilience remains a critical area. Research into climate-smart agriculture adoption barriers and enablers for elderly female-headed households, as well as community-level adaptation strategies would help tailor interventions that are both effective and contextually relevant.

5.4.5 SOCIAL WORK-BASED RECOMMENDATIONS

Social workers should actively facilitate the formation and strengthening of community cooperatives and mutual aid groups among elderly female-headed households. These groups,

which the study identified as a strategy already being used, can be further supported to become sustainable platforms for resource sharing, skills training, advocacy and emotional support. Through group work and community organizing methods, social workers can build solidarity networks that reduce labor demands and increase collective bargaining power, especially in accessing agricultural inputs and markets.

The challenges highlighted around insufficient extension services and the physical demands of labor suggest the need for age and gender-sensitive service delivery. Social workers, in collaboration with agricultural and health departments, should advocate for inclusive extension programs that consider the limitations of elderly women. These should involve simplified, adaptive techniques and home-based demonstrations. Additionally, social workers can act as intermediaries between the community and service providers to ensure services are accessible, culturally appropriate and consistently delivered.

Given the importance of livelihood diversification for food security sustainability, social workers must incorporate economic empowerment strategies into their interventions. This includes facilitating access to income-generating activities, savings groups and vocational training that are tailored to the capacities and interests of elderly women. Microfinance initiatives, small livestock rearing and home-based crafts are examples of viable alternatives. Such interventions reduce over-reliance on physically taxing agricultural work and promote economic resilience.

The study points to deeper structural issues such as land tenure insecurity, weak social protection and limited market access that cannot be addressed by community interventions alone. Social workers have a critical advocacy role in pushing for inclusive rural policies that prioritize the needs of elderly female farmers. They should work with civil society and grassroots movements to push for reforms that improve land rights, ensure timely input distribution, expand rural infrastructure and increase government funding for smallholder farmers.

Recognizing the double burden of age and poverty, social work interventions should include efforts to strengthen social protection mechanisms. This includes advocating for pensions, food subsidies, health care access and home-based care for elderly-headed households. Social workers must also ensure these services are not only available but are reaching the intended beneficiaries through effective outreach, community registration and follow-up. Health

promotion, especially regarding nutrition and age-related illnesses should be integrated into community programs.

Social workers should collaborate with environmental and agricultural professionals to promote climate-resilient farming techniques among elderly female farmers. Training on soil conservation, water harvesting and crop diversification should be made accessible and social workers can help translate these technical messages into community-friendly formats. Moreover, promoting local knowledge and indigenous practices ensures relevance and fosters respect for community identity. Hence, the study's findings call for a multi-layered, rights-based and empowerment-focused approach to social work in rural Zimbabwe. By addressing immediate needs, strengthening community structures and pushing for systemic change, social workers can play a transformative role in enhancing food security and dignity for elderly female-headed households.

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APPENDICES

APPENDIX 1: CONSENT FORM

Topic: Pfumvudza program and food security in elderly female-headed rural households in Zaka, Zimbabwe.

Researcher: Takudzwa Chitiga

Contact details: 0773332525/ takudzwachitiga2@gmail.com

Affiliation: Bindura University of Science Education

Purpose of the study: You are invited to take part in a research study that seeks to understand how the Pfumvudza program is affecting food security among elderly female-headed households in Zaka. The study aims to gather information on your experiences, challenges and views on the program.

What participation involves: If you agree to participate:

1. You will be asked some questions in an interview.
2. The interview will take about 6-10 minutes.
3. Your responses will be recorded (with your permission) and used for research purposes only.
4. There will be no payment, but your contribution will help inform better agricultural support for elderly women.

Voluntary Participation:

Your participation is completely voluntary. You may

1. Choose not to answer certain questions.
2. Stop the interview at any time without giving a reason.
3. Withdraw from the study entirely if you wish.

Confidentiality:

1. Your identity and responses will be kept confidential.
2. No names or identifying information will appear in any reports or publications.
3. All data will be securely stored and only used for academic purposes.

Risks and benefits:

1. There are no direct risks involved in participating.

2. You may benefit by sharing your experiences and helping improve future policies and programs that affect your community.

I have read (or had this information read to me) and I understand the purpose of the study. I agree to participate in this research voluntarily.

Participant name:

Signature

Date

Witness (if participant cannot sign)

Name

Signature

Date

Researcher's Name

Signature

APPENDIX 2

DATA COLLECTION TOOLS

SEMI STRUCTURED IN-DEPTH INTERVIEW GUIDE FOR ELDERLY HOUSEHOLD HEADS IN ZAKA

RESEARCH QUESTION 1: What are the activities performed by elderly female household heads in Zaka under the Pfumvudza program?

PROBING QUESTIONS

1. What kind of training or orientation have you received before starting the program?
2. Can you describe the tasks or activities you do as part of the Pfumvudza program?
3. How do you prepare your land for planting under Pfumvudza?

RESEARCH QUESTION 2: What challenges do elderly female household heads in Zaka face in the implementation of the Pfumvudza program?

PROBING QUESTIONS

1. What specific tasks involved in the Pfumvudza program do you find most difficult to perform and why?
2. How does your age or health condition affect your ability to fully participate in the program?
3. In your experience, what are the most frustrating or discouraging parts of participating in Pfumvudza?

RESEARCH QUESTION 3: What coping strategies are adopted by elderly female heading households in rural Zaka to overcome challenges faced under the Pfumvudza program?

PROBING QUESTIONS

1. When you face difficulties with Pfumvudza activities, what do you usually do to manage or adapt?
2. What changes, if any, have you made to the Pfumvudza farming method to make it easier for yourself?
3. Looking back, which coping strategies have worked best for you, and which haven't?

RESEARCH QUESTION 4: How do elderly female-headed households in rural Zaka perceive and experience food security sustainability?

PROBING QUESTIONS

1. What does food security mean to you personally?
2. What practices do you use to store or preserve food for future use?
3. How does the farming season affect your household's food situation?

RESEARCH QUESTION 5: What intervention strategies can effectively enhance sustainable food security in households headed by older women in rural Zaka?

PROBING QUESTIONS

1. What are your main sources of food and income?
2. How do you currently access support systems such as agricultural extension and healthcare?
3. How do you currently market your produce, and what challenges do you face?

APPENDIX 3

SEMI STRUCTURED IN-DEPTH INTERVIEW GUIDE FOR KEY INFORMANTS

RESEARCH QUESTION 1: What are the activities performed by elderly female household heads in Zaka under the Pfumvudza program?

PROBING QUESTIONS

1. What specific agricultural practices do elderly female households heads perform under the Pfumvudza program?
2. How do extension officers support elderly female household heads in implementing conservation agriculture techniques?
3. How do extension officers assess the effectiveness of the Pfumvudza program among elderly female households' heads?

RESEARCH QUESTION 2: What challenges do elderly female household heads in Zaka face in the implementation of the Pfumvudza program?

PROBING QUESTIONS

1. What support systems are in place for elderly female household heads, and how effective are they?
2. How do financial constraints affect their ability to invest in agricultural inputs and equipment?
3. What knowledge and skills gaps have you observed among elderly female household heads, and how can they be addressed?

RESEARCH QUESTION 3: What coping strategies are adopted by elderly female heading households in rural Zaka to overcome challenges faced under the Pfumvudza program?

PROBING QUESTIONS

1. What role do extension officers play in supporting elderly female heading households in developing coping strategies?
2. What policies or programs are in place to support elderly female heading households in implementing Pfumvudza practices?
3. How do local government officials work with extension officers to support elderly female heading households?

RESEARCH QUESTION 4: How do elderly female-headed households in rural Zaka perceive and experience food security sustainability?

PROBING QUESTIONS

1. What are the most significant challenges facing elderly female-headed households in terms food security sustainability and how can they be addressed?
2. How do elderly female-headed households perceive their food security situation, and what factors influence their perceptions?
3. What policies or programs are in place to support food security sustainability among elderly female-headed households?

RESEARCH QUESTION 5: What intervention strategies can effectively enhance sustainable food security in households headed by older women in rural Zaka?

PROBING QUESTIONS

1. What agricultural support services have been most effective in enhancing food security among households headed by elderly women?
2. How can local government officials collaborate with extension officers and other stakeholders to enhance food security sustainability?
3. How can capacity building programs be tailored to meet the specific needs of older women?

APPENDIX 4

FOCUS GROUP DISCUSSION GUIDE FOR ELDERLY FEMALE HOUSEHOLD HEADS

RESEARCH QUESTION 1: What are the activities performed by elderly female household heads in Zaka under the Pfumvudza program?

PROBING QUESTIONS

1. What specific activities do you perform in your household under the Pfumvudza program?
2. How do you make decisions about agricultural practices and resource allocation in your household?
3. What support systems do you have in place for your household, how do they contribute to your food security?

RESEARCH QUESTION 2: What challenges do elderly female household heads in Zaka face in the implementation of the Pfumvudza program?

PROBING QUESTIONS

1. What are some of the biggest challenges you face in implementing Pfumvudza practices?
2. What kind of support do you receive from family members or community members and how does it impact your ability to implement Pfumvudza practices?
3. How do you access financial resources or credit to invest in your farm and what challenges do you face?

RESEARCH QUESTION 3: What coping strategies are adopted by elderly female heading households in rural Zaka to overcome challenges faced under the Pfumvudza program?

PROBING QUESTIONS

1. How do you cope with physical challenges or limitations when implementing Pfumvudza practices?
2. How do you adapt your farming practices to suit your needs and abilities?
3. What other sources of income do you have besides farming and how do they contribute to your household's wellbeing?

RESEARCH QUESTION 4: How do elderly female-headed households in rural Zaka perceive and experience food security sustainability?

PROBING QUESTIONS

1. What does food security mean to you, and how do you experience it in your household?
2. How do you ensure that your household has access to sufficient food throughout the year?
3. How do you store and preserve food for future use and what challenges do you use?

RESEARCH QUESTION 5: What intervention strategies can effectively enhance sustainable food security in households headed by older women in rural Zaka?

PROBING QUESTIONS

1. How can market access be improved for your households' agricultural produce?
2. What nutrition and health interventions would be most beneficial to your households?
3. Are there any existing programs or initiatives that have been helpful in enhancing food security in your households?