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THE ROLE OF THE CARE GROUP MODEL IN PROMOTING NUTRITION BEHAVIOUR CHANGE OF CHILD CAREGIVERS IN TSHOLOTSHO, ZIMBABWE

BY

FAINA RURAMISAI MUTIKANI

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Abstract

The care group model is a peer-to-peer support group which caters for different groups, that increases the adoption of a good behaviour. The study was aimed to explore the role of the care group model in promoting nutrition behaviour change among child care givers. A community-based analytical cross-sectional study was carried out in Tsholotsho District of Zimbabwe's North Western Region to assess how the care group model has influenced nutrition behaviour change and the nutritional status of young children in Tsholotsho. The researcher used a standardised tool to gather information of these behaviours among two groups of caregivers, those who are in the care group model and those who are not participating. Two hundred and eighty caregivers with infants aged 0 to 12 months participated in the study. In addition to the data, the households were examined for food consumption patterns using a dietary intake tool established by the Food and Agricultural Organization/Food and Nutrition Technical Assistance (FAO/FANTA). Data on children's nutrition status was obtained by analysing baby card weight, height, and MUAC records from January and February 2023. At the end of the study, summary scores for each variable were generated, and the quality of nutrition behaviour was determined based on their distribution. The nutritional status of children was classified using z-scores for both weight-for-age and length-for-age. With a p-value of 0.122, there was no significant difference between the two groups when it came to exclusive breastfeeding. The p-value for continued breastfeeding was 0.438. With a p-value of 0.013, a significant shift in nutrition behaviour was seen in the minimum dietary diversity for children aged 6-23 months. The study found a p-value of 0.009 for eggs and other veggies consumption. Despite the fact that there is no significant difference between the two groups for minimum acceptable diets (p-value of 0.337). The weekly home dietary diversity score indicated no significant difference with a p-value of 0.799, according to the study. The p-value of 0.584 indicated no significant difference in children's nutritional status. Minimum dietary diversity is an improved behaviour among care givers as there is food diversification in the diet especially in the intake of eggs and other vegetables. The increase on nutrition value, using local nutritious food, importance of personal and home hygiene as a way of promoting health. A multi sectoral approach to increase outputs of the care group model. Continuing of more care group model, and finally covering the whole district. the promotion of material for trainings for distribution.

Key word: Care group model for nutrition behaviour change; exclusive breast-feeding behaviour

Declaration

I declare that this research is my original work except where sources have been cited and acknowledged. The work has been submitted, nor will it ever be submitted to another university for the award of a degree.

Faina Ruramisai Mutikani	
Student's Full Name	Student's Signature (2/5/23)
Dr Sibongile Chituku	
Main Supervisor's Full Name	Main Supervisor's Signature (2/5/23)

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Dedication

The research is dedicated to all the caregivers with infants in the rural community as to assist in bringing up healthy babies and a healthy nation. This research is also dedicated to Emily Nyandoro, Nyarai Mugadza, Pious Moyo, and Respect Tsvanhu who encouraged me during my studies. Not forgetting my mother Tecla Mutikani on being a pillar.

List of Acronyms and Abbreviations

CGM	Care Group Model
DFNSC	District food and nutrition committee
FCS	Food consumption score
IMAM	Integrated Malnutrition Acute Management
IYCF	Infant and young Child Feeding
LM	Lead mother
MAM	Moderate Acute Malnutrition
MIYCN	Maternal Infant and Young Child Nutrition
SAM	Severe Acute Malnutrition
SBCC	Social Behaviour Change Communication
VFNSC	Village food and nutrition committee
VHW	Village Health Worker
WASH	Water and Sanitation Hygiene
WFNSC	Ward food and nutrition committee
ZimVAC	Zimbabwe Vulnerability Assessment Committee

Definition of terms

Care group -is a peer-to-peer support group which uses volunteer women who are trained in key health and nutrition messages.

Infant and young child feeding - are a set of recommended caregiver practices to ensure that infants and young children receive the nutrition and care they need for optimal child survival, growth, and development.

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CHAPTER 1 INTRODUCTION

1.1. Introduction

Undernutrition in children remains a global public health problem. This problem affects many low to middle-income countries (Saaka et al., 2021), and it is a public health concern which continues to affect efforts made to eradicate it. In 2016, 45% of the 6 million children under the age of five deaths were attributed to undernutrition (Lassi et al., 2020). Potential interventions and strategies are being looked for to have a lasting solution in preventing child malnutrition. Appropriate infant and young child feeding practises are one of the behaviour change communication interventions promoted in the eradication of undernutrition of children under the age of five.

The study mainly seeks to evaluate the role of the care group model in promoting nutrition behaviour change of child care givers. It is to determine whether there is change in malnutrition cases in areas with the care group model being implemented to those without the care group model. The care group model is a peer-to-peer approach which enhances social behaviour change in the community. It uses the multiplier effect which reaches a large number with messaging and behaviour change. It promotes positive public health and evidence based best practises like infant and young child feeding.

1.2. Background of the study

Lower- and middle-income countries (LMICs) in the Sub-Saharan Africa and South Asia account for 99% of deaths in children caused by undernutrition (Lassi et al., 2020). Forty five percent of deaths of the children under the age of 5 is caused by undernutrition.

Nutritional deficiencies in early childhood lead to inadequate growth, in turn impairs brain growth leading to academic difficulties. This can lead to a lifetime of diminished earning capacity and an increased rate of having non-communicable diseases (Fabrizio et al., 2014). The appropriate feeding of children in the first 1000 days of life enhances the chances of survival and optimal growth and cognitive development.

Several factors are at play in leading to malnutrition in children. These factors include, household factors like poverty, home environment, diarrhoea, dietary practises, cooking fuel, hygiene, and maternal health literacy. Child malnutrition is associated with increase severity and frequency of infections, increasing energy requirements, while appetite is reduced and nutrition absorption (Lassi et al., 2020). Multiple socio-ecological factors such as resources, cultural and behavioural practises are the influence of these prevalence's. This is ultimately increasing the risk of death (Lassi et al., 2020).

Reviews of the care group model in promoting health, nutrition and Water and Sanitation Hygiene behaviours has proved to double behaviour change and reduce the mortality of children under the age of 5 by an average of 32% and underweight by 25% (George et al., 2015). Behaviour change was noted in five countries namely Cambodia, Kenya, Malawi, Mozambique, and Rwanda by about 52% using the care group model and reduced child mortality that in area without the care group model.

A score of 6.089 versus 5.091 for the care group participants and non-care group participants was recorded in terms of nutrition behaviour change in the Livelihoods and Food Security Program in Zimbabwe (Macheka et al., 2022). At 1% level of significance an increase was noted in practising nutrition behaviours by 1.074 points. The adoption of

WASH behaviours was observed in Chiredzi by setting up 1036 tippy taps through the care group model being implemented (Gomora et al., 2019). Therefore, the care group model has proved to work in promoting behaviour change in different areas. As shown in the table below the care group model has proved to change health, nutrition, and WASH behaviour change.

Table 1: mean change in percentage (N) population coverage (George et al., 2015).

Intervention	**Antenatal care visits**	**Micronutrient supplementation**	**Exclusive breastfeeding**	**Complementary feeding**	**Vitamin A supplementation**	**Handwashing practises**
Care group model projects	29 (1)	67 (3)	44 (9)	22 (3)	27 (8)	43 (9)
Non-care group model project	8 (4)	31 (2)	41 (7)	-12 (2)	25 (5)	20 (3)

1.3. Statement of the problem

Infant and young child feeding practises are known to improve the nutrition status in children. In 2018 the prevalence of stunting was at 26% and currently is at 24% in Zimbabwe (Gomora et al., 2019). Exclusive breastfeeding rate has improved in Zimbabwe from 41% in 2014 to 61% in 2018. However, the minimum acceptable diet MAD remains worrisome as only 7% of the 6-23 months children receive acceptable diets which way below the 50% national target.

From a survey in 2020 Tsholotsho recorded that 2.7% of children age 6-23 months met the minimum acceptable diet and 6% of caregivers have adequate information on maternal infant and young child nutrition (Mlambo et al., 2020). However, 13% of women met the recommended dietary diversity to achieve macronutrients and micronutrients to promote optimal health and nutrition. Hence, these poor nutrition behaviours lead to the increase of malnutrition cases.

Addressing stunting should be a multi-sectoral approach since it is multi-facetted. It is recognised that the community and household level actions are critical for the reduction of stunting (Gomora et al., 2019). The care group approach is being used to promote and influence behavioural change towards appropriate infant and young child feeding practises. In 2018 the National Nutrition survey noted that in Matebeleland North had the highest proportion of households consuming poor diet that is 37% (Brazier et al., 2019). The province also recorded the proportion of children aged 6-23 months receiving a minimum acceptable diet of 2.4% which is a low percentage of the population receiving a minimum acceptable diet and can lead to high cases of malnutrition (ZimVAC, 2021).

1.4. Research objectives

1.4.1. General objective

The aim of the study is to explore the role of the care group model in promoting nutrition behaviour change.

1.4.2. Specific objectives

This study sought to:

- Assess the nutrition behaviour change patterns in caregivers using care group model, for March;
- Identify attributes of the care group model behaviours that are performing well so that they can be replicated in promoting behaviour change within the period of March 2023;
- Identify the role of the care group model in reducing malnutrition cases among children under the age of two in the implemented wards in January and February 2023.
- Identify challenges inhibiting caregivers to change their nutrition behaviour.

1.5. Research questions

- What is the role of the care group approach in promoting nutrition behaviour change in March 2023?

- Has the care group model managed to reduce malnutrition cases of children under the age of two in the implemented wards within the period of January and February 2023?
- Which attributes of the care group model behaviours that are performing well, that they can be replicated in promoting behaviour change?
- What do the care givers perceive as their main challenge in behaviour change?

1.6. Significance of the study

Nutrition is an important part of health and development. The study will explore the role the of the care group model in promoting nutrition behaviour change among women and children aged 6-23 months in Tsholotsho district. By conducting this research information will capture will be used by line ministries and organisations to improve the care group model intervention in promoting healthy practises.

The data gathered will be used by line ministries to improve on the approach. Gap analysis will help improve tools used in data collection.

1.7. Delimitations of the study

The study was limited to Tsholotsho district as the research area. The geographical area was limited to the 9 wards that are ward 1, 4, 5, 6, 10, 13, 17, 18 and 22 that have the care group approach being implemented. The population analysed included caregivers of

children under the age of two who are part of the care group approach and those who are not part of the care group model in selected wards.

1.8. Limitation of the study

The study was limited to by the research method that will be used to do the study. Analytical cross-sectional study was the limiting factor for the study. Also, the study research was limited by time frame to end by the March 2023.

CHAPTER 2 REVIEW OF RELATED LITERATURE

2.1 Introduction

The chapter will address on literature reviewed from previous studies and surveys on the how the care group model works and its role in behaviour change. It will also address on the nutrition behaviours that affect child malnutrition in terms of infant and young child feeding practises.

The first one thousand days of a child play a significant role in the growth of a child. Child morbidity, mortality, and cognitive development are contributed by poor nutrition in the first two years of a child. A high risk of chronic, non-communicable diseases are implicated by poor childhood nutrition (Al-Taiar et al., 2020; Roba et al., 2016). A child should be exclusively breastfed for the first 6 months of life then the introduction of complementary feeding along with continued breastfeeding up to the age of two or beyond. Low breastfeeding practices remain low although this recommendation is widely acceptable.

The transition period of a child is between 6-23 months where they are introduced to the family food from exclusive breastfeeding. This time is extremely important as the largest proportion of stunting occurs (Modugu et al., 2022). Children consume small amounts of food as their gastric has a small capacity. Complementary foods need to be dense in nutrients during this period and frequent feeding of children to support growth and development.

2.2 Conceptual framework on the determinants of maternal and child nutrition

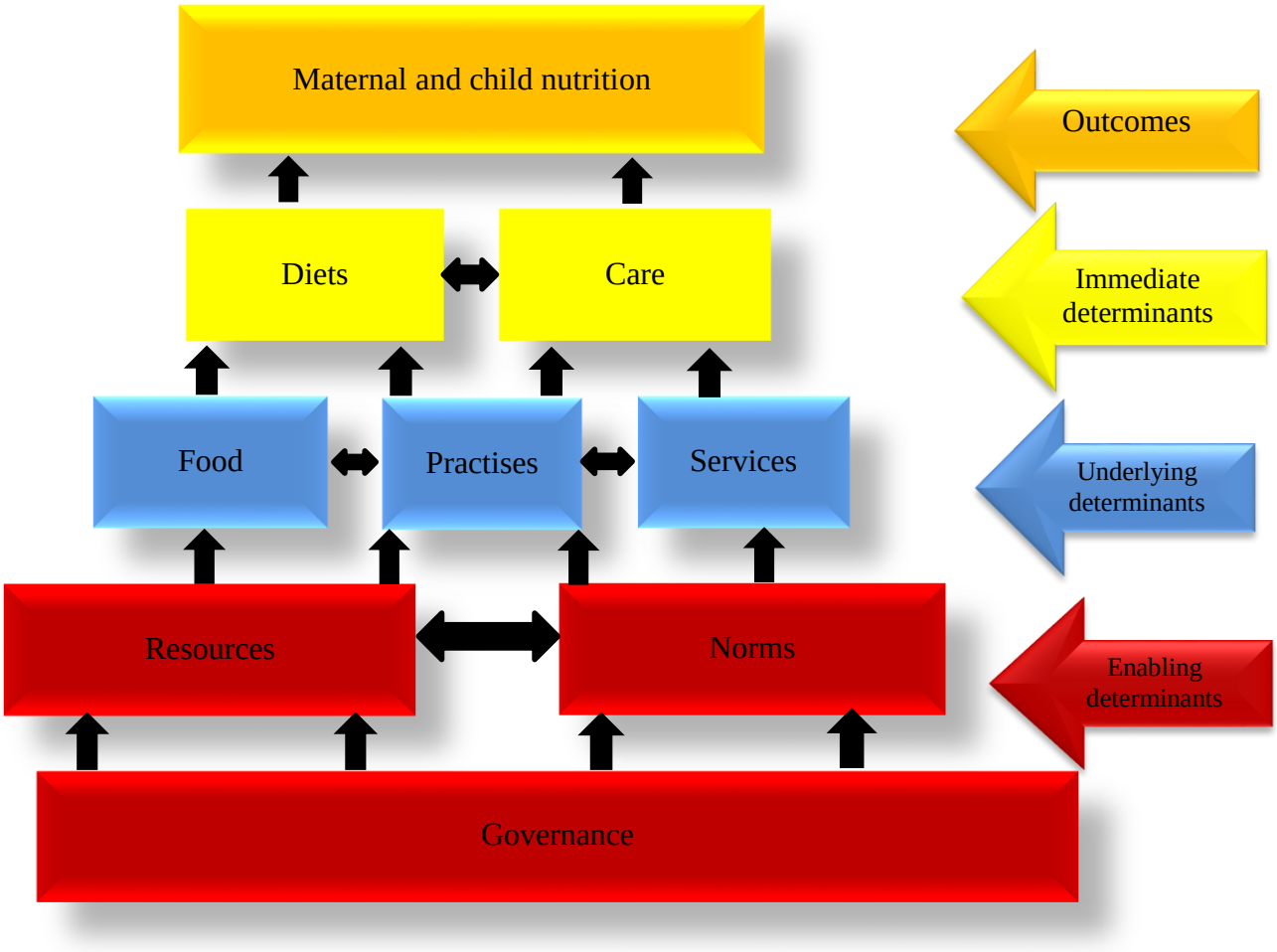

Figure 1 UNICEF Conceptual framework for causes of malnutrition (UNICEF, 2021)

The immediate determinants are the immediate causes of nutrition or malnutrition among children and women. Dietary intake is an immediate enable to good or bad nutrition. This is affected by the underlying determinants like food preparation and hygiene behaviours. Receiving of care is also an immediate determinant as to if one falls ill, they should be able to get care in order to achieve nutrition.

The underlying determinants are determinants that enable good nutrition behaviours that determine the outcome of nutrition. The availability of nutritious food which is age-appropriate leads to nutrition. This includes breastmilk and complementary food for children in the first two years of life. Good behaviour practises like washing hands at appropriate times, breastfeeding, complementary feeding are underlying enablers of nutrition.

The enabling determinants are basic causes that enable nutrition for children and women. Governance that is the political, social, financial, and public and private sectors are enhancers to nutrition. The environment, human resources, social and financial needs are the resources that are needed to modify nutrition. Positive norms that are culture, social and gender norms also enable the rights of children and women's nutrition.

2.3 Relevance of the conceptual framework to the study

The UNICEF conceptual framework of malnutrition depicts a wide range of determinants at the immediate, underlying, and basic levels (UNICEF, 2013) that are interconnected and multidimensional across several sectors, making nutrition a multisector responsibility. The framework employs a positive narrative to describe what contributes to good nutrition in children and women, and it provides conceptual clarity on the enabling, underlying, and immediate determinants of adequate nutrition, as well as their vertical and horizontal interconnectedness, and the positive survival, growth, development, learning, economic, and social outcomes that result from improved maternal and child nutrition.

For almost 40 years, many Saharawi people had been living in refugee camps in the desert of south-western Algeria, reliant on outside aid. Cultural influences on breastfeeding, complementary feeding techniques, and adult eating habits had resulted in a variety of nutritional issues. Few early children were fed solely breast milk; instead, they were frequently given tea and water in the first few weeks of life, contrary to nutrition guidance. Sugar was added to weaning diets that gave only energy and no other nutrition (Frize, 2004).

The conceptual framework is pertinent to the study since it addresses issues that contribute to malnutrition in children, pregnant and lactating women. The enabling determinants are the political, financial, social, cultural, and environmental conditions that allow children and women to eat well. The food, behaviours, and services accessible to children and women in their households, communities, and environments to promote adequate nutrition are the fundamental factors.

Age-appropriate feeding and nutritional habits, including breastfeeding, responsive complementary feeding, and stimulation in early life, with suitable food preparation, food consumption, and hygiene practices for all children and women, encompass practices and behaviours. Diet and care are the immediate determinants of mother and child nutrition, and they influence each other.

2.4 Care group model (CGM) structure

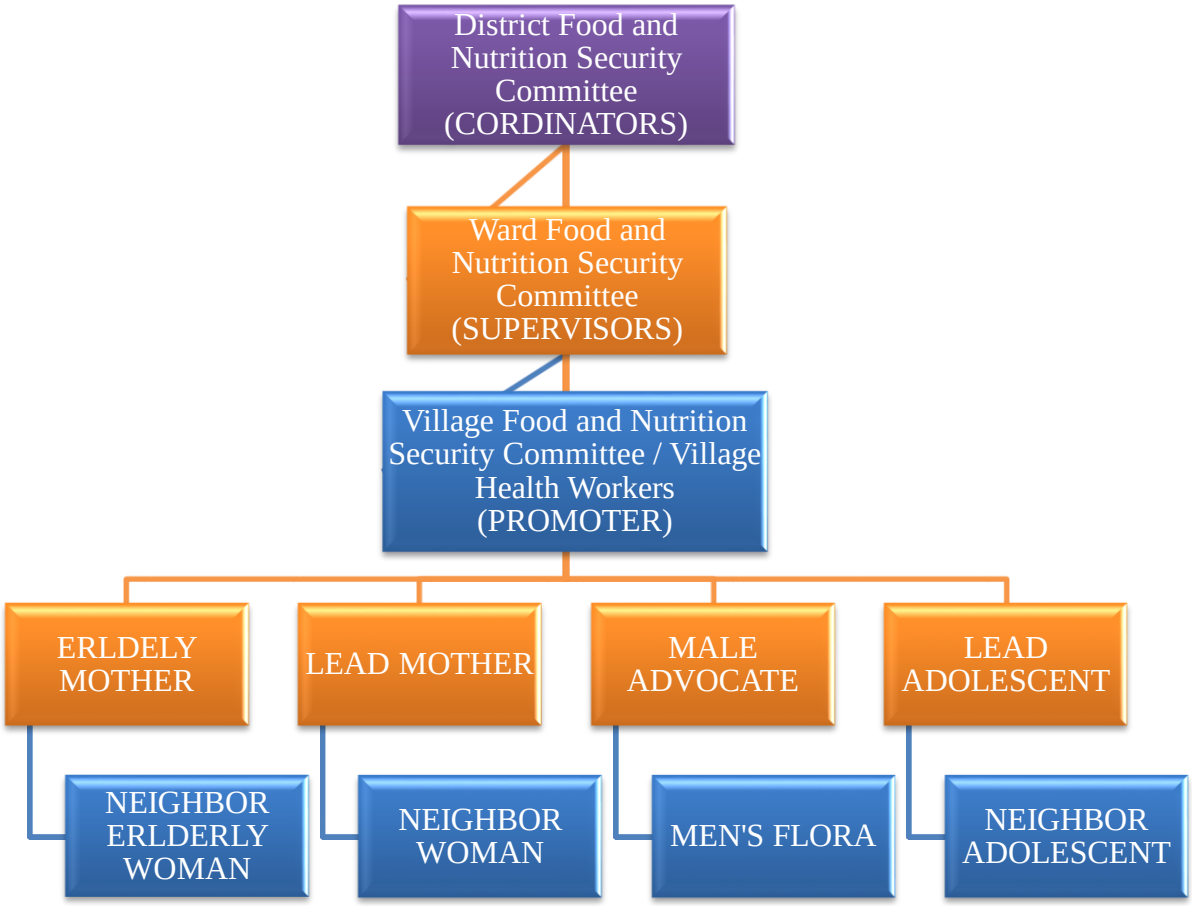

Figure 2 Care group model approach implemented in Zimbabwe (Gomora et al., 2019).

Care groups are peer to peer support groups (Murakwani et al., 2020a) which uses volunteer women are trained in key health and nutrition messages. The care group model is based on a number of behaviour change theories which include the “Health belief model”, Theory of reasoned action” and “Theory of planned behaviour. People are often on different stages of stage base on the theory of “Trans-theoretical Model” therefore, the mix of methods used to formulate the care group model. It is an approach which caters

for different types of group be it males, elderly, adolescent and or pregnant and lactating women as illustrated in figure 1.

The care group model is a group of 10-15 community-based members (Gomora et al., 2019). Care group model has a multiplier effect to reach every household with interpersonal behaviour change communication. A care group comprises of members who stay close to each other with the same interest to avoid traveling of long distances (George et al., 2015). Pregnant and lactating women join a group from pregnancy until a child is 2-year-old. They meet as members at least twice a month for up to 2 hours and held at a central place.

Lead mothers share on key messages which are monthly behaviours that are standardised from the counselling cards. These behaviours are shared from the district downwards so that the same key message is shared among the community. Lead mothers share these behaviours and or key messages through participatory and interactive sessions. Sessions may include cooking demonstrations to promote dietary diversity and the use of locally available resource as a nutrient source (Murakwani et al., 2020a). Lead mothers make a follow up to visit care group members to support each member. The lead mother then reports these activities to the promoter (village health worker (VHW) who also supports these neighbouring women groups.

This approach is used to increase the adoption of new and good behaviours and maintain them. The care group model approach promotes optimal Maternal Infant and Young Child Nutrition in the first 1000 days of a child to prevent malnutrition (Murakwani et al., 2020b). According to (Macheka et al., 2022), care group model participation

households had more knowledge and practiced nutrition habits than non-participant households. In terms of nutrition behaviour knowledge, participant households scored 6.089 versus 5.091 for non-participants. Furthermore, participant households engage in 2.72 nutrition behaviours compared to 1.97 for non-participant households.

List of behaviours for the care group model approach

1. Good health and nutrition for women of childbearing age.
2. Hand washing at the five critical times for all household members.
3. Exclusive breastfeeding for children from birth to 6 months.
4. Complementary feeding from 6 months up to 2 years and beyond.
5. Promoting growth monitoring, immunization, and micronutrient supplementation for children under 5 years.
6. Early identification of childhood illness and those at risk for referral to health facility.
7. Community management of childhood illness.
8. Promote good health and nutrition for pregnant and lactating women.
9. Promoting good health and nutrition for pregnant and lactating women.
10. Household production and consumption of diverse nutritious food including neglected underutilized foods, iron-rich and Vitamin A rich foods all year round.
11. Household production and consumption of Bio fortified crops.
12. Safe household food handling, processing, preparation, preservation, and storage.
13. Drinking safe water, and use of improved sanitary facilities.
14. Community and household use hygiene enabling facilities.

15. Discouraging gender-based violence.
16. Discouraging child marriages.

Other studies have shown that the care group model is has proved to be effective in improving behaviour change. Other studies have showed notable advances in WASH behavioural adoption (e.g., latrine use, soap-free hand washing), frequently exceeding 90% coverage on the majority of indicators at the end of the study. Other indicators with average percentage point gains (during 4–5-year Care Group model projects) include ANC4, 67 points for IFA, 35 points for IPTp, 44 points for EBF, 22 points for complementary feeding, 41 points for ITN use, and 23 points for full vaccination. An increase in participation of nutrition behaviours was observed by Macheka, et al., 2022, in nutrition behaviours by 1.074 points at 1% level of significance.

According to a review of the evidence on the care group model in projects promoting health, nutrition, and WaSH behaviours, care group model projects have twice the behavioural change of other behaviour change platforms and reduce under-5 mortality by an average of 32% and underweight by 25% in five years or less. A published study comparing the effectiveness of projects using the Care Group approach to projects using other behaviour change platforms, such as village health workers home visits, in five Asian and African countries found that projects using the Care Group approach achieved more than double the behaviour change and 52% better estimated reductions in child deaths than non-Care Group projects.

The model will help to identify if there is nutrition behaviour change among child care givers. This will allow to identify if the model works in the Tsholotsho district set up.

This will also enable to see if the care group model has made changes and can be wide spread in the district to eliminate malnutrition cases among children.

2.5 Infant and Young Child Feeding

"*Infant and Young Child Feeding practices are a set of recommended caregiver practices to ensure that infants and young children receive the nutrition and care they need for optimal child survival, growth and development*" (Modugu et al., 2022. p. 2). The WHO principals for complementary feeding include principles for feeding breastfed and non-breastfed children aged 6-24 months (World Health Organization, & United Nations Children's Fund (UNICEF), 2021). There are 8 core indicators proposed by the World Health Organisation (WHO) to assess IYCF practises. Three of these indicators which are key are complementary feeding indicators. These indicators for IYCF are:

- Early initiation of breastfeeding (proportion of children who are born in the last 24 months and put to breast feeding within an hour (Bürger et al., 2021);
- Exclusive breastfeeding of children aged 0-6 months;
- Predominant breastfeeding for children under 6 months meaning children who; received breast milk as a predominant source of nourishment during the previous day;
- Continued breastfeeding at 1 year for children aged 12-15 months;
- Continued breastfeeding for children up to 2 years meaning 20-23 months;
- Complementary feeding (introduction of solid, and semi solid foods for infants aged 6-8 months during the previous day);

- Consumption of iron rich foods for children aged 6-23 months;
- Bottle feeding of children aged 0-23 months (UNHCR, 2018).

Children should be breastfed within the first hour of birth to prevent the new-born from acquiring infection and reduce the chances of mortality. Breastfeeding should continue exclusively for 6 months and continue breastfeeding with complementary feeding for up to 2 years and beyond. After 6 months breastfeeding should be aided with the introduction of food that is semi solid, solid, and soft food. This is called complementary feeding. Few children benefit from these practises as the caregivers lack support, time to take care of their children due to other duties at play and lack of access to information (Modugu et al., 2022).

Breastfeeding-related infant and young child feeding behaviours were substantially more prevalent in children aged 6-23 months than diet-related activities. Breastfeeding began within one hour of birth in approximately 60% of children, and 94% were exclusively breastfed for the first six months, even though only a small percentage of children (8%) were given pre-lacteal feeds shortly after birth (Modugu et al., 2022). Breastfeeding was continued in 80% of infants aged 12 to 23 months and in 80% of children aged more than a year. Only two out of every five children aged 6-8 months were given semi-solid foods.

Breastfeeding practises in Zimbabwe have improved from 41% in 2014 to 61% in 2018 (Gomora et al., 2019). Minimum Acceptable diet is still low at 7% for children aged 6-23 months which is below the national target of 50%. To promote nutritional behaviour change, infant and young child feeding, the care group model approach is being implemented to address these practises.

A study by (Anin et al., 2020) the bivariate analysis, none of the infant and young child feeding IYCF indicators were significantly linked with acute undernutrition (wasting) at p 0.10. Religion, marital status, tribe, child gender, child age group, maternal BMI, and the utility power source utilized to illuminate houses were shown to be substantially linked (p 0.05) with wasting.

2.6 Minimum Acceptable Diet

"*According to the WHO definition, MAD is the proportion of children aged 6–23 months who had consumed the minimum meal frequency (MMF) and minimum dietary diversity (MDD) during the previous day or night*" (Yisak et al., 2020. p. 640). Minimum acceptable diet is an Infant and Young Child Feeding indicator that was designed to measure complementary feeding of children aged 6-23 months (Molla et al., 2021). A study in Democratic republic of Congo observed that mothers who attended the post-natal care meet the minimum acceptable diet for their infant by 35.1% compared to 17.1% of those who did not attend (Kambale et al., 2021). This shows that health education does have an impact on nutrition behaviour change.

It comprises of the Minimum Meal Frequency (MMF) and Minimum Dietary Diversity (MDD). The Minimum Acceptable Diet (MAD) is an indicator to assess the child's diet based on quantity of food consumed, meal frequency and micronutrient adequacy (Modugu et al., 2022). The Minimum Dietary Diversity is an indicator used to measure the child's complementary diet. A child must have consumed from 4 or more groups of the standard 7 groups to have reached the minimum dietary diversity. These seven groups are;

- breast milk;
- grains, roots, tubers, and plantains;
- pulses (beans, peas, lentils), nuts and seeds;
- dairy products (milk, infant formula, yogurt, cheese);
- flesh foods (meat, fish, poultry, organ meats);
- eggs;
- vitamin-A rich fruits and vegetables; and
- other fruits and vegetables (World Health Organization, & United Nations Children's Fund (UNICEF), 2021).

A study by noted that more than half of the children (55%) had access to more than four meals per day, access to a diverse and adequate diet was extremely limited Minimum Dietary Diversity 7%, Minimum acceptable diet 6%. Of the seven major food groups considered for dietary diversity, grains in any form were the most commonly consumed food group by the majority of children (70%), followed by milk and dairy products (38%), and legumes and nuts (30%). Despite having access to animal milk in 59-85% of families, children consumed only 38% (95% CI: 33-44%). Consumption of eggs (3%) and vitamin-A-rich fruits and vegetables (6%), whereas approximately 12% of children had consumed other fruits and vegetables in the previous 24 hours, was quite low.

Minimum Meal Frequency MMF is an indicator used to measure of energy intake or quantity of food consumed other than breast milk. Breastfed and non-breastfed children age 6-23 months must have received solid, semi-solid or soft foods for a minimum number of times or more in a particular day. Minimum Acceptable Diet assessment is

important for measuring both energy intake and micronutrient adequacy of a child rather than one dimension of a diet (Molla et al., 2021).

2.7 Nutrition behaviour change

Behaviour change interventions are a fundamental in improving the implementation of evidence-based practice and public health. "*Behaviour change interventions' can be defined as coordinated sets of activities designed to change specified behaviour patterns"* (Michie et al., 2011. p. 1). These interventions are used to increase and promote healthy lifestyles.

Social behaviour change communication is characterized as an integrated approach to improving health outcomes by fostering community discourse and action, strengthening social contexts and systems that support health, and sustaining healthful individual and group behaviours. Social Behaviour Change Communication is an intervention or method used to promote positive change. It employs a collection of approaches and tools that are informed by communication, behaviour theory and marketing to improve the adoption and sustainable changes in behaviour (Kennedy et al., 2018).

The social behaviour change communication consists of three complementary domains: communication through community-appropriate and preferred channels of communication to address community health needs, behaviour change to facilitate and maximize health actions, and social change to achieve shifts that allow communities to engage and participate in health interventions and/or policies.

These interventions are key in providing information to mothers that could change their feeding practises hence, improving infant and young child feeding practises. Empowering women with nutritional knowledge and attitudes are important as they would change dietary practises during and after pregnancy therefore, improving children's nutrition (Saaka et al., 2021). The synthesis of social behaviour change communication in nutrition specific interventions indicates some clear lessons learned (Kennedy et al., 2018). A study observed that overall, participants who were involved in behaviour change communication change activities initiated breastfeeding 2.7 times more than those who did not attend.

Nutrition-specific approaches address the immediate causes of malnutrition, which are insufficient dietary intake and illness. This could include, but is not limited to, the management of moderate and acute malnutrition, micronutrient supplementation for mothers and children, and infant and young child feeding practices. In addition, Social and Behaviour Change Communication (SBCC) is an important component of a strong, synergistic approach to improving the health and nutritional wellbeing of mothers and children (Fabrizo et al., 2014).

Social and Behaviour Change Communication SBCC is a method of promoting positive change that employs a collection of tools and approaches informed by communication, behaviour theory, and marketing to improve the adoption and maintenance of behavioural changes (Kennedy et al., 2018). Social and Behaviour Change Communication SBCC can be used alone, but it is increasingly being used in conjunction with nutrition strategies

to improve nutritional status. There is currently a lack of evidence on the effects of SBCC when combined with nutrition-specific interventions.

2.8 Summary

There have been various aspects of behaviour change among care givers of children that have been studied in the past, including the social and behaviour change communication in promoting behaviour change. In the perspective of the care group model, several of these unexplored behaviours that is vitamin a supplementation and nutrition status of children seem significant and worthy of investigation. An investigation of these issues is important because it highlights the growth of children aged 0-23 months. Additionally, the main subject of earlier empirical research has been on household dietary diversity, minimum meal frequency and intake of biofortified foods, very little research has been conducted on the other behaviours.

Finally, the researcher found an empirical gap in the earlier studies. The earlier literature is lacking in thorough research. Prior study has mostly concentrated on minimum acceptable diet, and household dietary diversity. Very little research has been conducted on Vitamin A supplementation and nutrition status of children to adequately assess the issue. By addressing the gaps in Vitamin, A supplementation and nutrition status of children, we aim to offer a new investigation into management practices with the federal government in this study. The study examines the effects of four factors: minimum acceptable diet, household dietary diversity, Vitamin A supplementation and nutrition status of children.

CHAPTER 3 METHODOLOGY

3.1 Introduction

This chapter gives an outline of how the research was conducted to collect and analyse data. This was in line with the study objectives. The chapter includes on sample selection, participation enrolment, data collection, analysis, work plan and budget. The explorative study was used the analytical cross sectional study design. The study used a quantitative and qualitative research approach due to the flexible nature where spontaneity was allowed between the researcher and study participants.

3.2 Research design

The research followed a comparative research design. Comparative studies are investigations done to analyse and evaluate, with quantitative and qualitative approaches, among different areas, subjects, and/or objects to detect similarities and/or differences. For this comparative study the researcher used quantitative approach. Comparative method is about looking at an object of study in relation to another. The object of study is normally compared across space and/or time. For this comparative study the researcher used quantitative approach.

The comparative study done was the analytical cross-sectional study. This type of study analysed and compared the outcome exposure of the care group model and non-exposure of the care group model on nutrition behaviour change among caregivers and change in the anthropometric measures of children under the age of two.

In figure 3 it shows how the data was collected from the population. Two different groups were selected, the exposed and the non-exposed group to analyse the different outcome on nutrition behaviour change.

The analytical cross sectional study design allows the researcher to study already existing groups that received different treatments. It tests the hypothesis of exposure outcome relationship and comparing with the unexposed outcome. Data was analysed using the epi info version 7 to analyse data and create frequencies, means, medians, modes, and p-value.

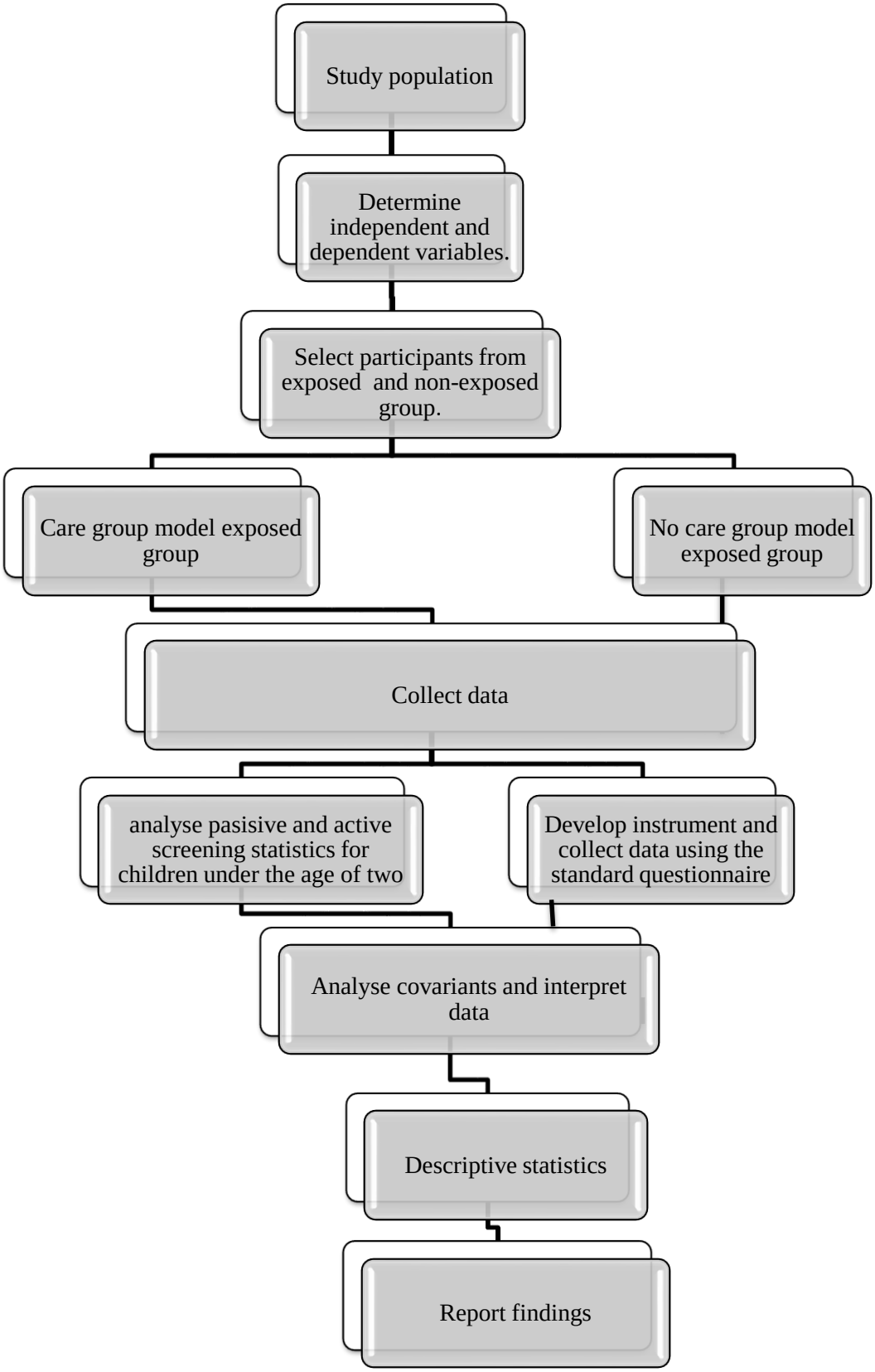

Figure 3 Research design

3.3 Population and Sampling

The study site was in Tsholotsho district located in Matebeleland North Province, which borders with Hwange, Lupane, Gwayi and Bulilima District. The district has 21 primary health care centres and 3 hospitals totalling to 24 health facilities (Tsholotsho District Hospital). Economic activities in Tsholotsho include farming small grain and livestock rearing. The care group model approach is being implemented in 9 wards in Tsholotsho district.

Ward 1, 4, 5, 6, 10, 13, 17, 18, and 22 have the care group model being implemented. An estimate of 10% (Macheka et al., 2022) of the 22 wards in Tsholotsho will be used to select wards of operation. The study was conducted in ward 13, and 22 as a ward with the care group model and ward 8 and 12 with no care group model.

3.3.1 Target population

This analytical comparative study focused on children under 2 years and their biometrics measurements levels of stunting and underweight among those who have their mothers in care group model and those outside the care group model. The biometric measurements focused on anthropometric measurements taken for weight for age, length for age and middle upper arm circumference for children under the age of two in the month of January and February 2023.

Mothers and caregivers who have children under the age of 2 were part of the target population considering those who have their children being part of the research. Caregivers of children who are not part of the care group model were a part of the participants of the study. The caregivers of the children were interviewed using the

standardised UNICEF questioner on nutrition behaviour change. This population is based in the following wards 1, 4, 5, 6, 10, 13, 17, 18 and 22 The treatment group is in 9 wards and the comparison group is in 13 wards. An estimated 2000 children from the care group model and 11219 from the comparison group.

3.3.2 Sample size for target population

The sample size will determine whether find out truth about the target population depends on the size of the sample. If one is planning comparative study for a continuous, the necessary sample size will depend on extent of the difference between a measure of central tendency in both groups, and on variability of the variable in both groups.

The sample size of children under two was calculated using Epi info Application guided by a similar study that had the following conclusion. The study used 95% confidence interval, ratio of controls to cases 1, power of 80%, odds ratio of 2.25 and control exposure 49.4% (Mlambo et al., 2020).

Table 2: sample size calculated using Epi info version 7

	Kelsey	**Fleiss**	**Fleiss with CC**
Cases	102	101	111
Controls	102	101	111
TOTAL	204	202	222

3.3.3 Sample size for health workers

Key informants were interviewed from Tsholotsho District hospital, ward level health workers, Amalima Loko and Community Technology Development Organisation. Non-probability sampling, purposive sampling was used to sample key informants which are shown below in the table.

Table 3: Sampling for health workers

Health workers category	**Population size by category**	**Proportion of total population %**	**Sampled health workers by category**	**Proportion of total sample %**
DMO	1	16.67	1	20
HIA	2	33.32	1	20
Nutritionist	1	16.67	1	20
Amalima Loko health and nutrition officer	1	16.67	1	20
CTDO officer	1	16.67	1	20
Total	5	100	5	100

3.4 Data collection instruments

Nesting methods were used to collect data. The approaches aimed at collecting quantitative and qualitative data. Quantitative data was collected using the interviewer administered household questionnaires.

- Questionnaires

  A WHO standardised questionnaire was used to collect nutrition behaviours among the caregivers and mothers of children under the age of two. The focus group discussion questionnaire was extracted from a previous study on the care group model and modified to better suit the study.

- Anthropometric measurements for children

  Biometric measurements for children under the age of two was analysed that is, length for age, weight for age using the UNICEF standardised z score sheet and Middle Upper Arm Circumference reading for children aged 6-23 months for the month of January and February 2023.

- Focus group discussions

  Random selection of women who participate in the care group model and those who are not part of the care group model was done for the focus group discussions. The focus group also included mothers with children under the age of two for the care group model members and the non-care group model members.

The focus group discussion was done by blinded enumerators who did not know which group is which to avoid bias of results.

Two focus groups were selected conveniently by the enumerator. The focus group discussion model also allowed the interviewee to capture additional information that arise as the discussions take place. Probing of answers was done to bring out all the issues that were underlying.

3.5 Pilot study

The collection tool that was used was pretested in a ward 15 in Tsholotsho district that was not part of the study area. The pretested ward was selected after selection of the wards that were going to be part of the study. The tool was amended to better suit the data being collected in the area.

3.6 Data collection procedure

Data collection was be done over a period of 2 weeks in Tsholotsho district in ward 8, 22, 12 and 13. Collection was done starting from the furthest facility in ward 8. Non-random sampling was done among the two groups that is the care group model group and the non-care group model group as to have the exposed and non-exposed groups. Village health workers who are independent from the study sites were selected from the to collect data to prevent bias of results. The village health workers were not informed on the independent and experiment group.

Caregivers of the children under the age of two were interviewed on nutrition behaviours using a WHO standardised tool. The questionnaire was printed due to challenges in phone battery storage. Medical records of children's anthropometric measurements were collected from the baby card and then analysed, coded using the standardises WHO weight for height z-score and recorded. Line managers for the selected sites were informed prior data collection.

3.7 Analysis and organisation of data

Data collected was, cleaned and analysed by the researcher using the Epi info version 7 to generate frequencies, medians, and proportions. The data analysis aimed to provide clarity regarding on how the care group model's influence on nutrition behaviour change. Comparison was done in the interventions of the care group model in nutrition behaviour change and reduced malnutrition cases against those without the care group model.

All calculations were done as per standardised guidelines for children under the age of two. Data was then scored according to the WFP food consumption score standards. The BMI for age z-scores was then calculated using the standardised WHO growth charts. Nutrition behaviour change data analysis was extracted from the questionnaire, coded accordingly, uploaded, and analysed using the Epi info version 7 tool. Data analysed was presented in tables and graphs form. Epi info version 7 was used to generate tables and graphs.

3.8 Plan for dissemination of results

Findings of the evaluation were shared among Tsholotsho District Health Executive, PMD Matebeleland North and Africa University CHANS department. The results of the study were then shared to the respective rural health centres by the District Health Executive organogram and village health workers who disseminated the finding to the participants of the study.

3.9 Ethical consideration

Permission to carry out the study was asked prior carrying out the study from the District Medical Officer and the Africa University Research and Ethics Council. A consent form was given out by the researcher to the caregivers of children under the age of two. All information obtained was kept safe and secure including after completion of the study. All participant chosen were voluntary and they could withdraw at any given time they felt they want to. All COVID-19 prevention protocols were observed.

3.10 Summary

This chapter illustrates how the researcher collected data and process data. Several players were involved in the research including caregivers, key informants and focus group discussion. Data was analysed using statistical packages.

CHAPTER 4 DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.1 Introduction

This chapter will highlight finding from the study of the nutrition behaviours among care givers of children. Nutrition behaviour comparison will be enlightened from the results obtained from the care group model participants and the non-care group model participants. Data for 282 children was collected from mothers/caregivers who are care group members and non-care group members from four wards in the Tsholotsho district. Out of the 282 children sampled, 169 caregivers (59.9%) were Care Group members, whereas 111 mothers/caregivers (40.1%) were not.

4.2 Data presentation and analysis

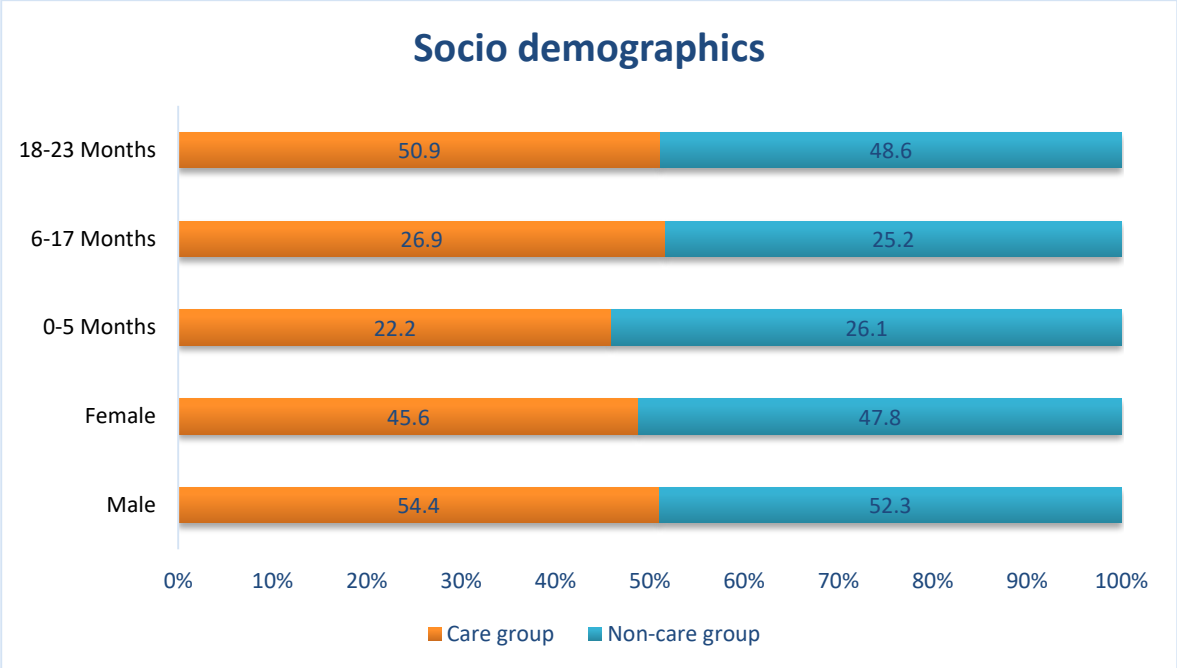

Figure 4.1 Socio-demographic age, and gender characteristics of children age 0–23 months in Tsholotsho district, 2023 (n=282).

The socio-demographic for children who were part of the study revealed that male children where more than female children. Both groups the major groups had its majority population from 18-23 months as presented in *figure 4*. Data for 282 children was collected from mothers/caregivers who are care group members and non-care group members from four wards in the Tsholotsho district.

Table 4: Age median for children age 0–23 months in Tsholotsho district, 2023 (n=282).

Variable	Frequency percentage (%) (number)
Median age for care group member children	12 (6/17)
Median age for non-care group member children	11(5/18)

Participants median age for whose caregivers are part of the care group model is 12 (6/17) and those that are not part of the care group model is 11 (5/18). In table 4 it reflects the gender aggregation of the children with males standing at 53.2% and females at 46.8%.

Table 5: Nutrition behaviours among care givers for children aged 0-23 months in Tsholotsho district March 2023.

Variable	Category	Frequency percentage (%) (number)	Statistical value
Exclusive breastfeeding care group model	Yes	97.4 (37)	**P-value 0.122**
	No	2.6 (1)	**Odds ratio 0.2**
Exclusive breastfeeding non-care group model	Yes	89.7 (26)	
	No	10.3 (3)	
Continued breastfeeding practises care group model (169)	Good	0 (0)	**P-value 0.438**
	Moderate	83.4 (141)	
	Poor	16.6 (28)	
Continued breastfeeding practises non-care group model (111)	Good	0.9 (1)	
	Moderate	81.1 (90)	
	Poor	18.0 (20)	
Minimum dietary diversity (6-23 months) care group	Acceptable	46.1 (47)	**Odds ratio 2.2**
	Poor	53.9 (55)	**P-value 0.013**
Minimum dietary diversity (6-23 months) non-care group	Acceptable	19.5 (16)	**Fisher exact 0.019**
	Poor	80.5 (66)	
	Yes	100 (130)	**P-value 0.191**

Vitamin A supplementation care group model	No	0 (0)
Vitamin A supplementation non-care group model	Yes	98.8 (79)
	No	1.2 (1)

Table 5 demonstrates nutrition behaviours observed during the study. The results show four child feeding practise nutrition behaviours that were observed. Three of the behaviours showed no significant difference whereas, the minimum dietary diversity showed a significant difference. Exclusive breastfeeding had no significant difference among the two groups with a p-value of 0.122. Continued breastfeeding practises showed no significant difference among the care group participants and non-care group participants. The care givers showed that they provide timely, adequate, and diversified complementary feeding to children aged 6-24 months. The p-value of 0.438 was calculated showing no significant difference. Although 83.4% of care group participants and 81.98% non-care group participants practise moderate to good continued breastfeeding practises.

A significant nutrition behaviour change was observed in the minimum dietary diversity for children aged 6-23 months with a p-value of 0.013. About 46.1% of care group caregivers and 19.5% of non-care group caregivers have an acceptable range of food given to children. Vitamin A supplementation showed no significant difference between

the care group participants versus the non-care group participants with a p-value of 0.191. Although the care group participants have their children fully supplemented with Vitamin A whereas those who are no are at 98.8%.

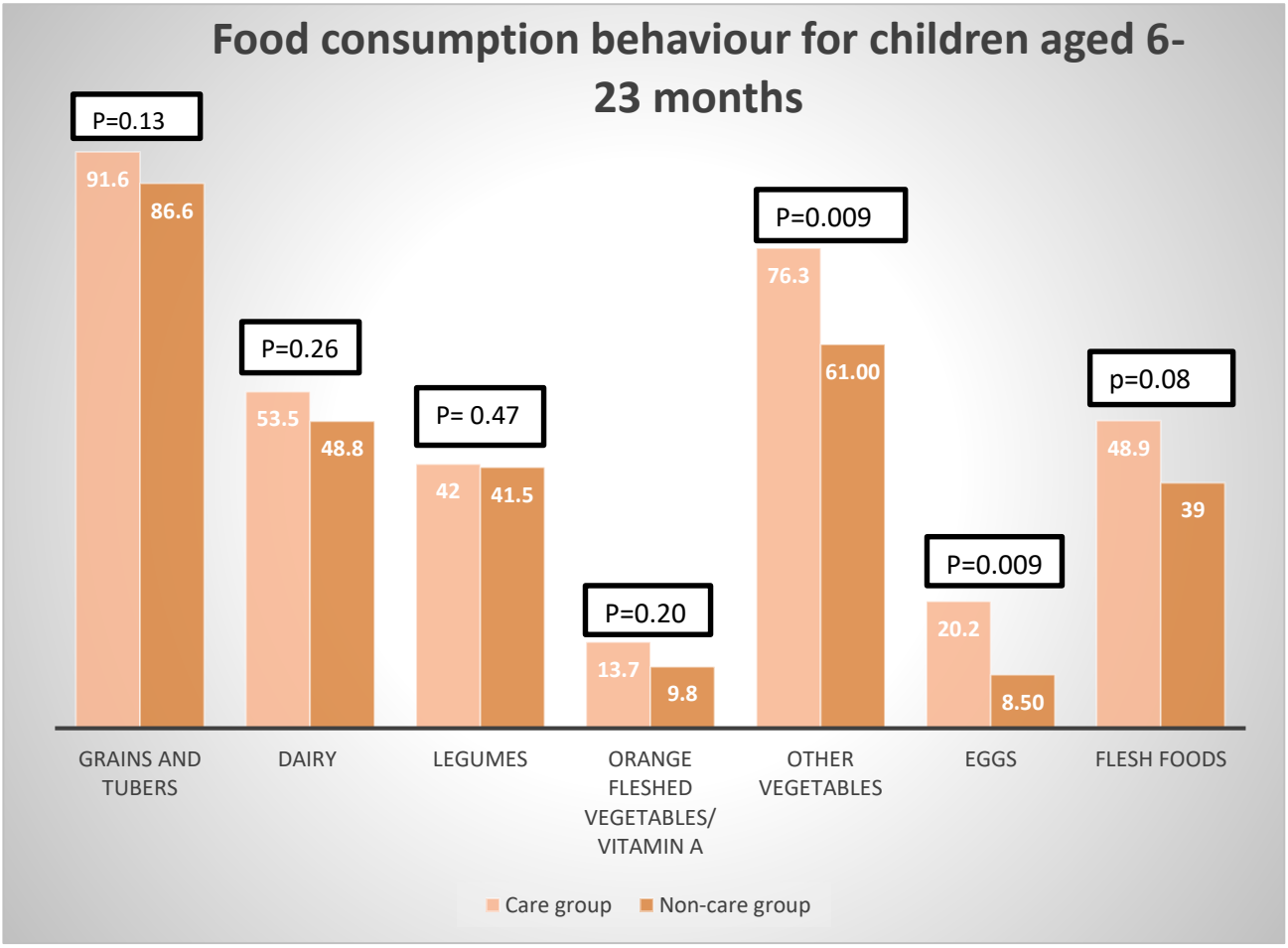

Figure 5 Daily food consumption score for children aged 6-23 months (184)

$$\frac{Number\ of\ children\ aged\ 6-23\ months\ who\ received\ 5\ or\ more\ food\ groups\ in\ 24\ hours}{Children\ aged\ 6-23\ months\ whose\ data\ on\ breastfeeding\ and\ diet\ was\ collected}$$

CGM=$\frac{47}{184}$*100

=46.1%

NCGM=$\frac{16}{184}$*100

=19.5%%

Observation from the daily food consumption score in figure 5 show that the mostly consumed food was grains and tubers with 91.6% and 86.6% for care group and non-care group participants respectively followed by vegetables with orange fleshed foods. In this study the prevalence of Minimum Dietary Diversity was 46.1% and 19.5% for care group participants and non-care group participants respectively. There is a significant difference observed on the consumption of eggs p-value 0.009 and other vegetables p-value 0.009 among the two groups.

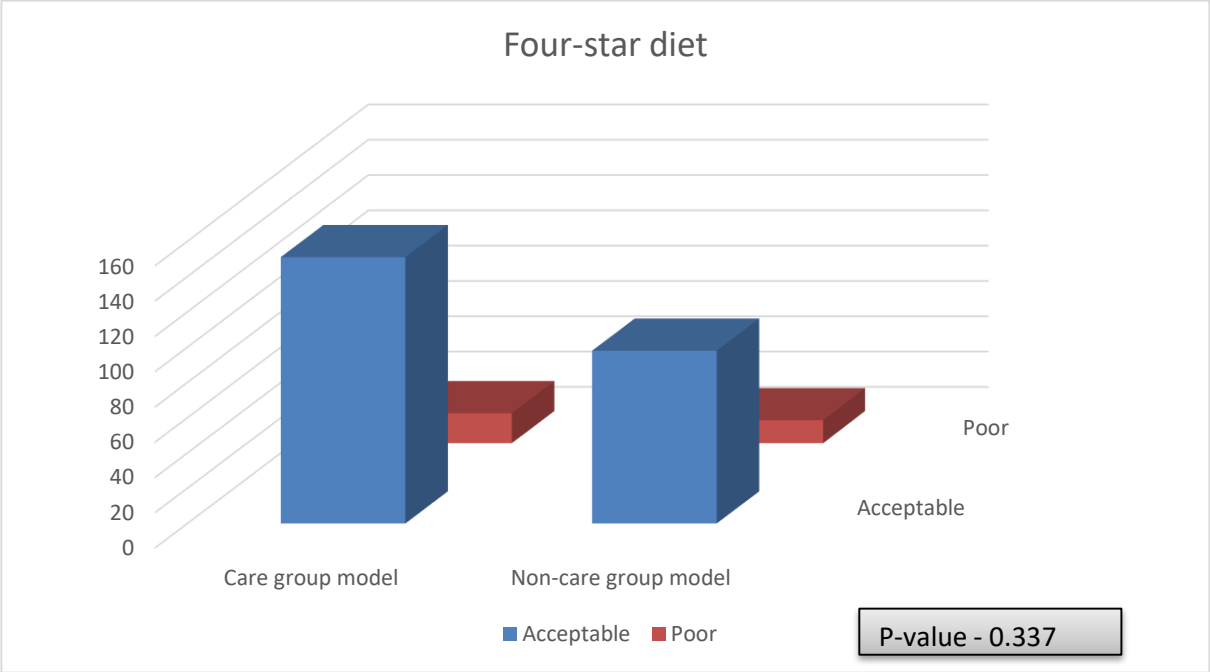

Figure 6 Four-star diet food consumption score 24-hour recall

In addition to data, 280 households were examined for food consumption patterns using a dietary intake tool established by the Food and Agricultural Organization/Food and

Nutrition Technical Assistance (FAO/FANTA). Food diversity was observed in *figure 6* noting that from both groups that meets the four-star diet requirements. Good eating behaviour was observed in both participating groups. The care group participants had a prevalence of 89.9% and the non-care group participants 88.3% in good eating behaviours. Although there is no significant difference observed from the two groups with a p-value of 0.337.

Table 6: Household dietary diversity score for March 2023 in Tsholotsho district.

VARIABLE	FREQUENCY	PERCENTAGE (%)
CARE GROUP MEMBERS		
ACCEPTABLE	136	80.47
BORDERLINE	17	10.6
POOR	16	9.47
TOTAL	169	100
NON-CARE GROUP MEMBERS		
ACCEPTABLE	87	78.38
BORDERLINE	14	12.61
POOR	10	9.01
TOTAL	111	100
P-VALUE		0.7999

A prevalence of 80.4% and 78.4% for the care group participants and non-care group participants respectively was noted. This shows that there is no difference in their dietary intake compared to the 24-hour recall and weekly diet intake. The researcher also observed that the weekly household dietary diversity score showed no significant difference with a p-value of 0.799 in table 6.

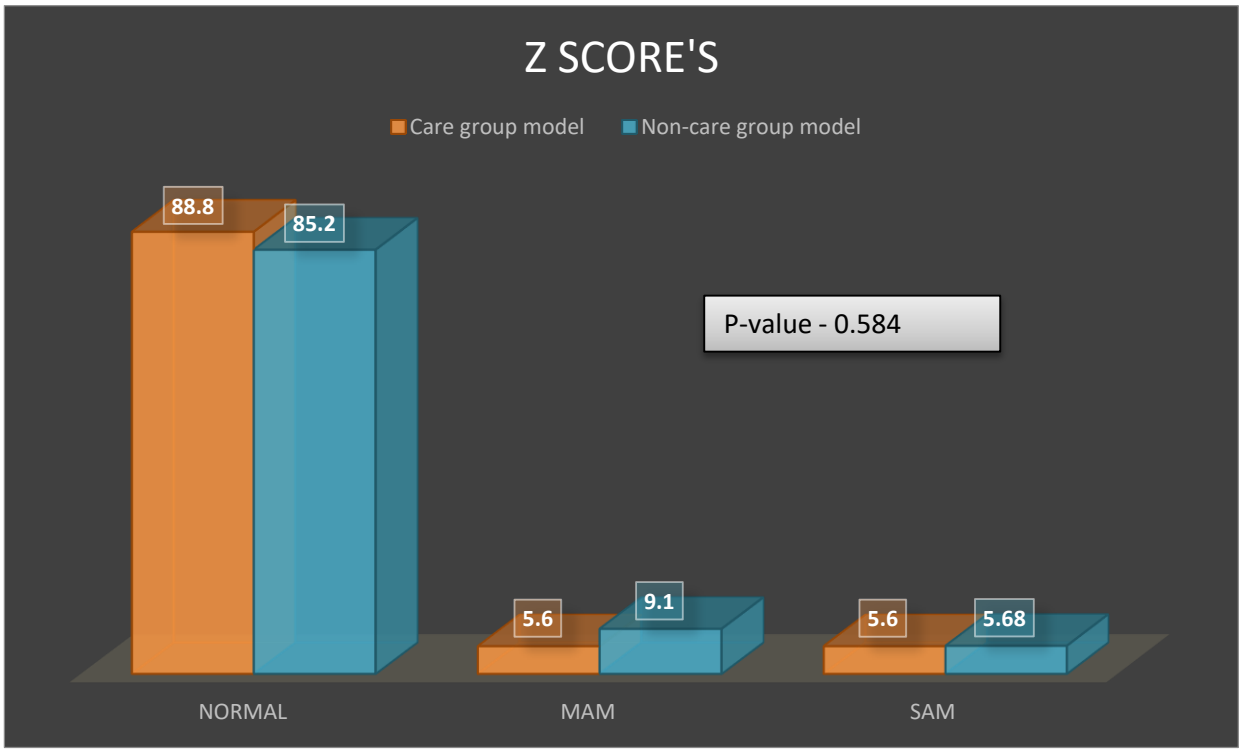

Figure 7 Growth monitoring, z score for children ages 0-23 months in Tsholotsho district January-February 2023

Data on children's nutrition status was obtained by analysing baby card weight, height, and MUAC records from January and February 2023. *Figure 7* shows the observed baby card records that were scored using the standard WHO z-score charts. As it shows in the figure 88.8% and 85.2% for the care group and non-care group children had a normal z-

score. The p-value 0.584 showed that there is no significant difference in the nutrition status for children.

4.3 Discussion and interpretation

4.3.1 Nutrition behaviours patterns

In terms of nutrition behaviours, the good exclusive breastfeeding behaviour was quite high among the two groups. Statistically no significant difference was observed as the p value recorded is 0.1216. Care group participants are practising exclusive breastfeeding at 97.37% and non-care are at 89.66%. The districts exclusive breastfeeding behaviour is at 94.03% according to the study.

Continued breastfeeding practises showed no significant difference among the care group participants and non-care group participants. The care givers showed that they provide timely, adequate, and diversified complementary feeding to children aged 6-24 months. The probability value of 0.44 was calculated showing no significant difference. Although 83.43% of care group participants and 81.98% non-care group participants practise moderate to good continued breastfeeding practises.

A significant nutrition behaviour change was observed in the minimum dietary diversity for children aged 6-23 months. About 46.08% of care group caregivers and 19.51% of non-care group caregivers have an acceptable range of food given to children. This behaviour has an odds ratio of 2.18 showing that the care group model has two times more of improving this behaviour and a p value of 0.01 which is significantly different.

Observation from the daily food consumption score in figure 5 show that the mostly consumed food was grains and tubers with 91.6% and 86.59% for care group and non-

care group participants respectively followed by vegetables with orange fleshed foods. In this study the prevalence of Minimum Dietary Diversity was 16.67% and 5.67% for care group participants and non-care group participants respectively. Tsholotsho district has a Vitamin A supplementation program. The results from table 5 show that there is no significant difference with a p value of 0.19.

Food diversity was observed in figure 6 noting that from both groups that meets the four-star diet requirements. Good eating behaviour was observed in both participating groups. The care group participants had a prevalence of 89.88% and the non-care group participants 88.29% in good eating behaviours. Although there is no significant difference observed from the two groups with a p value of 0.3372. The researcher also observed that the weekly household dietary diversity score showed no significant difference with a p value of 0.7999 in table 6. A prevalence of 80.4% and 78.38% for the care group participants and non-care group participants respectively was noted. This shows that there is no difference in their dietary intake compared to the 24-hour recall and weekly diet intake.

4.3.2 Malnutrition status of the study wards

Figure 7 shows the observed baby card records that were scored using the standard WHO z-score charts. In the study most of the caregivers ensure they take their children for monthly growth monitoring. As it shows in the figure 88.75% and 85.23% for the care group and non-care group children had a normal z-score. The p value showed that there is no significant difference in the nutrition status for children.

4.4 Summary

The chapter highlights on the findings of the study of nutrition behaviour change implicated by the care group model in Tsholotsho districts in the year 2023. Bar graphs, pie charts and tables were used to present data which was then interpreted.

CHAPTER 5 SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to investigate caregivers' understanding, experiences, and perceptions of the role of the care group model in improving behaviour change among children aged 0 to 23 months in Zimbabwe's Tsholotsho district. This chapter discusses the research initiative's findings and is guided by the study objectives to:

- Assess the nutrition behaviour change patterns in caregivers using care group model, for March 2023;
- Determine the impact of the care group model that are performing optimally so that they can be replicated in promoting behaviour change within the period of January and February 2023;
- Determine the role of the care group model in reducing malnutrition cases among children under the age of two in the implemented wards in January and February 2023.
- Explore with the care givers what they perceive to be some of the significant challenges inhibiting them in nutrition behaviour change.

5.2 Discussion

The researcher's thoughts on the topic at the time of conceptualizing this study were that the care group model was the only implicating model on behaviour change. Surprisingly, the researcher's assumptions and preconceptions about caregivers in the non-care group model being disengaged from good nutrition behaviours were unfounded. The researcher

discovered that caregivers are far more involved in the issue than was previously thought. The researcher realized that while others are still heavily influenced by cultural norms in child care and nutrition behaviour. The Care Group strategy as it has been implemented thus far includes numerous components, such as a certain number of households under the care of each Care Group Volunteer and a set number of Care Group Volunteers per Care Group.

From the study the researcher manged to get information form key informants and they generally appreciated the care group model. "*The care group model is a powerful nutrition information dissemination platform*" states one key informant. The care group model has promoted growth monitoring and integration of other programs saving time. Caregivers are well informed about nutrition values and healthy eating habits.

5.2.1 Nutrition behaviour change patterns in caregivers using care group model, against the non-care group caregivers for March 2023

Different behaviours were observed in several respects. Attendance at nutrition group meeting or care group model and caregiver education level were found to be positively related to health and childcare knowledge exclusive breastfeeding, continued breasts feeding with complementary feeding, minimum dietary diversity, and Vitamin A supplementation. Higher maternal education has been linked to greater health and nutrition knowledge as well as dietary diversity among mothers attending Antenatal Care clinics. During the investigation, four different infant and young child feeding behaviours were observed.

Exclusive breastfeeding, continuing breastfeeding, minimum dietary diversity, and vitamin A supplementation for children under the age of 23 months are examples of these behaviours. In terms of nutrition behaviours, the good exclusive breastfeeding behaviour was quite high among the two groups with no significant.

In this study the prevalence of Minimum Dietary Diversity was 46.1% and 19.5% for care group participants and non-care group participants respectively whereas in a study by (Yisak et al., 2020) the prevalence of Minimum Dietary Diversity was 58.2%. Previous studies observed that there was no significant difference among household's eating behaviours especially for pregnant and lactating women (Murakwani et al., 2020b).

Although participation in nutrition group meetings was associated with behaviour, and diet quality, as well as increase of Vitamin A supplementation in the current study, we did not find a positive association between nutrition behaviour change exposure by those in the care group model and those who are not. A significant difference was observed in Vitamin A supplementation with almost twice the positive association of the nutrition behaviour change.

5.2.2 Determine the impact of the care group model that are performing optimally so that they can be replicated in promoting behaviour change

Volunteers are doing well as they have also included local leadership hence, the model is implemented to a larger population of the community. Care group model behaviours are standardised therefore, monthly behaviours are set at district level and passed on the

community making it uniform throughout the population. The care group model has capacitated caregivers with knowledge on health therefore behaviour has change resulting in less malnutrition cases. Young mothers have more knowledge in infant and young child feed practises.

Minimum dietary diversity ib the study showed that the care group model has two times more of improving this behaviour which was significantly different. In previous studies the prevalence of minimum acceptable diet was 31.6% (Molla et al., 2021). Whereas in a study by (Yisak et al., 2020) the prevalence of Minimum Dietary Diversity was 58.2%. Growth monitoring and management of malnutrition as it is in synergy with other programs. It is a support group therefore caregivers have a safe space to seek for help. The model is not limited to young mothers as the elderly can also be part of them hence, they also learn on nutrition behaviour change. Early evidence of the Care Group approach's success emerged in the late 1990s and early 2000s from comparisons of baseline and end-of-project metrics of population coverage of essential interventions (Perry et al., 2015).

5.2.3 The role of the care group model in reducing malnutrition cases among children under the age of two in the implemented wards

There is a difference in services, as the caregivers get services closer for example there is no need to go wait in the long queues for growth monitoring. Distances have been cut hence; caregivers get to manage the nutrition status of their children. Knowledge sharing and training has had caregivers to have a minimum acceptable diet. The first one thousand days of life are important as shown from the study households hare having minimum

dietary diversity and incorporating the four-star diet therefore malnutrition is reduced from conception up to the child is 23 months.

Looking at the statistics of growth monitoring there is change in malnutrition cases as they are reducing. There was no significant difference in the nutrition status of children from the care group and the non-care group participants. In the study most of the caregivers ensure they take their children for monthly growth monitoring. Therefore, malnutrition is managed in the community.

5.2.4 Perceived significant challenges inhibiting caregivers in nutrition behaviour change.

Some mothers do not want to get their children weighed. The care group model is limited to women whereas the model can have a single open lesson where anyone in the community is free to attend and learn about the activities if care groups. Neighbouring women and or lead mothers may not attend all the session as they have other commitments therefore, this is an inhibiting factor. Most of the young mothers say they have adequate knowledge of nutrition behaviours which cause them not to attend to these sessions. Due to climate change food production has been greatly affected and harvest is now poor and low. Religion is also affecting behaviours change, some sectors having belief that children should be given holy water at day three.

5.3 Conclusion

The study found that the care group model is can aid in nutrition communicating behaviour change. The care group model has a partial role in promoting nutrition

behaviour change. Behaviour change patterns where not observed due to the contamination of communities as they are not in silos. There are behaviours observed from the study that can be adopted and replicated in promoting behaviours change among child caregivers. Participation in care group model was associated some positive nutrition behaviour, practices, Vitamin A supplementation and dietary diversity. In the study it was observed that antennal care support from the health centres therefore, caregivers are aware of the nutrition behaviours.

Although there was no significant difference in the nutrition status of children from the two groups. These findings could be used to enhance and improve care group model-based nutrition behaviour change communication campaigns. There is no significant difference in some of the behaviours as caregivers have acquired knowledge on nutrition behaviours from a number of programs from government efforts, primary and secondary health care centres, and non-governmental organisations.

5.4 Implication

The care group model has managed to complement nutrition behaviour change among community-based caregivers. As the model is a cross cutting approach which therefore a number of issues have been addressed such as gender balance in child caring. Young mothers now have a safe space to address their issues without being judged. With the synergy of other programs, the model has managed to reduce movement among care givers to attend for different services.

5.5 Recommendations

Table 7: Recommendations, responsible person and timelines

Recommendation	**Responsible person/ body**	**Timeline**
Encourage caregivers to be part of the care group model	Caregivers	May 2023
Allow communities to choose their Lead Mothers and then capacitate the Lead mothers.	Caregivers	May 2023
Caregivers of children under the age of 2 should be sensitized on the use of locally and indigenous foods to enhance food and nutrition status.	Village health workers and Ministry of Health and Child Care	April 2023
Increase on nutrition value, by using local nutritious food, importance of personal and home hygiene as a way of promoting health	Village health workers and Ministry of Health and Child Care	April 2023
Enablers to increase outputs are support visits to the areas of operation by the respective parties	Ministry of Health and Child care Non-Governmental organisations	Monthly

Continuing of more care group model, and finally covering the whole district.	Ministry of Health and Child care Non-Governmental organisations	June 2023
The promotion of material for trainings for distribution.	Ministry of Health and Child care. Non-Governmental organisations	June 2023
The care group model to be not donor depended as the volunteers are looking up for an incentive.	Ministry of Health and Child care	
All health and nutrition behaviour change agents (village health professionals, male champions, senior women, and lead mothers) should be taught collaboratively to promote in-depth talks on cross-sectional concerns affecting communities.	Ministry of Health and Child care. Non-Governmental organisations	December 2023

5.6 Suggestions and further research

This small-scale study demonstrated the feasibility of this intervention. The study was conducted in a small community, which may be an impediment to obtaining the true results of the district; therefore, future studies should include a larger population. Furthermore, rather than being limited to a single community, have multiple communities. A comparative study in different seasons can demonstrate the model's implications because the results may have been influenced by the farming season, implying that food is available in the area. Further research to explore the reasons behind limited impact on the care group model had on continued breast-feeding practises and minimum dietary diversity for children. To use a gold standard research design (randomised control research design) for a period.

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APPENDICES

Appendix 1: Informed consent form

My name is Faina Ruramisai Mutikani, a final year (Master of Public Health) student from Africa University. I am carrying out a study on the role of the care group model in promoting nutrition behaviour change of child care givers. I am kindly asking you to participate in this study by answering to my questionnaire.

Purpose of the study:

The purpose of the study is to assess the efficiency and effectiveness of the role of the care group model in promoting nutrition behaviour change for Tsholotsho District. The study is for academic purposes, but information from this study will assist Ministry of Health and Child Care to note gaps if any and design effective programs that respond to the community's needs

Procedures and duration

The eligible participants for this study are health workers involved in role of the care group model in promoting nutrition behaviour change in Tsholotsho District health facilities. You have been randomly selected as a possible participant because you meet the stated

selection criteria. If you decide to participate, you will be asked to undergo a face-to-face interview while completing this questionnaire. The interview will take about 45 minutes.

Risks and discomforts

We anticipate no harm/risk/discomfort to occur during the discussion. Privacy and confidentiality will be observed and protected. The interview will take place in private. If risks do appear, interviews will be foregone and rescheduled.

Benefits

There are no costs or direct benefits to you for participating in this study. You are free to ask for further clarification as need be. Your participation will help the MOHCC to improve on the implementation of the role of the care group model in promoting nutrition behaviour change and enable them to take the necessary steps to enhance the implementation of the care group model. Findings from this evaluation will be used to benefit the model.

Confidentiality

If you participate in the study, you will be assigned a participant identity to be used on the questionnaire as no personal details will appear on the questionnaire. Any information that is obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. All study records will be kept in secure, separate from any information

that identifies you personally like this consent form. Your name will not be used in any reports or publications that may arise from this study. Under some circumstances, the University or Medical Research Council of Zimbabwe may need to review records for compliance audits only.

Voluntary participation

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relationship with MOHCC. If you chose to participate, you are free to withdraw your consent and to discontinue participation without penalty at any time.

Questions

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you.

Authorization.

If you have decided to participate in this study, please sign this form in the space provide below as an indication that you have read and understood the information provided above and have agreed to participate. Should include that any information that is obtained in the study that can be identified with the participant will not be disclosed without their permission. Names and any other identification will not be asked for in the questionnaires.

---------- ----------

Name of Research Participant (please print) Date

Signature of Research Participant or legally authorised representative

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu

Name of Researcher ----------

Appendix 2: Questionnaire for the caregivers

HOUSEHOLD INTERVIEW QUESTIONNAIRE

IDENTIFICATION

INTERVIEW DETAILS		
Date of Interview DD/MM/YY	|__|__| / |__|__| / |__|__| D D M M Y Y	Start Time: |__|__|: |__|__| Use *24-hour clock*
HOUSEHOLD IDENTIFICATION		

Location:

Province:	**District**	**Ward No**	**Village Name**
Matabelaland North	**Tsholotsho**		

Household ID:		
Age of participant		
Gender of participant		
Household Coordinates:	Latitude |__|__|° |__|__|. |__|__|__| 's	Longitude. |__|__|° |__|__|. |__|__|__| 'e
Household participated in the care group model	1=yes 2=No	
Reference Year	February 2022 to February 2023	

FOOD CONSUMPTION SCORE, HOUSEHOLD DIETARY DIVERSITY SCORE

Food Consumption Score

A		**B**	**C**	**D**
		Number of days eaten in past 7 days	Number of days eaten in past 7 days (combined) If 0 move to next food item)	Did your household consume the following food items yesterday (breakfast, lunch, dinner, drops)?
1. Cereals and grain: rice, pasta, bread, sorghum, millet maize, maize meal, corn-soya blend, super cereal				*0= No 1= Yes*
2. Roots and tubers: potato, yam, cassava, sweet potato, and/or other tubers				*0= No 1= Yes*
3. Pulses	a. Sugar Beans			*0= No 1= Yes*

	b. Other legumes/ nuts: cowpeas, peanuts, lentils, nut, soya beans, pigeon peas and/or other nuts			*0= No 1= Yes*
4. Vegetables	a. Orange vegetables (vegetables rich in vitamin A): carrot, red pepper, pumpkin, butternut, orange sweet potatoes			*0= No 1= Yes*
	b. Green leafy vegetables: spinach, broccoli, and/or other dark green leaves, cassava leaves			*0= No 1= Yes*
	c. Other vegetables: onion, tomatoes, cucumber, green beans, peas, lettuce			*0= No 1= Yes*
5. Fruits	a. Orange fleshed fruits (fruits rich in Vitamin A): mango, apricot, peach, paw-paw excluding citrus fruits			*0= No 1= Yes*
	b. Other fruits: banana, apple, lemon, nartjies, oranges, avocado			*0= No 1= Yes*
6. Meat	a. Beef, goat, pork, game			*0= No 1= Yes*
	b. Poultry			*0= No 1= Yes*

	c. Liver, kidney, heart and/or other organ meats (excluding tripe, casings)			*0= No 1= Yes*
	d. Fish: fresh fish, sun-dried fish, and/or canned fish (fish in large quantities not as a condiment)			*0= No 1= Yes*
7. Eggs				*0= No 1= Yes*
8. Milk and other dairy products: fresh milk/ sour, yoghurt, cheese, other dairy products (exclude margarine/ butter or small amounts for tea/coffee)				*0= No 1= Yes*
9. Oil/ fat/ butter: vegetable oil, palm oil, butter, margarine, other fats/ oil				*0= No 1= Yes*
10. Sugar, or sweet: sugar, honey, jam, candy, cookies, pastries, cakes, and other sweet sugary drinks				*0= No 1= Yes*
11. Condiments/ spices: tea, coffee, cocoa, salt, garlic, spices, yeast/ baking powder, tomato sauce, meat, or fish as a condiment,				*0= No 1= Yes*

CHILD NUTRITION FOR CHILDREN UNDER 2 YEARS (BIRTH TO 23 MONTHS)

U003 (child name)'s **sex**	1=Boy 2=Girl	1=Boy 2=Girl
U004 (child name)'s Date of Birth: **[dd/mm/Yiyi]**	___/____/_____	___/____/_____
U005 How old in **MONTHS** is (child name)?	[ ][ ]	[ ][ ]
U00F3. Does (child name) have a **Child Health Card (CHC)** where his/her vaccinations are written down?	1=Yes, seen, 2=Yes, not seen 3=No, 8=Don't know	1=Yes, seen, 2=Yes, not seen 3=No, 8=Don't know
U007. Has (child name) received a **vitamin A dose** in the past 6 months?	1=Yes, confirmed on card 2=Yes, not confirmed 3=No 8=Don't know	1=Yes, confirmed on card 2=Yes, not confirmed 3=No 8=Don't know
BF001. Has (child name) ever been breastfed? **[Breastfeeding includes wet nursing and/or feeding of expressed milk]**	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

BF002. How long after birth was (child name) first put to the breast? **[Circle "0" if the child was put to breast within 1 hour of birth]**	0=Immediately (within1 hour) 1=1 to 24 hours 2=More than 24 hours 98=Don't know	0=Immediately (within1 hour) 1=1 to 24 hours 2=More than 24 hours 98=Don't know
BF003. In the first three days after delivery, was (child name) given **anything to drink other than breast milk**?	0=No 1=Yes 98=Don't know 99=N/a	0=No 1=Yes 98=Don't know 99=N/a
BF00F4. If yes what was (child name) given?	1=Infusions/traditional medicines, 2=Plain water, 3=Infant formula 4=Other milk (e.g., Fresh milk) 5=Sugar/glucose water, 6=Gripe water 7=Fruit juice, 8=Honey, 9=Oil 10=Other, 98=Don't know	1=Infusions/traditional medicines, 2=Plain water, 3=Infant formula 4=Other milk (e.g., Fresh milk) 5=Sugar/glucose water, 6=Gripe water 7=Fruit juice, 8=Honey, 9=Oil 10=Other, 98=Don't know

BF005. In the first three days after delivery, was (child name) given **<u>any semi-solid food</u>** to eat?	0=No 1=Yes 98=Don't know 99=N/a	0=No 1=Yes 98=Don't know 99=N/a
BF006. At what age was (child name) introduced to **other fluids or semi-solids?**	[ ][ ] 98=Don't know 99=N/a	[ ][ ] 98=Don't know 99=N/a
BF007. During the first three days after the birth of (child name), were you/was the mother offered any practical support or advice to help start breast feeding?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
BF008. Is (child name) still being breastfed?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

BF009. Was (child name) breastfed yesterday? **[Breastfeeding includes wet nursing and/or feeding of expressed milk]**	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
BF010. How many **times** was (child name) breastfed yesterday during the daylight hours and at night? **[Breastfeeding includes wet nursing and/or feeding of expressed milk]**	[ ][ ] 98=Don't know 99=N/a	[ ][ ] 98=Don't know 99=N/a
BF011. Did (child name) drink anything from a **bottle with a teat** yesterday?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
BF012. For how many **months** did (child name) breastfeed?	[ ][ ] 98=Don't know	[ ][ ] 98=Don't know
CF001A. Did (child name) drink **plain water** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF001B. Did (child name) drink **juice or juice drinks** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF001C. Did (child name) drink **clear broth / clear soup** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF001D. Did (child name) drink **milk such as tinned, powdered, or fresh animal milk (excluding sour milk taken as semi solids)** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF001E. If yes: How many times did (child name) drink **milk**? **[If 7 or more times, record '7'. If unknown, record 98']**	[ ][ ] 98=Don't know	[ ][ ] 98=Don't know
CF001F. Did (child name) drink infant formula yesterday during the day or the night: **infant formula**?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF001G. If yes: How many times did (child name) drink **infant formula?** **[If 7 or more times, record '7'. If unknown, record '98']**	[ ][ ] 98=Don't know	[ ][ ] 98=Don't know
CF001H. Did (child name) drink **any other liquids** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF001I. Did (child name) eat **yogurt** yesterday during the day or the night?	0=No, 1=Yes, 8=Don't know	0=No, 1=Yes, 98=Don't know
CF001J. If yes: How many times did (child name) drink or eat **yogurt**? **[If 7 or more times, record '7']**	[ ][ ] 98=Don't know	[ ][ ] 98=Don't know
CF002A. Did (child name) eat **any commercially fortified baby food, e.g., baby cereals** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF002B. Did (child name) eat **bread, rice, noodles, porridge, or other foods made from grains** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002C. Did (child name) eat **pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002D. Did (child name) eat **white potatoes, white yams, manioc, cassava, or any other foods made from roots** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002E. Did (child name) eat **any dark green, leafy vegetables** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF002F. Did (child name) eat **ripe mangoes, paw-paw** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002G. Did (child name) eat **any other fruits or vegetables** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002H. Did (child name) eat **liver, kidney, heart, or other organ meats** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002I. Did (child name) eat **any meat, such as beef, pork, lamb, goat, chicken, or duck** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002J. Did (child name) beat **eggs** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002K. Did (child name) eat **fresh or dried fish or shellfish**?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF002L. Did (child name) eat **any foods made from beans, peas, lentils, or nuts (including dovi)** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002M. Did (child name) eat **cheese or other food made from milk** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002N. Did (child name) eat **any other solid, semi-solid, or soft food** that I have not mentioned?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002O. Did (child name) eat **sugar and sugar products** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002P. Did (child name) eat **oils and fats** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002Q. Did (child name) eat **wild insects** yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know

CF002R. Did (child name) eat **Corn Soya Blend** or super cereal yesterday during the day or the night?	0=No 1=Yes 98=Don't know	0=No 1=Yes 98=Don't know
CF002S How many **times** did (child name) eat **any solid, semi-solid or soft foods** yesterday during the day or night? **[If 7 or more times, record '7', If unknown, record 98']**.	[ ][ ] 98=Don't know	[ ][ ] 98=Don't know
20.18 Weight for January 2023		
20.19 Weight for February 2023		
20.20 MUAC		
20.21 Height/length January/February 2023		

Thank you for participating in this survey. Have a good day

Appendix 3: Questionnaire for the caregivers translated

HOUSEHOLD INTERVIEW QUESTIONNAIRE

IDENTIFICATION

<table>
<tr><th colspan="3">INTERVIEW DETAILS</th></tr>
<tr><td>Usuku

DD/MM/YY</td><td>|__|__| / |__|__| / |__|__|

DD MM YY</td><td>Isikhathi:

|__|__|: |__|__| Use 24-hour clock</td></tr>
<tr><td colspan="3">HOUSEHOLD IDENTIFICATION</td></tr>
<tr><td colspan="3">Indawo:

<table><tr><th>Province:</th><th>District</th><th>Ward No</th><th>Village Name</th></tr><tr><td>Matabelaland North</td><td>Tsholotsho</td><td></td><td></td></tr></table></td></tr>
<tr><td>Umuzi:</td><td colspan="2"></td></tr>
<tr><td>Household Coordinates:</td><td>Latitude

|__|__|° |__|__|. |__|__|__| ‘s</td><td>Longitude.

|__|__|° |__|__|. |__|__|__| ‘e</td></tr>
</table>

Umuzi waphatheka na kucare group model	1=yebo 2=hatshi
Umnyaka	February 2022 to February 2023

UKUDLA KWEKHAYA

Food Consumption Score

A		**B**	**C**	**E**
		Amalanga okudliweyo kuvuki elidlulileyo	Kudliwe kangaki kuviki elidlulileyo	Likudlile na izolo lokukudla
1. Amabele lomumbu: Iliyisi, ipasta, isinkwa, inyawuthi, itshwetha, umumbu				*0= Hatshi 1= Yebo*
2. Amagwili, imbambayila,				*0= Hatshi 1= Yebo*
	a. Indumba			*0= Hatshi 1= Yebo*

3. okucacadwayo	b. Amazambane, omaqutha, indumba			*0= Hatshi 1= Yebo*
4. Imbida	a. Imibhida elithanga (amacarrot, ipepper, amajodo, imbambayila elithanga)			*0= Hatshi 1= Yebo*
	b. Imibhida eluhlaza: Isiphinachi, ichomoloa, ibrocoli			*0= Hatshi 1= Yebo*
	c. Eminye imibhida: amatamatisi, amaonyeni,			*0= Hatshi 1= Yebo*
5. Izithelo	a. izithelo ezilithanga: imango, amapitshisi, amapopo			*0= Hatshi 1= Yebo*
	b. Ezinye izithelo: amabhanana, I'apuli, ilemoni			*0= Hatshi 1= Yebo*
6. Inyama	a. eyenkomo, imbuzi, ihotshi, eyegangeni			*0= Hatshi 1= Yebo*
	b. inkukhu			*0= Hatshi 1= Yebo*
	c. Ezanga phakathi			*0= Hatshi 1= Yebo*
	d. Inhlanzi: ezegabheni, eziwonyisiweyo, ezimanzi			*0= Hatshi 1= Yebo*
7. Amaqanda				*0= Hatshi 1= Yebo*
8. Uchago lokwenzwe luchago:				*0= Hatshi 1= Yebo*

9. Amafutha			*0= Hatshi 1= Yebo*
10. Itshukela, lokuletshukela, uluju, inyosi, iziwidzi, amakeke			*0= Hatshi 1= Yebo*
11. itiye, isawudo, ubenny, isikukumezi,			*0= Hatshi 1= Yebo*

IMISOCO YABANTWANA ABANGAPHANSI KWEMINYAKA EMIBILI

U001 Ibizo lomtwana **[umtwana oleminyaka engaphansi kweminyaka emibili]**	Ibizo: _____	Ibizo: _____
U003 Ngoyini	1=Mfana 2=nkazana	1=Mfana 2=nkazana
U004 Ilanga lokuzalwa: **[dd/mm/yy]**	___/____/_____	___/____/_____
U005 Unganani	[ ][ ]	[ ][ ]
U00F3. Umntwana **ulekhadi lesibhedlela** lapho okubhalwa ngabezempilakahle	1=Yebo, (ulibonile) 2=Yebo, (ungalibonanga) 3=Hatshi, 8=Angazi	1=Yebo, (ulibonile) 2=Yebo, (ungalibonanga) 3=Hatshi, 8=Angazi

U007. Ukhe wathontiselwa (Vitamin A) kunyanga eziyisithupha ezidlulileyo?	1=Yebo 2=Hatshi, 8=Angazi	1=Yebo 2=Hatshi, 8=Angazi
BF001. Wakhe wamunya yini umntwana	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
BF002. Wamunya sekudlule isikhathi esinganani ezelwe? **[faka u"0" nxa wamunya kuhola lokuqala ezelwe]**	0=kuhola lokuqala ezelwe 1=1 to 24 hours 2=More than 24 hours 98=Angazi	0=kuhola lokuqala ezelwe 1=1 to 24 hours 2=More than 24 hours 98=Angazi
BF003. Sekudlule amalanga amathathu umntwana waphiwa yini okokunatha **ngaphandle kochago**?	0=Hatshi 1=Yebo 98=Angazi 99=N/a	0=Hatshi 1=Yebo 98=Angazi 99=N/a
BF00F4. Nxa waphiwa waphiwani?	1=imith yesintu 2=Amanzi, 3=iformula 4=olunye uchago 5=amanzi aletshukela 6=igripe water	1=imith yesintu 2=Amanzi, 3=iformula 4=olunye uchago

	7=umsobho wezithelo, 8=Uluju/ inyosi, 9=Amafutha 10=Okunye, 98=angazi	5=amanzi aletshukela 6=igripe water 7=umsobho wezithelo, 8=Uluju/ inyosi, 9=Amafutha 10=Okunye, 98=angazi
BF005. Sekudlule amalanga amathathu umntwana waphiwa ukudla?	0=Hatshi 1=Yebo 98=Angazi 99=N/a	0=Hatshi 1=Yebo 98=Angazi 99=N/a
BF006. Waphiwa ukudla eselenyanga ezingaki**?**	[ ][ ] 98=Angazi 99=N/a	[ ][ ] 98=Angazi 99=N/a
BF007. Umama wathola na usekhelo lemfundiso yokumunyisa esanda kubeletha umntwana.	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
BF008. Ulokhe emunya na umntwana	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi

BF009. Untwana wamunya yini izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
BF010. Umunye kangaki izolo?	[ ][ ] 98=Angazi 99=N/a	[ ][ ] 98=Angazi 99=N/a
BF011. Engabe emunye embodleleni eletiti izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
BF012. Engabe emunye ekwenyanga ezingaki?	[ ][ ] 98=Angazi	[ ][ ] 98=Angazi
CF001A. umntwana engabe enathe amanzi izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF001B. untwana engabe enathe idirinki izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF001C. untwana engabe enathe umsobho?	0=Hatshi 1=Yebo	0=Hatshi 1=Yebo

	98=Angazi	98=Angazi
CF001D. umntwana engabe enathe uchago olwegabheni, kumbe olwenkomo, izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF001E. ulunathe kangaki (Ubusibhala inani, nxa engakwazi bhala u98)	[ ][ ] 98=Angazi	[ ][ ] 98=Angazi
CF001F. umntwana engabe enathe iformula izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF001G. unathe kangaki? (Ubusibhala inani, nxa engakwazi bhala u98)	[ ][ ] 98=Angazi	[ ][ ] 98=Angazi
CF001H. untwana engabe enathe okunye okumanzi izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF001I. untwana engabe edle iyoghurt izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi

CF001J. udle kangaki? (Ubusibhala inani, nxa engakwazi bhala u98)	[ ][ ] 98=Angazi	[ ][ ] 98=Angazi
CF002A. untwana engabe edle ukudla kwabantwana ukungezelelwe imisoco izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002B. untwana engabe edle iliyisi, ilambazi kumbe okunye ukudla okunika amandla izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002C. untwana engabe edle ukudla okulithanga okunjengama carothi, ithanga imbambayila izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002D. untwana engabe edle amagwili, imbambayila lamadumbe izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002E. untwana engabe edle imibhida eluhlaza izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002F. untwana engabe edle izithelo izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi

CF002G. untwana engabe edle ezinye izithelo lemibhida izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002H. untwana engabe edle ezangaphakathi izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002I. untwana engabe edle inyama izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002J. untwana engabe edle amaqanda izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002K. untwana engabe edle inhlanzi izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002L. untwana engabe edle ukudla okuvela kokucacadwayo izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002M. untwana engabe edle ukudla okuvela echagweni izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi

CF002N. untwana engabe edle okunye ukudla ngaphandle kwaloku engikuqambileyo izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002O. untwana engabe edle ukudla okuletshukela izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002P. untwana engabe edle ukudla okulamafutha izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002Q. untwana engabe edle izibungu zeganga izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002R. untwana engabe edle ilambazi elindumba, umumbu olulomsoco izolo?	0=Hatshi 1=Yebo 98=Angazi	0=Hatshi 1=Yebo 98=Angazi
CF002S udle kangaki ukonye ukudla izolo okungaso chago luka mama? (Ubusibhala inani, nxa engakwazi bhala u98).	[ ][ ] 98=Angazi	[ ][ ] 98=Angazi
20.18 Isisindo somntwana Zibandlelela 2023		

20.19 Isisindo somntwana Mhlolanja 2023		
20.20 MUAC		
20.21 Ubude bomntwana (Zibandlela/Mhlolanja 2023)		

Siyabonga ngokuphatheka. Libe losuku oluhle

Appendix 4: Questionnaire for the key informants

Name of work station……

Job position [ ] DMO [ ] DNO [ ] DEHO [ ] DHIO [ ] DPM [ ] DLS [ ] DHPO [ ] DTBLC [ ]

Gender [ ] Female [ ] Male

Years in service [ ] <5 years [ ] 5 to <10 years [ ] 10 to <20 years [ ] >20 years

Are you aware of the care group model in Tsholotsho district?

[ ] Yes [ ] No

1. How would you describe the overall performance of the care group model in Tsholotsho?

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2. Can you describe the changes brought about by the care group model?

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3. In your opinion are there any gaps in the implementation of the care group model and what are your suggestions towards the improvement of the model's performance?

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4. Did MoHCC hold workshops & trainings to capacitate staff on care group model?

Yes ☐ ☐

5. What are the areas that need improvements in terms of support?

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6. What were the enablers in implementing the care group model?

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7. What were the challenges in implementing the care group model?

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8. How would you describe the trends in nutrition and health indicators on women of child bearing age and children under 2 since the inception of the care group model?

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9. Are you aware of any behaviours being promoted by the care group model?

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10. In your opinion are people adopting behaviours being promoted by the care group model?

Yes ☐ No ☐

If not, what do you think could be the reason?

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11. Are district statistics related to the promoted behaviours improving since the inception of the care group model?

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12. How has been the care group model working in synergy with other programs?

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13. What have been the challenges in these synergies?

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14. Is there a strategy for the formation and management of the care group model?

Yes ☐ No ☐

Please explain your answer

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15. In your experience with this care group model, do you think the output targets are being reached?

Yes ☐ No ☐

What are the enablers to the increase in the outputs?

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16. What are the lessons learnt in implementing the care group model to date?

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Appendix 5: Questionnaire for the focus group discussions

District: _____	**Date: _____**
Village/Town: _____	**Name of Farmer Group: _____**

My name is _____ and this is_____. You are among several other randomly selected participants to represent your village in this discussion on behalf of the care group model. The aim of the study is to assess how the care group model promotion activities are changing the targeted behaviours and practices of the care group model beneficiaries, with a view to identify possible gaps, opportunities and further areas of focus moving forward. This discussion is a tool for learning more about your views, opinions, and experiences in relation to the care group model. I will be facilitating our discussion and my colleagues will be helping with note taking. The discussion will take about 40-60minutes to complete. Any information that you provide will be kept strictly confidential and will not be shown to other people. Your participation is voluntary. However, we hope that you will participate since your views are important. Would you like to participate in this discussion?

Note: This tool will be administered to a group(s) of care group participants in the targeted study wards. Focus groups should consist of 8-12 individuals. Estimated time of discussion is 40-60 minutes.

1. In what way has the care group model benefited you? Are you facing any challenges with the model?

2. Who provides extension services in this area? In what ways are the extension services being provided by the care group model? How satisfied are you with the extension services received? What are your suggestions towards extension improvements being provided by the care group model?
3. Who has benefitted the most from the interventions implemented by the care group model in this ward?
4. Are there interventions implemented by the care group model that have not worked very well within this context? How can this be addressed? What recommendations can you share?
5. Are you participating in any care group model? If not why? Which group participates the most and why? What have you benefited from these? What are the challenges you are facing if any? What can be done to improve?
6. What measures do you put in place at household level to ensure that children meet the minimum acceptable diet? What challenges are you facing in achieving this?
7. What are the existing gaps in these trainings and what can be done to improve the trainings?
8. How often do you meet for care group meeting?
9. Are you aware of the behaviours being trained by the model? If so name them?
10. In your view which behaviours lead to fighting malnutrition for the children under the age of two.
11. Are malnutrition cases on the rise or on the downfall in your area?
12. What are your views/opinions of the care group model?

13. What are the challenges (barriers) being faced by the care group model? What can be done to overcome these challenges?
14. Do you have anything else that you would like to say in relation to our discussion?

Appendix 6: Weight-for-height table (WHO2006)

Use for both boys and girls													
Length	Weight Kg – Z-score						Length	Weight Kg – Z-score					
	very severe	severe SAM	moderate MAM	discharge IMAM		median		very severe	severe SAM	moderate MAM	discharge IMAM		median
cm	-4	-3	-2	-1.5	-1	0	Cm	-4	-3	-2	-1.5	-1	0
Use Length for less than 87 cm													
45	1.73	1.88	2.04	2.13	2.23	2.44	66	5.5	5.9	6.4	6.7	6.9	7.5
45.5	1.79	1.94	2.11	2.21	2.31	2.52	66.5	5.6	6	6.5	6.8	7	7.6
46	1.85	2.01	2.18	2.28	2.38	2.61	67	5.7	6.1	6.6	6.9	7.1	7.7
46.5	1.91	2.07	2.26	2.36	2.46	2.69	67.5	5.8	6.2	6.7	7	7.2	7.9
47	1.97	2.14	2.33	2.43	2.54	2.78	68	5.8	6.3	6.8	7.1	7.3	8
47.5	2.04	2.21	2.40	2.51	2.62	2.86	68.5	5.9	6.4	6.9	7.2	7.5	8.1
48	2.10	2.28	2.48	2.58	2.70	2.95	69	6.0	6.5	7	7.3	7.6	8.2
48.5	2.17	2.35	2.55	2.66	2.78	3.04	69.5	6.1	6.6	7.1	7.4	7.7	8.3
49	2.23	2.42	2.63	2.75	2.87	3.13	70	6.2	6.6	7.2	7.5	7.8	8.4
49.5	2.31	2.50	2.71	2.83	2.96	3.23	70.5	6.3	6.7	7.3	7.6	7.9	8.5
50	2.38	2.58	2.80	2.92	3.05	3.33	71	6.3	6.8	7.4	7.7	8	8.6
50.5	2.46	2.66	2.89	3.01	3.14	3.43	71.5	6.4	6.9	7.5	7.8	8.1	8.8
51	2.54	2.75	2.98	3.11	3.24	3.54	72	6.5	7	7.6	7.9	8.2	8.9
51.5	2.62	2.83	3.08	3.21	3.34	3.65	72.5	6.6	7.1	7.6	8	8.3	9
52	2.70	2.93	3.17	3.31	3.45	3.76	73	6.6	7.2	7.7	8	8.4	9.1
52.5	2.79	3.02	3.28	3.41	3.56	3.88	73.5	6.7	7.2	7.8	8.1	8.5	9.2
53	2.88	3.12	3.38	3.53	3.68	4.01	74	6.8	7.3	7.9	8.2	8.6	9.3
53.5	2.98	3.22	3.49	3.64	3.80	4.14	74.5	6.9	7.4	8	8.3	8.7	9.4
54	3.08	3.33	3.61	3.76	3.92	4.27	75	6.9	7.5	8.1	8.4	8.8	9.5
54.5	3.18	3.55	3.85	4.01	4.18	4.55	75.5	7.0	7.6	8.2	8.5	8.8	9.6
55	3.29	3.67	3.97	4.14	4.31	4.69	76	7.1	7.6	8.3	8.6	8.9	9.7
55.5	3.39	3.78	4.10	4.26	4.44	4.83	76.5	7.2	7.7	8.3	8.7	9	9.8
56	3.50	3.90	4.22	4.40	4.58	4.98	77	7.2	7.8	8.4	8.8	9.1	9.9
56.5	3.61	4.02	4.35	4.53	4.71	5.13	77.5	7.3	7.9	8.5	8.8	9.2	10
57	3.7	4	4.3	4.5	4.7	5.1	78	7.4	7.9	8.6	8.9	9.3	10.1
57.5	3.8	4.1	4.5	4.7	4.9	5.3	78.5	7.4	8	8.7	9	9.4	10.2
58	3.9	4.3	4.6	4.8	5	5.4	79	7.5	8.1	8.7	9.1	9.5	10.3
58.5	4.0	4.4	4.7	4.9	5.1	5.6	79.5	7.6	8.2	8.8	9.2	9.5	10.4
59	4.2	4.5	4.8	5	5.3	5.7	80	7.6	8.2	8.9	9.2	9.6	10.4
59.5	4.3	4.6	5	5.2	5.4	5.9	80.5	7.7	8.3	9	9.3	9.7	10.5
60	4.4	4.7	5.1	5.3	5.5	6	81	7.8	8.4	9.1	9.4	9.8	10.6
60.5	4.5	4.8	5.2	5.4	5.6	6.1	81.5	7.8	8.5	9.1	9.5	9.9	10.7
61	4.6	4.9	5.3	5.5	5.8	6.3	82	7.9	8.5	9.2	9.6	10	10.8
61.5	4.7	5	5.4	5.7	5.9	6.4	82.5	8.0	8.6	9.3	9.7	10.1	10.9
62	4.8	5.1	5.6	5.8	6	6.5	83	8.1	8.7	9.4	9.8	10.2	11
62.5	4.9	5.2	5.7	5.9	6.1	6.7	83.5	8.2	8.8	9.5	9.9	10.3	11.2
63	5.0	5.3	5.8	6	6.2	6.8	84	8.3	8.9	9.6	10	10.4	11.3
63.5	5.1	5.4	5.9	6.1	6.4	6.9	84.5	8.3	9	9.7	10.1	10.5	11.4
64	5.1	5.5	6	6.2	6.5	7	85	8.4	9.1	9.8	10.2	10.6	11.5
64.5	5.2	5.6	6.1	6.3	6.6	7.1	85.5	8.5	9.2	9.9	10.3	10.7	11.6
65	5.3	5.7	6.2	6.4	6.7	7.3	86	8.6	9.3	10	10.4	10.8	11.7
65.5	5.4	5.8	6.3	6.5	6.8	7.4	86.5	8.7	9.4	10.1	10.5	11	11.9

Use for both boys and girls														
Height	Weight Kg – Z-score							Height	Weight Kg – Z-score					
	very severe	*severe SAM*	*moderate MAM*	*discharge IMAM*		*median*			very severe	severe SAM	moderate MAM	discharge IMAM		median
cm	-4	-3	-2	-1.5	-1	0		cm	-4	-3	-2	-1.5	-1	0
Use Height for more than or equal to 87 cm														
87	9.0	9.6	10.4	10.8	11.2	12.2		104	12.0	13	14	14.6	15.2	16.5
87.5	9.0	9.7	10.5	10.9	11.3	12.3		104.5	12.1	13.1	14.2	14.7	15.4	16.7
88	9.1	9.8	10.6	11	11.5	12.4		105	12.2	13.2	14.3	14.9	15.5	16.8
88.5	9.2	9.9	10.7	11.1	11.6	12.5		105.5	12.3	13.3	14.4	15	15.6	17
89	9.3	10	10.8	11.2	11.7	12.6		106	12.4	13.4	14.5	15.1	15.8	17.2
89.5	9.4	10.1	10.9	11.3	11.8	12.8		106.5	12.5	13.5	14.7	15.3	15.9	17.3
90	9.5	10.2	11	11.5	11.9	12.9		107	12.6	13.7	14.8	15.4	16.1	17.5
90.5	9.6	10.3	11.1	11.6	12	13		107.5	12.7	13.8	14.9	15.6	16.2	17.7
91	9.7	10.4	11.2	11.7	12.1	13.1		108	12.8	13.9	15.1	15.7	16.4	17.8
91.5	9.8	10.5	11.3	11.8	12.2	13.2		108.5	13.0	14	15.2	15.8	16.5	18
92	9.9	10.6	11.4	11.9	12.3	13.4		109	13.1	14.1	15.3	16	16.7	18.2
92.5	9.9	10.7	11.5	12	12.4	13.5		109.5	13.2	14.3	15.5	16.1	16.8	18.3
93	10.0	10.8	11.6	12.1	12.6	13.6		110	13.3	14.4	15.6	16.3	17	18.5
93.5	10.1	10.9	11.7	12.2	12.7	13.7		110.5	13.4	14.5	15.8	16.4	17.1	18.7
94	10.2	11	11.8	12.3	12.8	13.8		111	13.5	14.6	15.9	16.6	17.3	18.9
94.5	10.3	11.1	11.9	12.4	12.9	13.9		111.5	13.6	14.8	16	16.7	17.5	19.1
95	10.4	11.1	12	12.5	13	14.1		112	13.7	14.9	16.2	16.9	17.6	19.2
95.5	10.4	11.2	12.1	12.6	13.1	14.2		112.5	13.9	15	16.3	17	17.8	19.4
96	10.5	11.3	12.2	12.7	13.2	14.3		113	14.0	15.2	16.5	17.2	18	19.6
96.5	10.6	11.4	12.3	12.8	13.3	14.4		113.5	14.1	15.3	16.6	17.4	18.1	19.8
97	10.7	11.5	12.4	12.9	13.4	14.6		114	14.2	15.4	16.8	17.5	18.3	20
97.5	10.8	11.6	12.5	13	13.6	14.7		114.5	14.3	15.6	16.9	17.7	18.5	20.2
98	10.9	11.7	12.6	13.1	13.7	14.8		115	14.5	15.7	17.1	17.8	18.6	20.4
98.5	11.0	11.8	12.8	13.3	13.8	14.9		115.5	14.6	15.8	17.2	18	18.8	20.6
99	11.1	11.9	12.9	13.4	13.9	15.1		116	14.7	16	17.4	18.2	19	20.8
99.5	11.2	12	13	13.5	14	15.2		116.5	14.8	16.1	17.5	18.3	19.2	21
100	11.2	12.1	13.1	13.6	14.2	15.4		117	15.0	16.2	17.7	18.5	19.3	21.2
100.5	11.3	12.2	13.2	13.7	14.3	15.5		117.5	15.1	16.4	17.9	18.7	19.5	21.4
101	11.4	12.3	13.3	13.9	14.4	15.6		118	15.2	16.5	18	18.8	19.7	21.6
101.5	11.5	12.4	13.4	14	14.5	15.8		118.5	15.3	16.7	18.2	19	19.9	21.8
102	11.6	12.5	13.6	14.1	14.7	15.9		119	15.4	16.8	18.3	19.1	20	22
102.5	11.7	12.6	13.7	14.2	14.8	16.1		119.5	15.6	16.9	18.5	19.3	20.2	22.2
103	11.8	12.8	13.8	14.4	14.9	16.2		120	15.7	17.1	18.6	19.5	20.4	22.4
103.5	11.9	12.9	13.9	14.5	15.1	16.4								

Appendix 7: Food consumption score weight and range

Food score

Food group	Weight
Main staple	**2**
Pulse	**3**
Vegetable	**1**
Fruit	**1**
Meat/Fish	**4**
Milk	**4**
Sugar	**0.5**
Oil	**0.5**

Weight score range

Score	Variable
0-21	**Poor**
21.5-35	**Borderline**
>35	**Acceptable**

Appendix 8: Tsholotsho Hospital Permission letter

Tel Nos 0378- 216, 204
Hospital

Fax Nos 0378 – 207

Telegraphic Address
"TSHOLOTSHO HOSPITAL"

Tsholotsho District

Box 100
Tsholotsho
Zimbabwe
0378 -207

13 December 2022

ATT: MISS FAINA RURAMISAI MUTIKANI

AU STUDENT REG NO: 202023

RE: AUTHOURITY TO CARRY OUT RESEARCH IN TSHOLOTSHO DISTRICT

We acknowledge receipt of your request letter to conduct research in the district. We hereby authorise you to carry out the research and hope that the findings will assist the district with evidence-based recommendations on the role of the care group model in promoting nutrition behaviour change in the district.

13 DEC 2022

Dr M Nyathi

DISTRICT MEDICAL OFFICER

TSHOLOTSHO DISTRICT HOSPITAL

Appendix 9: AUREC approval letter

Investing in Africa's future

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 website: www.africau.edu

Ref: AU2623/23 15 March 2023

FAINA RURAMISAI MUTIKANI
C/O Africa University
Box 1320
MUTARE

RE: **THE ROLE OF THE CARE GROUP MODEL IN PROMOTING NUTRITION BEHAVIOUR CHANGE OF CHILD CAREGIVERS IN TSHOLOTSHO, ZIMBABWE**

Thank you for the above-titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal

- **APPROVAL NUMBER** AUREC 2623/23
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** March 15, 2023
- **EXPIRATION DATE** March 15, 2024
- **TYPE OF MEETING** Expedited
  After the expiration date, this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before the expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC) APPROVED P.O. BOX 1320, MUTARE, ZIMBABWE

Yours Faithfully

MARY CHINZOU
ASSISTANT RESEARCH OFFICER: FOR CHAIRPERSON
AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE