INFLUENCE OF GROUP DYNAMICS ON CHICKEN FARMING PARACTICES AMONG INDIVIDUAL WOMEN IN MAKUENI COUNTY, KENYA

BARONGO NYABOKE LYDIAH

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF CO-OEPRATIVES AND AGRI-BUSINESS MANAGEMNT, SCHOOL OF CO-OPERATIVES AND COMMUNITY DEVELOPMENT IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTER OF CO-OPERATIVE MANAGEMENT AT THE CO-OPERATIVE UNIVERSITY OF KENYA

DECEMBER 2021

DECLARATION

Declaration by Candidate

This project is my original work and has not been presented for the award of degree in any other University or any other award.

Signature ..... Date.....

Barongo Nyaboke Lydiah

MCMC02/0022/2017

Declaration by the Supervisors

I/We confirm that the work reported in this project was carried out by the candidate under our supervision and has been submitted with our approval as university supervisors

Signature …… Date……...

Dr. Lucy Kiganane,

Department of Entrepreneurship and Economics; School of Business and Economics,

The Co-operative University of Kenya

Signature …… Date ……

Dr. Obadiah Miroro,

Department of Community Development and Environmental Management; School of Co-operatives and Community Development,

The Co-operative University of Kenya.

ACKNOWLEDGEMENTS

My deepest gratitude goes to the IDRC through "Livestock Vaccine Innovation Fund supported by the Bill and Melinda Gates Foundation (BMGF), Global Affairs Canada (GAC), and Canada's International Development Research Center. – Grant No. 109063" for the financial support.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION AND ACRONYMS

ASALs	Arid and Semi-Arid Lands
FGD	Focused group discussion
GOK	Government of Kenya
KII	Key informant interview
KNBs	Kenya National Bureau of statistics
Mo ALF	Ministry of Agriculture Livestock and Fisheries
SPSS	Statistical package for the Social Sciences

DEFINITION OF OPARATIONAL TERMS

Communication Patterns: Are structures in which information flows in a group.

Group Cohesion: The degree of closeness that individuals feel within a team. Forces that bring group members together.

Group Structure: System that outlines how certain activities are directed. Combination of group, norms, roles status, behaviour, status, leadership and group demography.

Group Dynamics: Attitudes and behavioural patterns of a group. Laws of development and interrelation with individuals.

ABSTRACT

Chicken farming is an important socio-economic activity in developing countries due to its immense contribution to the improvement of rural poor households' livelihoods and food security. Despite this, chicken farmers experience several challenges including diseases, high cost of inputs and market constraints. Government and non-government agencies encourage the formation of collective associations such as groups to address these challenges. Although groups have been known to address challenges that farmers go through, chicken production in Makueni County has not attained full potential despite increasing demand for chicken products. In addition, there is no much literature explaining influence of group dynamics on chicken farming practices among individual women. Therefore, this study aimed at determining influence of group dynamics on chicken farming practices among individual women in Makueni County. The specific focus was on the influence of group cohesion, group structure and communication on chicken farming among individual women. The study was anchored on two theories: Homan's theory of group formation and Social Balance. It employed a cross-sectional survey design. The focus of the study was on individual women practicing chicken farming. They are members of 2,514 farming groups in the sub counties of Makueni, Mbooni, Kibwezi West and Kibwezi East. A two stage sampling technique was used to select 384 women chicken farmers. The first group in the first stage simple random sampling technique was used to select farming groups from the list of groups per Sub County provided by the Government of Makueni County. In the second stage, women chicken farmers were purposively identified based on the number of flock (more than ten), chicken farming experience (more than one year) and frequent engagement in group activities. Structured questionnaires, focus group discussion and key informant interview guides were used to collect data which was analysed qualitatively and quantitatively. Qualitative data was analysed thematically while quantitative data was analysed using descriptive data analysing and presented inform of percentages, means, and standard deviation. Findings revealed that groups structure: leaders organized training and capacity building (85%) that enhanced chicken production. Results further indicated that communication among members of the group enabled women share information on chicken farming: sharing through mobile phone (92.4%) enabled members share information on diseases and control measures (94.8%), right feed management (92.6%), and market (70. 8%).In addition, group cohesion contributed to chicken production through: collective access of vaccines (76.1%), and collective sale of chicken produce. The results confirm that group membership enhances chicken production among individual women. Recommendation is that smallholder women chicken farmers should join groups to benefit on the higher bargaining power on sells and purchases, access to the pool of information on chicken management and trainings on chicken management which accrue from being a member of a registered and recognized farmer groups.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

At any particular time, there are an estimated 23 billion chicken on Earth (Cary *et al*., 2018). Chicken is the most widely kept livestock in the world commonly by women on account of the little investment and short time to income (Cary *et al*. 2018). About 90–95% of the households in the rural areas keep chicken because of less labour engagements. Chicken can also be raised at home where women are shuffling a huge number of different undertakings and obligations. In Africa, most homesteads practice chicken rearing majorly for income generation and home consumption. Chicken require low start-up capital with low maintenance costs and limited inputs and can be done under different environments (Dwinger *et al*. 2001; Dolberg, 2003; Nduthu, 2015; Hailemichael *et al*., 2016).

Chicken contributions to food availability include providing nutrient-dense and culturally acceptable foodstuffs for human consumption, as well as indirect contributions such as improving crop and vegetable output through the application of manure and pest control (MacMillan, 2017). Chicken products are considered protein sources with no religious restrictions (Nuhad, 2017). Chicken meat and eggs can provide high quality protein and micronutrients. Beyond the consumption of sufficient calories, a balanced and adequate intake of micronutrients is essential or growth, development and health (Bruyn *et al*., 2014).

Despite the benefits, Chicken farmers in Kenya face a number of challenges. These include high farm input prices (Bradnock, 2012), frequent chicken diseases, poor management, and vaccine costs as well as market vulnerability (Ochieng *et al*., 2013). Middlemen usually play an intermediary role between chicken farmers and consumers resulting in low prices. (Ketelaars &

Saxena, 2012). These contribute to economic stagnation of many chicken farmers which leads to low efforts and inputs in chicken farming.

One of the strategies that has been adopted to address some of the challenges that farmers experience is the use of groups. Farmer groups can effectively enhance livelihood of chicken farmers through reduction of transaction costs and information asymmetries (Kruijsen *et al*., 2009). When chicken farmers come together, they can cope with risks especially where there are no "safety nets" (Nakazi et al., 2017). These groups can enable chicken farmers to acquire skills, create enterprises, access inputs and effectively process and market farm produce so as to generate more income. Government and non-government organizations take advantage of groups to provide mitigating strategies to challenges that chicken farmers encounter. Chicken farmers have been encouraged to form and register their groups, as one way of collective benefits from government incentives and support (GOK, 2018). Well organized farmers can access necessary information for production, value addition, product marketing as well as effective development of linkages with output markets and input organisations like financial service providers.

Groups have distinct qualities which are based on members' feelings, thoughts and communication (Forsyth, 2018). Group dynamics is defined as the nature of groups, the laws governing their growth, and their interactions with individuals, other groups, and larger institutions (Levi, 2015). Group dynamics comprise of laws, regulations, sanctions, gender dynamics, membership, relationships and communication pathways. Additionally, activities that happen in the group are part of group dynamics. According to Nollet, Beaulieu, and Fabbe-Costes (2017), both internal and external drivers can influence group dynamics, which is a system of psychological and behavioral processes that occur between different social groups or

within a social group. These include group structure, communication forms, group cohesion, group functions, self-interest behaviour, group norms, roles, cohesiveness and leadership styles.

In Kenya, women mobilize themselves into groups that address common issues on realization that their interests are inadequately addressed in the present patriarchal society (Isaboke, 2016). These groups have the ability to economically enable members acquire skills, create enterprises, access inputs and effectively process and market farm produce so as to generate more income. Well organized farmers are able to easily access necessary information for production, value addition, product marketing as well as effective development of linkages with output markets and input organisations like financial service providers. However, groups are directly established on a number of issues that appear to undermine effectiveness and sustainability of collective action. These undermining issues comprise of lack of managerial knowledge of operations and marketing, technical skills as well as levels of commitment to the group (FAO, 2014). Lack of governance structure, strategic plan, financial management policy, constitution, and insufficient monitoring and evaluation tools are among the management capabilities. Poor marketing, accounting, and financial planning skills are among the technical skills (Mukherjee &Purkayastha, 2011).

Throughout women farmer groups in Kenya, it has been established that group structure is key for effective performance. Mixed gender farmer groups have been more progressive due to contribution and roles that men and women play in such groups (Harry, 2012). However, mixed gender groups are also prone to conflicts and men appear to dominate is decision making especially when group leadership is made of both men and women. Wanyonyi and Bwisa (2015) add that communication pathways are crucial in development of farmers groups. Both horizontal and vertical passing of information regarding groups' activities and plans is found to be equally

important. Farmer groups that allow members to air their views and opinions tend to have strong bond and members are in most cases willing to participate fully. Savings and investments by members in such groups is always encouraging (Kavoi *et al*.,2016).

Group dynamics can contribute performance of farmer groups. It was established by Wyatt et al. (2014) that farmers group in Machakos and Kibwezi districts of Eastern Kenya tend to orient themselves based on gender. The authors noted that women come together more often than men and form farmer groups and groups that have women only tend to be peaceful. However, regardless of pronounced conflicts and politics, mixed gender groups received more support from governments as well as non-governmental organizations. Moreover, FAO (2016) reports that many groups in Kenya have dissolved based on group dynamics and individual differences as well as favouritism among members. It is therefore vital to understand chicken farmers group dynamics in enhancing farming activities.

1.2 Statement of the Problem

Chicken production in Makueni County has not attained full potential (Mutua,2011). Despite rising demand for chicken products, low productivity is due to high disease occurrences, inadequate nutrition, limited genetic ability, and ineffective marketing channels. (Mwobobia et al., 2015). Chicken mortality is increasing by 70-80%, according to reports from the Department of Veterinary Services. (DALF, 2015). These challenges can be overwhelming to an individual farmer.

When farmers come together, they can cope with risks especially where there are no “safety nets” against risk. However, the extent to which groups can contribute to improvement of farmer’s livelihoods depends on the dynamics of the groups. This is because different groups

have distinct qualities which are patterned by the way members feel, think and communicate with structured subsystems (Forsyth, 2018).

Some research has been done on group dynamics and farming. For example, Swaminathan (2016) established that facilitating farmer group dynamics allows them to catch up with market transformations that occur at a rapid pace. A study on farmer group effectiveness as extension service delivery tools found out that internal and external group dynamics influence the effectiveness of group functioning (Harry, 2012). According to Harry group dynamics include gender composition, group meeting frequencies, group size and updating the constitution. Dugas (2017) evaluated group dynamics and individual's roles in farmer groups in Sub-Saharan villages. The study finding found that individual roles impacted group dynamics hence creating avenues for group cohesion and sustainability. Evans and Dion (2012) further conducted meta-analysis of farmer group cohesion in Latin America which informed that when farmers display good interpersonal relations with groups, they attract support from many partners including non-governmental and private partners. Addition, Masimba (2015) assessed women participation in farmers' groups to identify ways to strengthen farmers' groups and cooperatives in Zimbabwe. It was discovered that group structure and leadership had a positive impact on the performance of the farmers group. Nduthu (2015) investigated the socioeconomic impact on indigenous poultry production in Machakos, Kenya. The study discovered that group diversity and gender play a positive role in the success of a chicken keeping group dominated by women. Besides, a report from the County Government of Makueni (2017) on empowering farmer groups recognized that chicken farming is a common activity in many groups across the county. It was also reported women in groups are can access to key chicken farming skills through training from government services.

However, from the above literature, more concentration has been on group dynamics and group effectiveness with little information on how group dynamics affect their collective activities, for instance chicken farming. As a result, the purpose of this study was to determine influence of group structure, communication patterns, and group cohesion on chicken farming practices among individual women in Makueni County.

1.3 Research Objectives

1.3.1 General Objective

The purpose of this study was to determine influence of group dynamics on chicken farming practices among individual women in Makueni County, Kenya.

1.3.2 Specific Objectives

i. To determine influence of group structure on chicken farming practices among individual women in Makueni County
ii. To evaluate influence of communication patterns on chicken farming practices among individual women in Makueni County
iii. To establish influence of group cohesion on chicken farming practices among individual women in Makueni County

1.4 Research Questions

i. How does group structure influence chicken farming practices among individual women in Makueni County?
ii. How does communication pattern influence chicken farming practices among individual women in Makueni County?

iii. How does group cohesion influence chicken farming practices among individual women in Makueni County?

1.5 Significance of the Study

The study's findings would be extremely useful to a variety of users. The information from this study would be useful to policy makers in the agricultural sector for formulating sound polices concerning progressive chicken farming. For Kenya to achieve vision 2030 goal on economic pillar where agriculture and livestock is number one area of focus, the study sought to avail relevant literature and materials to enhance chicken farming through groups. Makueni County Annual Development plan may find this study findings being useful for resources distribution to chicken farmer groups.

In addition, study findings would be beneficial to government agencies and more so the registrar of societies of Makueni County as they would be able to have an in-depth understanding of relationship that exists between group dynamics and adoption of progressive chicken farming among women. Besides, study would help non-governmental organizations establish avenues for a partnership to implement initiatives supporting local communities and/or generally those who seek to promote farming through groups. In addition, these research will serve as a foundation for other scholars to criticise or enhance the findings.

1.6 Scope of the Study

The aim of the study was to investigate influence of group dynamics on chicken farming practices among individual women in Makueni County. Specifically, study was conducted in Kibwezi East, Kibwezi West, Mbooni and Makueni sub-counties of Makueni County.

Secondly, the study aimed at finding out the influence of group dynamics as measured through group structure, communication patterns, and group cohesion on chicken farming. Chicken farming practices was measured through the management of operations, flock size and egg production performance.

Moreover, study targeted women who practiced chicken farming and belong to farmer groups Data was collected using survey questionnaire. Key informant interviews and focus group discussions were also employed as qualitative data collection methods. The study was carried out in the year 2020.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses the literature relevant for this study questions and variables. It comprises of empirical literature, critique of the literature, the theoretical framework, conceptual framework and summary of literature review and research gaps.

2.2 Empirical literature review

2.2.1 Group structure and chicken farming

The relationship between members who unite the group and contribute to the achievement of its goals is referred to as group structure. This includes group roles, group leadership, group size, group norms and status (Kozlowicz, 2011). The structure determines the relationship of members to one another. It also develops a system of communication and rewards and punishments.

Shane (2012) studied group size and trust, cohesion and commitment of group members with the aim of testing the hypotheses that relate group cohesion, member commitment and trust indicators to the group size. The study was done in Malati village, West Java province, Indonesia. Shane found that in a group consisting of more than four or six members, there is less commitment to the group by members as a single and unified entity compared to smaller groups. On the other hand, members in groups whose participants are less than four are more committed. Members in larger groups have issues to do with low trust levels, low member inclusion in group activities and low shared awareness compared to those in smaller groups. Therefore, group size influences commitment of members to group's activities enhancing group efficiency and effectiveness. Larger groups are less likely to achieve collective action at all, the overall level of collective provision for larger groups that do achieve collective action is lower, and the degree of

sub-optimality in collective provision increases with group size. (Olson,1965). Contrary to Shane and Olson, a study by Estaban and Ray (2001) stated that the likelihood of success grows with group size; larger groups achieve higher levels of collective provision than small groups, and the effectiveness of a given group grows with its size (Sulaksana,2011). when studying determination factors of the sustainability of barn group investigated the motivational change process within a farmers' group. The study examined affection and motivational factors of the group (i.e. external and internal factors as well as the role played by the leader). The researcher found out that internal factors such as the experience of members in taking care of sheep mainly motivated the group. Behaviours within a group are governed by group norms (i.e. unwritten and unspoken informal rules) which differ from group to another. Maya et al. (2018) when studying norms in community-based organic farming established that integrated organic farming smallholders work together in a group when there are norms which bind their behaviours together. The behaviour of farmers in organic farming encourages or discourages them from achieving their goals. Norms are therefore necessary to informally regulate farmers' daily life. Although members of a group may adjust their behavior tacitly to coordinate their actions while working (Wittenbaum, Vaughan, & Stasser, 1998), explicit planning prior to task execution has the potential to help a group coordinate effectively. When confronted with a difficult or complex task, groups that plan are more likely to focus on coordination issues, a strategy that ultimately contributes to improved performance. (Weldon, Jehn, & Pradhan, 1991).

2.2.2 Communication patterns and chicken farming

Communication patterns refer to structures through which information flows in a group (Palistha, 2018). These patterns are related to work efficiency in groups or organizations that directs who is

responsible towards whom, or who consults whom. Group communication patterns are vital because it is through messages that groups make decisions, manage conflict, and establish the rapport required to keep the group together even in difficult circumstances. Communication patterns differ. First, circle communication pattern where there is a leader and different hierarchies of the group members. The second type is the chain of communication pattern which employ top-bottom or bottom-top flow i.e. it is a one-way flow communication. The third one is a wheel pattern where the leader is the centre of all communications and all the other members are at the same level in the structure. Lastly, is one where members can communicate with one another as per their needs and requirements (Silberstang & Hazy, 2008).

The integration of implicit and explicit communication patterns enables group members to more fully communicate and continuously learn and create conditions for a performing high functional group. Explicit communication patterns which are the direct messages with conscious interpersonal awareness are normally used by group members to coordinate tasks, plans, and processes. Group members express their thoughts and ideas by using direct messages which are affected through language and non-verbal behaviours. Group interactions bring about communication patterns which originate at the individual level then transmitted to group members and finally to the group as a whole (Silberstang & Hazy, 2008; Regional College, 2010).

A study by Abeyrathe & Jayawardena (2014) found that group interaction enhanced entrepreneurial behaviour in terms of planning and decision-making abilities. According to the study, there was a positive impact between group interactions and the entrepreneurial behaviour of the farmers who worked in a group. Awareness programs on mutual benefits and workshops that improves the attitudes of the farmers when interacting on groups. With the help of advisers

in a group, the group leaders could encourage the members to value healthy interpersonal relationships.

2.2.3 Group cohesion and Chicken Farming

Cohesion is the level at which group members desire to be part and parcel of the group. Cohesion is described as close interaction between members (Ofuoku & Agbamu, 2012). Cohesion is determined by the level of benefits attained through homogeneity of membership, satisfaction member needs, interpersonal attraction and participation in group activities. Thus, it moves beyond simple interpersonal liking. Groups that have committed members are highly cohesive. On the other hand, groups that have little member attraction have low cohesiveness. A research carried out by Anil *et al*. (2014) on strengthening the performance of farming systems found out those community-based groups can effectively influence the engagement of members in activities that are undertaken in the group. The local groups also serve specific farmer information needs. On the other hand, more effort in the form of member connectivity, promotion of interactions, making sure that members are knowledgeable and support a clearly defined enterprise, building interpersonal relationships, promotion of interactions and meeting different types of information is necessary for large groups that are geographically dispersed.

A study done by Omotesho (2019), concluded that the level of women participation in farmer group activities was low and significantly influenced by their age, farm size, and number of years of farming experience. It also identified decision making and leadership as key areas of low participation. Attending group meetings, decision making, election of leaders, financial obligations, obedience of by-laws and regulations and participation of conscious work towards

group goals pull members together in a farmer group (Kemi et al., 2016). Besides, it is noted that when members take full participation in group activities, work is made easier and the outcomes are incredible. Therefore, cohesion of chicken farmers in groups is vital and should be central to farmers which enhance sound and inclusive decision-making on chicken farming technologies. It is also crucial to mention that many extension agencies and partners can take advantage of existing farmer groups to provide mitigating strategies to challenges that chicken farmers encounter.

All the forces that act on every member to remain active in the group result in cohesiveness. It is the key to sustain the success of the group task. This is the level at which the members of a group desire to stick to the group. Cohesiveness is often seen to effectively improve interpersonal attraction among group members. Several studies have attempted to explain the role of group cohesion in groups. Whilst the findings of these studies about cohesion. None of the studies has addressed the influence of interpersonal attraction, member satisfaction and participation in group activities on chicken farming among women.

2.4 Group dynamics

Team performance is dependent on a variety of factors and qualities within a group. Different groups have distinct qualities which are patterned by the manner in which members feel, think and communicate with structured subsystems (Forsyth, 2018). Internal and external factors influence the evolution of group dynamics, which is a system of psychological and behavioral processes that occur between social groups or within a social group. (Levi, 2015). This includes factors such as group structure, communication forms, group cohesion, group functions, self-interest behaviour, group norms, roles, cohesiveness and leadership styles (Nollet, Beaulieu

&Fabbe-Costes, 2017). Members in an effective group are very active and can deliver relevant services that enable smallholder farmers to actively take part in grass-root collective activities (Mukindia, 2012). The benefit level attained by members of the group determines how they participate in the group. Therefore, groups should focus on the fulfilment of the expectations and needs of members which are relevant to the activities of the group irrespective of its typology and the level of development (Sonam & Martwanna, 2012).

2.5 Theoretical Framework

This section presents a review of various theories considered to be in line with the research objectives. This study considered two key theories including social balance theory and Homans' theory of group formation.

2.5.1 Homans' Theory of Group Formation

As the name implies, Homan's theory was postulated by George Homans (1951). It explains the basic rationale underlying group formation. It is built on three fundamental elements such as: activities, interaction and sentiments. Homans' theory of group formation elucidates basic ideal behind group formation. People who share a number of activities are likely to have more interactions, and as a result, their sentiments and shared activities grow stronger (Brown and Pehrson, 2019). Members in a certain setting with similar goals and objectives come together to form a group. The decision on the size of the group, group leadership, group norms and the activities of each member of the group is dependent with group objectives and goals.

The three key elements of Homan's theory of group formation include sentiments, activities as well as interaction. These three elements are inter-related. People are assigned various tasks in order to achieve required activity. Also, required interaction occurs when some individual

activities take place or an individual activity is influenced by another individual's activity. During these interactions, there are attitudes or feelings an individual develops towards others, including disapproval, dislikes, likes, approvals referred to as sentiments (Rogers and Smith- Lovin, 2019). According to Scott (2000), an interaction enables individuals to solve problems and attain their goals, minimize tension, enhance coordination as well as achieve required balance. There is a more likelihood of forming powerful groups when participants interact in this manner.

According to the theory, interaction among group members' influences group cohesion and collective activities. Group members are encouraged to development strong relationship; communicate to each other horizontally as well as to leaders in vertical pathways. It is noteworthy that regular interaction plays significant roles in group activities and performance. The level of interaction deeply impacts cohesion and how members in farmer groups work together.

In Makueni County, women chicken farmers in groups encourage regular meeting to enhance interactions. All groups where study respondents and discussants were recruited agree that interaction is key to group development and management. In the event of new ideas, group members gather after getting information from group leaders. The interaction of group member through inspection of group chicken that each member keeps at home was also significant for collective chicken farming. Interaction between leaders and group members also encouraged chicken farmers to feel a sense of belonging to a caring group which impact the chicken farming activities in a positive way.

2.5.2 Social Balance Theory

The theory was developed by Fritz Heider (1946). The theory elucidates the structure of individual's opinion on other people as well as objects, together with perceived relation that lies between them. Through the model of social balance theory, it is easy to learn how social groups evolve to achieve a balance state. The relationships between members can be positive or negative. Heider suggests that for the groups to function well, positive and negative relationships should find a common balance. Interactions in a social system are defined by relationships between individuals. Sentiment is an important component among social agents in the relationship. Sentiments can result in a social mitosis defined as the emergence of two groups, with disliking existing between the two subgroups within liking agents (Wang and Thorngate, 2003). The concept of balance theory points out that whereas other structures are imbalanced, there is a balance of certain structures between people and objects, and that imbalanced structures are less preferred compared to balanced structures. According to the balance theory, individuals associate un-balanced structures, cohesion and relations in groups with negative feeling, and as a result of this uncomfortable feeling, individuals strive to circumvent these imbalances for the balanced structures and relations. People are often attracted to each other based on similar attitudes and feeling towards common relevant goals and objects. Upon formation of a relationship, there is striving to ensure that there is equal balance between common attitudes and attraction. Whenever there is an imbalance, people strive to restore the balance. However, the relationship is dissolved, if the parties in groups fail to restore the balance.

The social balance theory is therefore crucial in understanding group dynamics, collective activities and group's influence on chicken farming activities. Among the farmer groups in

Makueni County, social balance is aimed for sustainability of the group. Positive energies and/or attitudes are encouraged by group members to minimize negative attitudes, hence reducing toxicity and hostility among members. It is therefore important leadership as part of group structure play key roles in farmer groups in Makueni County. Leaders act as the central linking agency in farmer groups. Whenever, there is conflicts (negative balance) among group members, leaders champion the process of conflict resolution to facilitate normal operation of group activities. Effective communication presents significant platform for building and rebuilding relations and working to realize social balance in the farmer groups and networks of communication has enabled many groups to bond and increase positive balance among farmer groups in Makueni. Groups are linked together by leadership, rules and regulations, communication and continuous training among members.

2.5.3 The von Thunen's location theory

According to von Thunen's location theory, if environmental variables remain constant, the farm product with the highest profit will outbid all other products in the competition for location. (Dodia, 2019). Location theory is concerned with the questions of where and why economic activities are located. The competitive position of a crop or livestock activity (specifically, how high the bidding must go to secure a desirable site) will be determined by the level of return expected from producing a specific location. According to the Thünen model, access to the market (town) can result in a complete system of agricultural land use. The model assumes that farmers near the market will grow crops with the highest market value (highest rent) that will give them the maximum net profit. The transportation costs will be the deciding factor in the location rent. Location rent will be high when transportation costs are low, and vice versa. This situation results in a rent gradient, where the location rent decreases with distance from the

market until it reaches zero. (Steinhubel and Cramon-Taubadel, 2019). The Thünen model also considered the location of intensive versus extensive agriculture within the same market. Intensive agriculture will have a steep slope and will be closer to the market than extensive agriculture. Rent gradients will differ depending on the crop. Perishable crops (vegetables and dairy products) will have steep gradients, whereas grains will have less steep gradients.

2.6 Conceptual Framework

A conceptual framework gives an illustration of how study independent and dependent variables are interrelated. In this study, group dynamics (group structure, communication patterns, group cohesion) the independent variable, progressive chicken farming is the dependent variable measured through management of operations, flock size, and egg production.

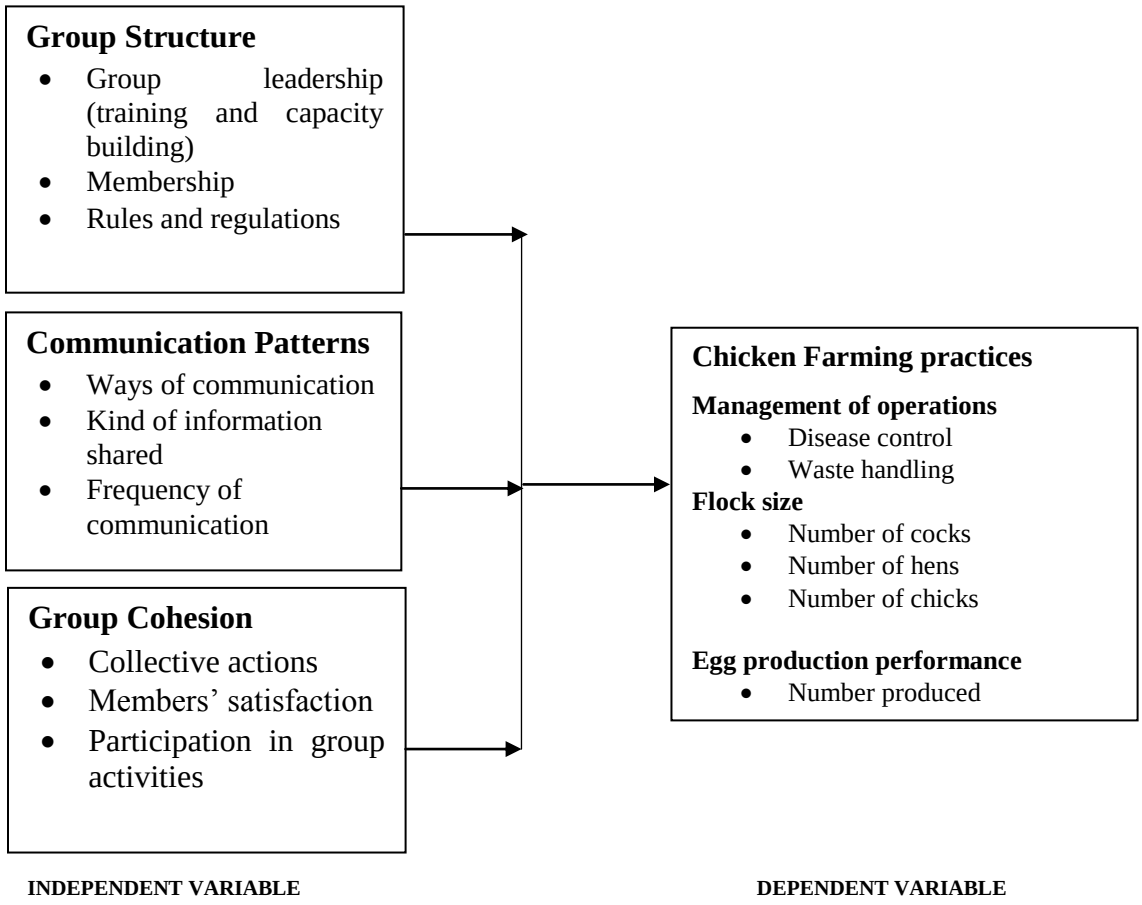


Figure 2.1: Conceptual Framework

The conceptual framework shows group structure comprises of leadership, membership and norms of chicken farmer groups in Makueni. Leadership, membership and norms presented significant influence on group sustainability which enhances chicken farming activities. Besides, communication patterns operationalized as ways, kind of information shared and frequency of communication in groups greatly impacted information flow building great chicken farming knowledge and skills of chicken farming. Chicken farming and management knowledge and skills were effective where communication patterns were efficient, effective and accessible by all

members in groups. Moreover, group cohesion evaluated how group members are related with each other horizontally as well as to leaders in the group. Group cohesion was conceptualized through members' participation in group activities and their satisfactions of needs, responsibilities and outcomes.

2.6 Summary of Literature Review and Research Gaps

Nosenzo, Quercia and Softon (2015) investigated the effect of group structure (size and function) on cooperation in voluntary contribution mechanism games in United Kingdom. The study concluded that it is more difficult to sustain cooperation in larger groups and in small groups. The authors left out group leadership and norms as part of group structure to impact chicken farmers. In the same lens, Evan and Dion (2012) conducted a meta-analysis on group cohesion and performance which revealed that direct relationship exists group members' cohesion and performance. However, being a member in a group without much involvement had less benefit to farmers. Therefore, this study investigated influence of group cohesion, group structure and communication patterns.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses research design, study area, study population, sampling design, sample size determination and sampling procedures, data collection methods, research instruments, validity of the instruments, pilot testing, and reliability of the instruments, data analysis techniques and ethical considerations.

3.2 Research Design

A cross sectional study design was applied. Descriptive research design was used to describe the characteristics of the various groups. The design allows collection of data rigorously within a specific time to draw inferences on the influence of group dynamics on progressive chicken farming among individual women chicken farmers in Makueni, Kibwezi East, Kibwezi West and Mbooni sub-counties in Makueni County.

3.3 Study Area

Makueni County is situated in Southern piece of Eastern Kenya. It lies between Latitude 1°35′, South and Longitude 37°10′ East and 38°30′ East (GoK, 2013). Makueni County experience at temperature of between 12º C - 28º C and bimodal rainfall ranging from 150mm to 650mm per annum, which is typical of ASALs in Kenya (GoK, 2013). Drought, heat stress, increased precipitation, moisture stress, and rising temperatures are the County's most serious hazards (Mo ALF, 2016). Livestock rearing (primarily dairy and beef cattle, goats, and poultry), crop farming (green gram, sorghum, maize, mango, cowpea, bean, pigeon pea, and citrus), and agroforestry, sand harvesting, charcoal burning, and brick making are the major economic activities (GoK, 2014). When compared to the national absolute poverty level, the county has one of the highest

poverty rates in the country (64 percent) (47 percent). The high poverty rate can be attributed to a number of factors, the most important of which is low agricultural productivity (due primarily to water scarcity and poor soils) (GoK, 2018). The volcanic Chyulu hills, which run along the County's southwest border in Kibwezi West Constituency, the Mbooni Hills in Mbooni Constituency, and the Kilungu and Iuani Hills in Kaiti Constituency are the most prominent physical features in Makueni County. Mbooni Hills reach a height of 1,900 meters above sea level. The county terrain is generally low-lying, beginning at 600m above sea level in Tsavo at the county's southern end. Chicken farming is a common activity in Makueni County. Over 90% of households in per-urban and rural areas keep chicken for home consumption as well as commercial purposes. Local or indigenous chicken are common types of chicken kept (GoK, 2018). There are many formal and registered farming groups in Makueni. Some of the key activities include chicken farming, merry-go-round and table banking. Many of these groups are based on the concept known as *mbukulye ngukilye* (lift me I lift you). Farmers are encouraged to form groups in order to get access to county government services and support. It is also important to note that women groups flourish in Makueni due to support from NGOs and other partners that work in Makueni County (GoK, 2018).

3.5 Target Population

The population under study was individual women practicing chicken farming and are members of farming groups, veterinary officers and Co-operative officers in the County. Makueni County has 497,942 women: 64,955 women in Makueni sub-county, 49,601 women in Mbooni East sub-county, 53,159 women in Mbooni West Sub-county, and 98,517 women in Kibwezi sub-county (KNBS, 2019). There are 2,514 farming groups (crop farming, poultry keeping, goat keeping, fish keeping, rabbit rearing, dairy cattle keeping,) in Makueni, Mbooni, Kibwezi West and

Kibwezi East sub counties. The average membership per group is estimated to be 29 people (Makueni County government, 2017).

3.6 Sampling Frame

Four study sites (Makueni, Kibwezi East, Mbooni and Kibwezi West) were purposely selected based on the many numbers of farming groups (GoK, 2018). The distribution of farming groups as per sub counties is as shown below.

Table 3.1: Farming groups per Sub-County

Sub-County	groups	Average Membership	Percent
Makueni	926	26,854	37%
Kibwezi East	401	11,629	16%
Kibwezi West	763	22,127	30%
Mbooni	424	12,296	17%
Total	2514	72,906	100

Source, Makueni County Government, (2019)

3.7 Sampling design and sample selection

A multi-stage sampling technique was employed. In the first stage farming groups that engaged in chicken farming were purposively selected from the list of farming groups per Sub County provided by the Government of Makueni County. A total of 2,514 groups were selected. The second stage used stratified random sampling to select chicken farming groups from the farming groups in the sub-counties. Random stratified sampling was preferred since it was able to reduce biases associated with sampling and collect data evenly from the villages. This ensured that there

was no over presentation or under presentation respondents. Subsequently, women respondents in farming groups were purposively identified based on the following criteria: size of the flock (more than 10 chicken), number of years engaged in chicken farming (at least one year), and level of engagement in group activities (frequent attendance to group meetings). This was determined by both the group records and confirmation by group leaders and community mobilizers. A sample of 384 women chicken farmers was selected for the study.

3.8 Sample Size and sample determination

When the population exceeds 10,000 people, 384 of them are recommended as the desired sample size, according to Mugenda and Mugenda (2003). In the study areas, there were 72,906 farming group members. The sample size was determined using statistical population surveys whereby:

$N=Z^2 pq / d^2$

Where N = desired minimal sample size; Z = Standard normal deviation which is equal to 1 at 95% confidence level; P = Proportion of the target population estimated to have a particular characteristic being measured. In this case it is estimated to be 0.5; d = the level of statistical significance set which in this case is 0.05.

Thus, $N = 1.96^2 \text{ X } 0.5 \text{ X } 0.5/0.05^2$

= 384 Households

Table 3.2: Sampling frame and distribution of respondents

Sub-county	**Number of groups**	**Estimated Members in group**	**sample**
Makueni	926	26,854	26,854*384/72,906=142
Mbooni	424	12,296	12,296*384/72,906=64
Kibwezi East	401	11,629	11,629*384/72,906=61
Kibwezi West	763	22,127	22,127*384/72,906=117
Total	**2,514**	**72,906**	**384**

The target of 384 respondents from different groups was not fulfilled, 280 response rate was considered adequately unbiased given that Nulty (2008) recommends a response rate of at least 65%. This is because, despite the existence of 2,514 farmer groups in the records provided by the Ministry of Gender, Children and Social Development (MGCSD) in Makueni County. Observation during the survey indicated that majority of the dormant farmer groups only existed for a short period mainly to enjoy development projects and faced off thereafter. Some of these groups are revived when a new project in need of farmer groups is introduced.

3.9 Data collection methods

The study employed both qualitative and quantitative methods in collecting primary data. Qualitative interviews with audio recording were used in both focus group discussions (FGDs) and key informant interviews (KIIs) to gain an in-depth understanding to social issues. A list of questions was prepared as guidance for each FGD and KII. Quantitative method employed structured questionnaires to collect data from women chicken farmers in various farming groups.

The first section had questions covering demographic information of the respondent while the second section had questions regarding the study variables.

3.10 Validity of Research Instruments

This study will employ content as well as face validity in order to test the validity of the research tool. Face validity entails the level to which a test is subjectively determined to incorporate the concept to be measured by it. On the other hand, content validity involves drawing an inference from the test results to a wider range of comparable items to those under examination. Abilities and knowledge covered by test items require being representative of wider knowledge as well as abilities domain (Leung, 2015).

3.11 Reliability and validity of Research Instruments

The study employed content as well as face validity of the research tool. The researcher administered a pilot test on 35 respondents to ensure that the research questions address the topic under study. The study tested the reliability of the research instrument using Cronbach's alpha (α). A composite coefficient of reliability index (Cronbach's alpha) of 0.6 was regarded sufficient for all constructs (Noble & Smith, 2015). An alpha (α) coefficient of 0.6 or more was considered reliable in the study.

Key informants and focus group discussants were purposively selected to collect in-depth qualitative data. 10 Focus group discussions made up of 6-8 discussants were purposively identified based on the following criteria: flock size (more than 50), one-year experience in chicken farming, and those who have lost chicken flock due to diseases for the past 6 months. This was because they provided information on groups and challenges facing chicken farmers. Total of 12 key informants' interviews were conducted. 2 on sub county officials in the ministry

of public service youth and gender, 3 community vaccinators, 2 vetenary officers and 5 group leaders.

3.12 Data Analysis

Qualitative data was analysed thematically. Data collected from KIIs and FGDs were audio recorded and transcribed. Transcripts were reviewed and edited for clarity and checking of completion during data cleaning. The researcher familiarized herself with the data to enable the generation of themes and codes as guided by research questions. Data coding was accomplished in two stages. The first stage was the initial coding involving the generation of numerous category codes. At this stage the researcher listed emerging ideas, drew relationship diagrams and identified key words used by respondents frequently as indicators of important themes. The second stage involved focused coding where the researcher eliminated, combined or subdivided the coding categories identified in the first step. To map and build themes, the researcher built both categories and sub categories as guided by the research questions. Thereafter, thick descriptions of context and audit trail led to drawing of conclusions on reasons for theoretical, methodological, and analytical perspectives of the study.

The descriptive data analysis was used to analyse quantitative data by use of SPSS 21. Information was presented inform of tables of means, percentages, measures of dispersion such as standard deviation.

3.13 Ethical Issues

There are various standards of behaviour that were observed by the researcher in relation to rights of the subject of study. The participants were informed about the general and specific objectives of the study and the confidentiality of information shared by them, through a letter.

The nature and the purpose of the research were explained clearly to the potential study respondents when seeking their informed consent. Before administering research instruments, the researcher read out the consent form to the respondents and requested them to sign (Appendix I). The willingness to participate and the right to withdraw from the study at any time were respected. Respondents were assured of their confidentiality and privacy. To ensure anonymity, pseudonyms were used, and information from the collected data was only used as explained by the researcher. To ensure quality, the study's findings will be disseminated to the grassroots via local administrative channels and shared with the scientific community via publications. Copies of the final project report will also be available for academic use at the Cooperative University of Kenya Library.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

This chapter presents data analysis, findings, presentation and interpretation. The purpose of the study was to determine influence of group dynamics on chicken farming practices among individual women in Makueni County, Kenya.

4.2 Response Rate

Table 4.1 Response rate

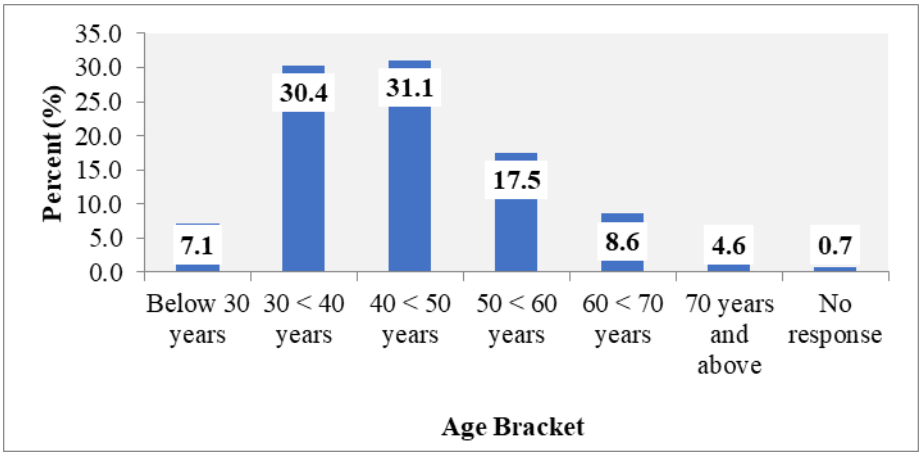
Sub-County	Sample	Responses	Response Rate (%)
Makueni	128	103	80.5
Mbooni	59	48	81.4
Kibwezi East	55	45	81.8
Kibwezi West	103	84	81.6
Total	**345**	**280**	**81.2**

Out of the targeted 345 respondents, 280 questionnaires were filled up to make a response rate of 81.15 percent. The target of 384 respondents from different groups was not fulfilled, 280 response rate was considered adequately unbiased given that Nulty (2008) recommends a response rate of at least 65 percent. This is because, despite the existence of 2,514 farmer groups in the records provided by the Ministry of Gender, Children and Social Development (MGCSD) in Makueni County, some of these groups were inactive. Observation during the survey indicated

that majority of the dormant farmer groups only existed for a short period mainly to enjoy development projects and faced off thereafter. Some of these groups are revived when a new project in need of farmer groups is introduced.

4.3 Demographic information

Figure 4.1: Distribution of Respondents by Age Brackets



As shown in Figure 4.1, 31.1 percent of all the respondents were aged between 40 and 50 years followed by those between 30-40 years (30.4 percent), between 50 and 60 years (17.5 percent) and between 60 and 70 years (8.6 percent). Other respondents (7.1 percent) were below 30 years while those with 70 years and above were 4.6 percent. This implies a big number of chicken farmers among individual women in Makueni County are aged below 50 years. According to Sindi (2008), agricultural knowledge and skills such as production, operations, and management, increase with age. Mature farmers are more experienced and have more access to required resource as compared to the young farmers' despite being accommodative of new ideas.

Majority of the individual women practicing chicken farming in Makueni County attained primary or secondary levels of education (85.8 percent), 6.8 percent attained certificate level and

3.6 percent attained diploma and undergraduate levels. According to Asadullah & Rahman (2005), schooling has positive effects on agricultural productivity due to the skills of literacy and numeracy that give the farmers better understanding into agricultural issues. Whilst 3.6 percent did not attend to any formal education.

4.3 Group Structure and Chicken farming

4.3.1 Leadership Style exercised

4.3.1.1 Group Leaders Organize Trainings for Capacity Building

Capacity building was a frequent benefit for group members as reported by 85% of the respondents. Capacity building and training enabled farmers identify diseases and control measures, use nutritious feeds, clean chicken houses, use chicken manure, and search markets for chicken products.

Table 4.1: Areas covered during trainings

Area	Frequency	Percent
Chicken feeds	218	90.5
Disease control/Vaccination	229	95.0
Waste Handling	112	46.5
Marketing	103	42.7
Breeding	2	0.8

Chicken feed and diseases and control measures were the most covered topics during training (90.5 percent and 95.0 percent respectively. This could be attributed to use of non-notorious feeds by farmers and frequent disease outbreaks in the area. As confirmed by Key informant, training offered was based on chicken operation activities, diseases and control measures.

"We were trained on how to monitor our chicken. We started at construction of the houses; how to construct the house and how it should be. We proceeded to the topic on chicken medicine, we were taken through vaccines of the chicks, and how we can vaccinate them after a set duration. We were told about all types of medicines... Afterwards, we were taught about feeds, and taught how to mix the feeds (KII: Women group leader: Makueni Sub County).

Table 4.2: Source of Information/Training for the Respondents

	Frequency	**Percent**
Field days	131	46.8
Farmer demonstrations	58	20.7
Group meetings	26	9.3
Workshops	17	6.1
Agricultural shows	4	1.4
No response	44	15.7
Total	**280**	**100.0**

Most of information on chicken rearing was gained during farm visits (46.8 percent). Members could visit more advanced chicken farmers to gain knowledge and had a chance to witness some of the management activities carried out. Demonstration was frequently used to enable members have practical experience on measurement and administration of drugs and vaccines and construction of chicken houses (20. 7 percent). As affirmed by focus groups, various NGOs as well as government organizations carry out field days and demonstration across the county on a regular basis.

"We get more information about chicken farming and management from different field days and demonstrations. County government and NGOs like FAO conduct field days where we go and learn more on chicken husbandry" (Women Only FGD discussant: Mbooni Sub County).

Despite the numerous trainings, 53.2 percent of the respondents said that the trainings received so far hadn't helped them improve their farming operations. Reason being that the information received was not enough to address challenges experienced. This was confirmed by focus group discussions. Discussants complained that information they got from those training was not enough to help them improve on chicken farming activities.

"We appreciate that teachers and veterinary officers from county government do come here and train us on various activities on chicken farming. But we get limited knowledge, we do not understand well… trainers are always in a hurry and as you know we mothers need to be taught slowly and little by little" **(**Women only FGD discussant: Kibwezi East Sub County).

On the other hand, 46.8 percent of the respondents reported that trainings received helped farmers employ better chicken management skills and diseases control measures as confirmed by focus group discussion.

"*the group has helped me to get information on how to feed my chicken to give them nutritious food because in the past we used just to give them maize only you wake up in*

the morning and give them maize but nowadays we know when you mix different things you make good food for your chicken and because of that I saw my chicken growing fast being healthy and become heavy that if I start selling them I sell good cash" (Mixed Gender FGD Discussant: Kibwezi East).

4.3.3 Group membership and Chicken farming

4.3.3.1 Duration of membership

A substantial majority of individual women practicing chicken farming had been members of their respective groups for a period of less than ten (10) years (77.5 percent). This means that they are yet to exploit full potential of groups in relation to chicken farming. 22.5% of the respondents had been in the group for more than 10 years. An indication that farmers had a better understanding of one another's challenges and had the capacity to solve them, and are able to request support from relevant institutions in relation to chicken farming. Individual joined groups for different reasons. As depicted below, majority of the respondents joined groups for better bargaining power (69.9%) on inputs and prices of chicken produce. Moreover, some women joined groups to find market for their produce (52. 3%).Due to high prices of inputs like vaccines and drugs 52.3% joined groups to access inputs. This is made possible through collective access of inputs through the groups. Additionally, 40.1% of the respondents joined groups to collectively sell their produce for better prices.

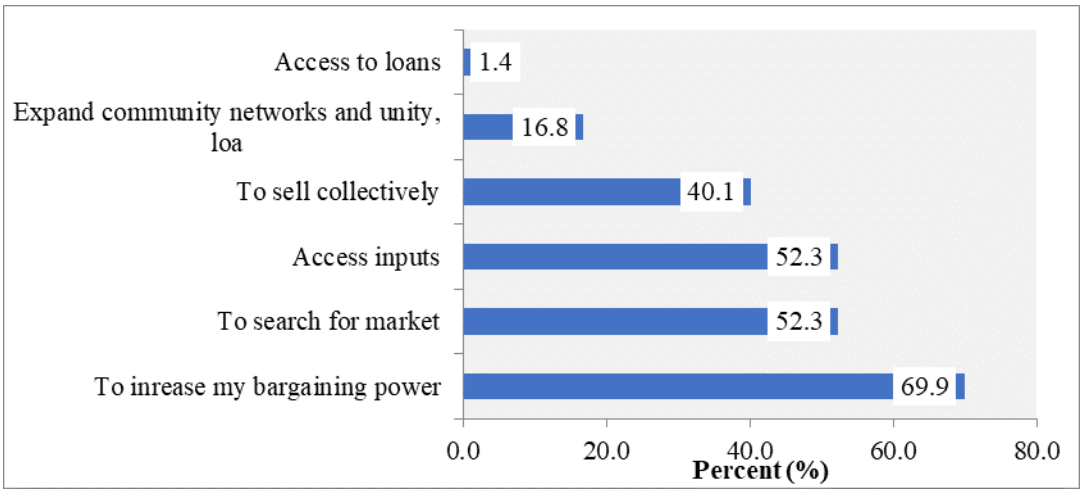


Figure 4.1: Reasons for Joining Groups

4.3.3.2 Benefits of joining groups

Table 4.3: Benefits derived from group Membership

	Frequency	Percent
Knowledge sharing of chicken farming skills	238	85.3
More access to government/ NGO farming interventions (i.e. training)	155	55.6
Wider opportunity for networking on chicken rearing matters and hence increased flock	136	48.7
High bargaining power	127	45.5
High purchasing power of chicken farming inputs	103	36.9

Knowledge sharing on chicken farming was the main reason why farmers joined the group (85. 3%).Some of the respondents joined groups to access government and NGO farming interventions like training, chicks and feeds (55. 6%).Moreover, an average of 41.2% of the respondents joined groups for high bargaining power on inputs and prices of chicken and chicken

produce. A key informant confirmed that farmer groups are beneficial to all members and could encourage all people to join one or more groups for them to benefit.

> *I have seen me being alone not possible so I saw it better to join other women in the group to uplift one another in chicken rearing we help one another, the little money I give and another one gives a little we can get drugs easily and the person who vaccinates can come to the group and vaccinate for us at low cost when a lone, the person charges a high transports cost he has used unless we are many, so I decided it's better to be with other women than to be alone. You know when we are many in chicken rearing, even getting a customer its easy when we are many.* (KII, Women Group Leader: Makueni Sub County).

4.3.4 Group rules and regulations

4.3.4.1 Rules and regulations that govern the operations of the group.

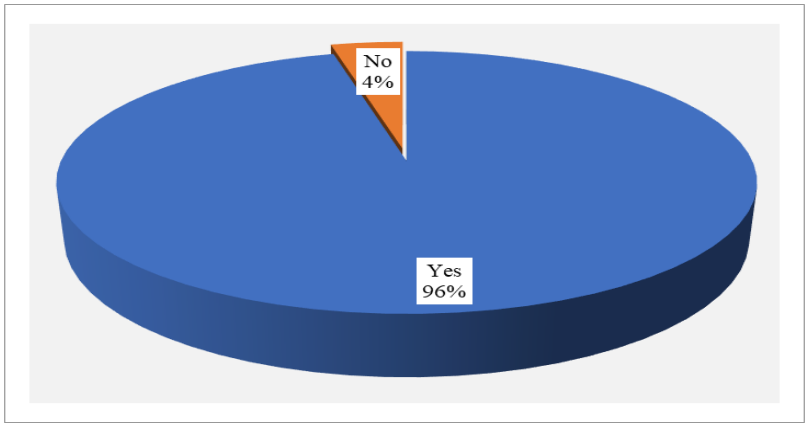


Figure 4.1: Rules and regulations that govern operations of the group

Majority of the respondents agreed that they had rules and regulations (by-laws) on chicken farming (96 %) as confirmed by focus group discussants, groups had rules and regulations in relation to chicken farming that members had to live up to.

> "*…you know every group has its rules. For example you can't just come right now and then we give you chicken, we have to first check you for 5months*" (Women Only FGD Discussant: Makueni Sub county).

4.3.3.2: Rules and regulations on chicken farming

Focus group discussions revelled that groups had rules and regulations guiding individual farmers on chicken farming activity.

> "*We have said it's a must for one to have a house and always clean the house, and if chicken lay eggs then the eggs hatch, one should buy the relevant feeds for the chicks. and if they reach 3 months' age, one can start selling"* (Women Only FGD Discussant: Makueni Sub county).

Adhering to the rules contributes to better chicken management operations as evidenced in the table below:

Table 4.4: Benefits of adhering to rules and regulations on chicken farming

	Frequency	Percent
Improved chicken health (though vaccination)	228	86.0
Improved hygiene in the chicken house	227	85.7
Increased number of chicken	210	79.2
Increased use of chicken manure	100	37.7
Improved egg production per week	86	32.5

Adhering to rules and regulations on chicken farming led to improve chicken health (86%).This can be attributed to frequent vaccination and management information available to group members. Members were reminded through rules to frequently clean their chicken houses (85.7%). Number of chicken kept by farmers increased (79.2%) and this can be due to frequent vaccination that has led to reduction in the number of deaths during disease outbreaks.

4.3.3.3 Influence of group Sanctions on individual women chicken farmers' operations

Table 4.5: Influence Sanctions on chicken farming

	Frequency	Percent
Increased number of chicken vaccination	188	77.0
Use of nutritious chicken feed	174	71.3
Frequent cleaning of the chicken house	201	82.4
Increased use of chicken manure	81	33.2

Fear of sanctions of not adhering to group rules and regulations led to increased number of vaccinations by individual members (77. 0%).Members were encouraged to use nutritious feeds (71.3%), frequent cleaning of chicken houses and this led to improved hygiene.

4.4 Group Communication and Chicken farming

4.4.1 Communication channels used to share farming information

Table 4.6 Communication channels used

Channel	**Frequency**	**Percent**
Mobile phones	257	92.4
Group meetings	160	57.6
Interpersonal communication (communication with extension workers, lead farmer concept, demonstration blocks)	157	56.5
Farm home visits	146	52.5
Campaigns (Vaccination and prevention of chicken diseases)	64	23.0
Exhibition (photographs, charts, posters, actual specimen)	20	7.2
Print media (leaflets, newspapers, pamphlets, folders, magazines)	11	4.0
Electronic media (Radio)	5	1.8

Mobile phones were commonly used to share information between members. Form focus group discussions, members used mobile phones, that is, calls and short message services (SMS) to pass farming information.

> "*When we have information in most cases we use our phones, we make calls and send message*" (**Mixed Gender FGD Discussant: Kibwezi West Sub county**).

4.4.2 Information shared among group members

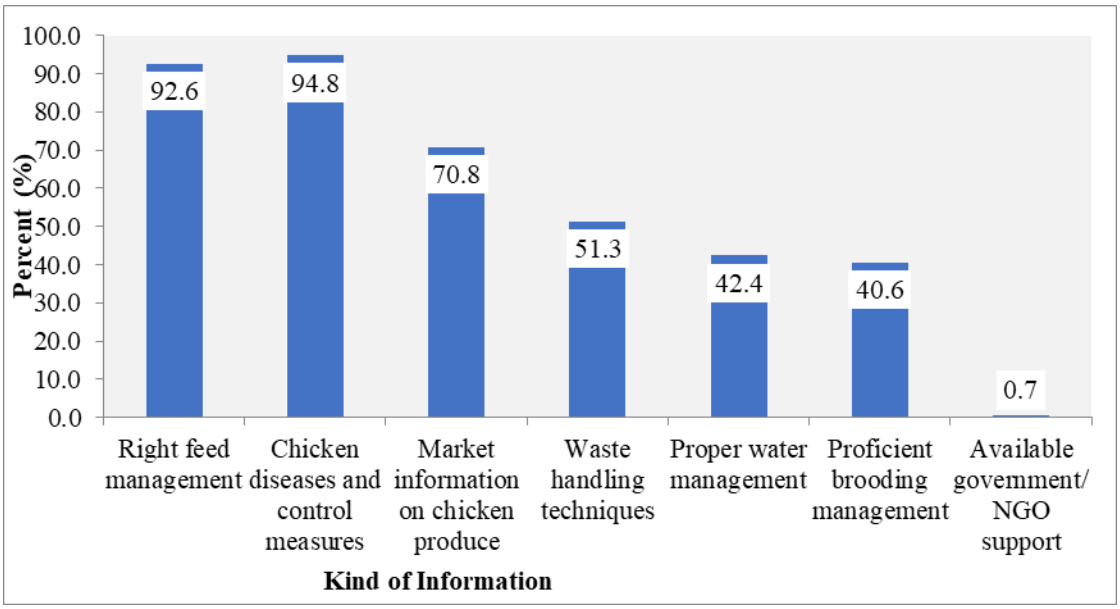


Figure 4.2: Information Shared Among the Group Members

Some of the information shared among group members include right feed management (92. 6%).This includes use of nutritious feeds and water management. Moreover, information on diseases and type of vaccines and drugs was frequently shared (94. 8%).Members always informed other members on the available market and prices of produce (70.8%).

4.4.3 Effect of information received on chicken management

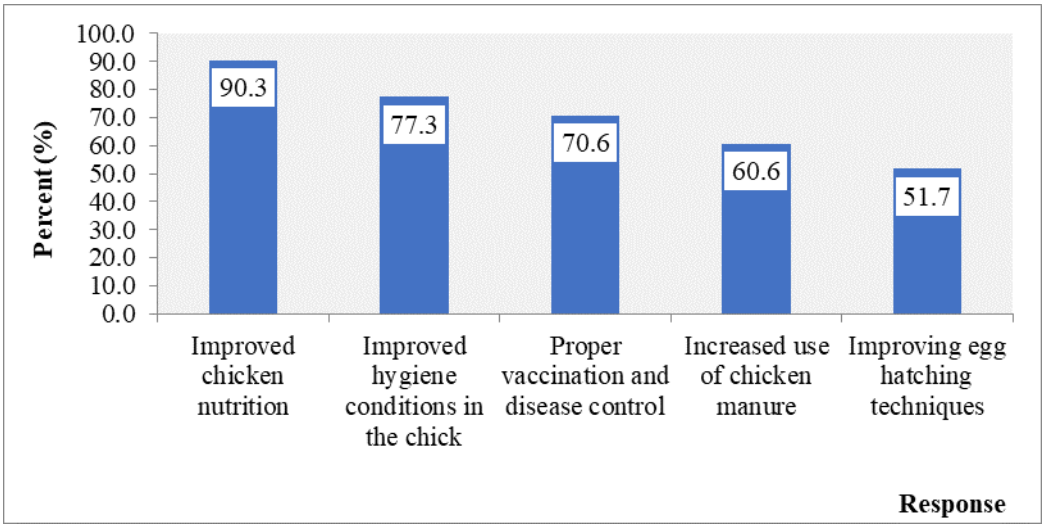


Figure 4.3: Effect of Information on Chicken Management

Many chicken farmers acquired great knowledge from multiple trainers and fellow group member as they shared their experiences and new innovations on chicken farming. Use of nutritious feeds by farmers (90. 3%).Farmers frequently cleaned their chicken houses as reported by 77.3% of respondents. Through constant trainings, farmers were able to properly vaccinate their chicken (70.6%). Information gained made many of chicken farmers adopt new ways of chicken farming skills leading to improved production as confirmed by focus group discussion.

> *"this group has taken me from far because the time I was rearing chicken alone I didn't know more about chicken but the moment we came together as members of this group, I can come and ask any of the members about challenges that are facing my chicken and they. Give me their opinions. And so it has really helped me like the table banking us do I get some money. If it's chicken, I wanted to add I can add. So if I wasn't in the group I couldn't be getting time to go to the group and write a proposal and get the money which*

we come and divide amongst ourselves which boosts me to add my chicken and build a house for the chicken so well." (Women focus group: Mbooni Sub County).

4.4.4 Frequency of Communication

Despite mobile phones being the preferred mode of sharing information (92.4%), this was not frequently used because of the costs and connectivity problems. As confirmed by key informant.

"*it's not such easy to reach all members, it's hard because you know 58 people are many and the moment something urgent emerges, and the chairlady requests that all members are needed, you try calling members but some are unreachable. It's stressful to reach all these members. Maybe you fail to reach 10 members through the phone*" (KII, Women Group Leader: Mbooni Sub county).

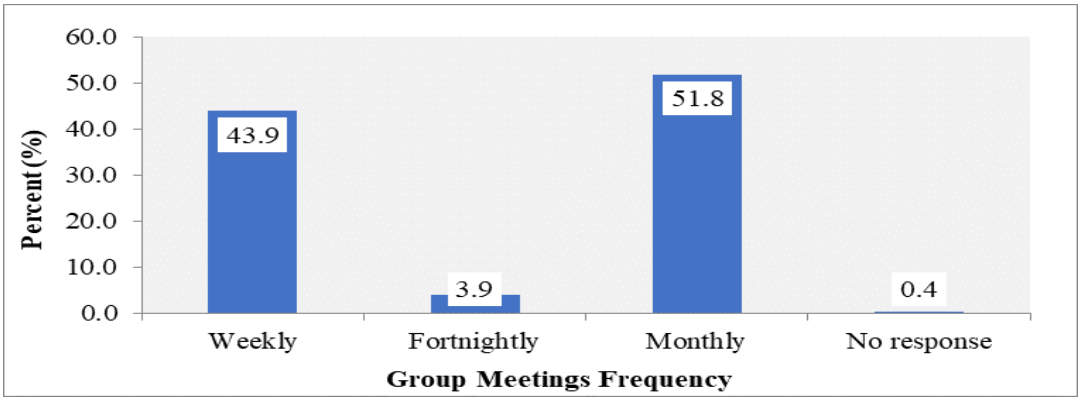


Figure 4.4: Frequency of group Meetings

Majority of the groups met monthly to share chicken farming information (51.8 %) as confirmed by focus group discussion.

"When we meet we share information on the diseases, cleanliness of poultry houses, incomes earned and challenges faced" (Women Only FGD Discussant: Mbooni Sub county).

Table 4.7: Benefits derived from group meetings attendance

	Frequency	Percent
Increased sales of chicken products through market referrals	193	72.0
Sharing costs of chicken inputs with other farmers	141	52.6
Early disease control through experience of other farmers	231	86.2
Variety of techniques on chicken house cleaning	148	55.2
Increased egg production through experience of other farmers	128	47.8

Frequent meetings attendance enabled members share market referrals (72. 0%).By constant attendance to meetings, members were able to contribute resources to purchase inputs that are sold at high prices which are expensive for individual members (52. 6%). Through constant meetings, members are able to pass information on disease outbreaks to other group members to take control (86. 2%).As mentioned by focus group discussants, frequent meeting enable members gain farming skill.

"We discuss about chicken. I would come to the meeting and explain the challenge with my chicken, and I will expect the members to help me get a solution to that problem. They might advise me and I go practice the advice and it helps me. We can also advise a member to apply the manure obtained from the chicken in their farms" (Women FGD Discussant: Mbooni Sub county).

4.5 Group Cohesion

4.5.1 Collective actions on chicken farming

Table 4.8: Respondents Opinion on Elements on collective actions

	Yes		No		No Response	
	N	%	N	%	N	%
The women involved in chicken farming employ common techniques in chicken farming	202	72.1	74	26.4	4	1.4
Those involved in chicken farming collectively sell chicken produce	113	40.4	165	58.9	2	0.7
Those involved in chicken farming individually sell their chicken produce	231	82.5	47	16.8	2	0.7
Those involved in chicken farming purchase chicken farming feeds collectively	102	36.4	174	62.1	4	1.4
Those involved in chicken farming purchase chicken farming feeds individually	221	78.9	55	19.6	4	1.4
Those involved in chicken farming vaccinate against chicken diseases collectively	153	54.6	123	43.9	4	1.4
Those involved in chicken farming vaccinate against chicken diseases individually	213	76.1	62	22.1	5	1.8

The women involved in chicken farming employed common techniques in chicken farming (71.2%) since most of them kept indigenous chicken. Despite being in groups, most of the respondents reported that they sold their chicken produce individually (82. 5%).This could be attributed to individual pressing need for money to cater for household expenses. Respondents reported that they purchased chicken feed individually and not as group (78.9%).

Focus group discussions revealed that there are some of the chicken farming activities that members do collectively as a group and some activities done individually. Vaccination, chicken ownership and marketing are some of the collective activities. Purchase of chicken feeds is an individual responsibility.

> *"As you are aware, vaccines are packaged in large quantities and many of us have few chicken. So we contribute as a group and buy a large dose and vaccinate our chicken at ago. It has helped us in terms of cost and good outcomes. We encourage other groups to do the same*" (Women Only FGD Discussant: Makueni Sub county).
>
> "*The chicken belongs to the group but we rear them individually, you only contribute the agreed share to the group after you sell them.... I will talk about construction of standard houses to rear chicken, and also time of selling we sell the chicken together, if it vaccination we do it as a group*" (KII Group leader: Kibwezi West).
>
> "*When it comes to purchasing the feeds, each member buys on their own because of variable in the number of chicken per member* (Women Only FGD Discussant: Kibwezi East Sub county).

4.5.2 Benefits derived from group's cohesion

Table 4. 9: Benefits derived from groups

Statement	Very low	Low	Moderate	Strong	Very strong	Mean	Standard Deviation
Access to inputs	5.4	18.9	35.7	22.1	17.9	3.282	1.122
Access to extension services	10.7	6.8	36.4	33.2	12.9	3.307	1.117
Access to training on chicken farming skills	10.4	2.9	30.0	37.9	18.9	3.521	1.143
Access to training on chicken waste handling	13.2	16.8	22.1	25.7	22.1	3.268	1.329
Access to training on chicken disease and control measures	6.4	4.3	32.9	32.1	24.3	3.636	1.090
Increased contact with buyers	9.3	21.8	31.8	19.6	17.5	3.143	1.210
Increased income	3.2	3.6	42.9	22.5	27.9	3.682	1.019
Average	**8.4**	**10.7**	**33.1**	**27.6**	**20.2**	**3.406**	**1.147**

An average of 40% of respondents strongly agreed access of inputs is one of the benefits they have gained since joining groups. Additionally, 12.8% of the respondents reported that extension services which are nearly inaccessible by individual farmers due to the cost are a benefit they enjoy as members of the group. Trainings organized by group leaders enabled members acquire skills on waste handling (mean =3.268), disease control (mean=3.636). Moreover, respondents (mean of 3.143) reported that since joining groups they have benefited on increased contact with buyers. Focus group discussions and key informant revealed much information on benefits gained by members. Training and knowledge on chicken farming are some of the major benefits gained.

"First benefit, when one faces a challenge, we meet and discuss as one. Let us say if it's a disease, we call a vet officer, who treat our chicken and train us of the needed medicines because if an outbreak erupts, let us say Newcastle it will affect all of us because we are close neighbours" (Women Only FGD: Kibwezi East Sub county).

The group has benefited me in chicken farming. I have been trained in the group about chicken rearing, chicken feeding. I have gained knowledge of rearing many chicken in the past I was rearing like 10-20 chicken but right now I am able to rear even 500 chicken…" (KII: Women group leader, Makueni Sub County).

4.4.3 Individual women chicken farmer's participation in group activities

Table 4.10: Respondents Opinion on participation in Group Activities

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard deviation
My role in the group is clearly cut out for me	4.6	6.1	17.9	32.5	38.9	3.950	1.107
I am required to actively participate in group activities	0.7	0.4	10.7	41.4	46.8	4.332	0.737
I work well with other group members (teamwork)	1.4	0.7	6.8	47.1	43.9	4.314	0.752
Conflicts between group members are solved early by group leaders before they escalate	1.4	8.2	18.2	37.1	35.0	3.961	0.994
Average	**2.1**	**3.8**	**13.4**	**39.6**	**41.2**	**4.139**	**0.898**

As depicted, the respondents' roles in groups were clearly cut out for them (mean =4.332 and a standard deviation of 0.737). Members actively participated in group activities (mean = 4.314, Standard deviation = 0.752) and worked well with other group members (teamwork) (mean = 4.139, Standard deviation = 0.898). This is an indication that most of the chicken farmers had no problem in the performance of their duties and obligations arranged by the group. Respondents also strongly agreed that conflicts between group members are solved early by group leaders before they escalate (mean = 3.961, Standard deviation = 0.994). It was observed Conflicts in groups is a common occurrence resulting from differences in members' personalities and values. Dealing with member conflict in a timely manner is important to maintaining a functional group.

Table 4.11: Activities members were Involved in Since Joining the Group

Weekly	**Once**	**Twice**	**Thrice**	**Four times**	**More than 4 Times**
Field visits	96.0	4.0	0.0	0.0	0.0
Attend training	100.0	0.0	0.0	0.0	0.0
Train other members	100.0	0.0	0.0	0.0	0.0
Record keeping	100.0	0.0	0.0	0.0	0.0
Conflict resolution	100.0	0.0	0.0	0.0	0.0
Organize meetings	100.0	0.0	0.0	0.0	0.0
Attending group meetings	88.8	9.3	1.9	0.0	0.0
Monthly	**Once**	**Twice**	**Thrice**	**Four times**	**More than 4 Times**
Field visits	92.4	2.2	5.4	0.0	0.0
Attend training	87.7	3.1	3.1	6.2	0.0
Train other members	89.1	8.7	2.2	0.0	0.0
Record keeping	78.9	10.5	10.5	0.0	0.0
Conflict resolution	71.4	21.4	7.1	0.0	0.0
Organize meetings	84.2	10.5	1.8	3.5	0.0
Attending group meetings	74.0	18.5	2.7	2.1	2.7
Annually	**Once**	**Twice**	**Thrice**	**Four times**	**More than 4 Times**
Field visits	85.7	9.5	4.8	0.0	0.0
Attend training	67.3	24.5	4.1	0.0	4.1
Train other members	81.5	11.1	3.7	3.7	0.0

Record keeping	87.0	0.0	0.0	13.0	0.0
Conflict resolution	100.0	0.0	0.0	0.0	0.0
Organize meetings	100.0	0.0	0.0	0.0	0.0
Attending group meetings	85.7	14.3	0.0	0.0	0.0

Majority of the respondents reported that they attended field visits once in a week to gain skills on chicken farming (96.0%). Attending group meetings, organizing meetings, conflict resolutions are some of the activities that members were involved in on weekly basis.

4.4 Groups dynamics and Chicken Farming among individual women

4.4.1 Disease Control

4.12: Action taken to control diseases when there is an outbreak

Action	Frequency	Percent
Vaccinate chicken	166	65.9
Treat chicken with drugs	107	42.5
Sell off the chicken	63	25.0
Slaughter and consume	51	20.2
Did not vaccinate the chicken	26	10.3
Use traditional remedies	3	1.2

Majority of the respondents unveiled that they vaccinated their chicken to control disease during outbreaks (65. 9%).From focus group discussions; farmers vaccinated their chicken with the help of the group.

"When vaccination time comes, we withdraw money from our monthly contributions and we call a veterinary officer, he goes and buys the vaccine from Wote and he informs us to be ready. He vaccinates the chicken and we pay him through the same money" (Women only FGD Discussant: Mbooni Sub county).

Table 4.13: Statements on Chicken disease control

	Agree		Disagree		No Response	
Statement	N	%	N	%	N	%
I always join other group members to collectively vaccinate our flock against such diseases as Newcastle disease	168	60.0	105	37.5	7	2.5
I always get information on outbreak of diseases through group members and they communicate the symptoms quickly to be on the lookout.	258	92.1	15	5.4	7	2.5
Through the help of the group the veterinary officer regularly comes to inspect and examine my chicken for any diseases	160	57.1	113	40.4	7	2.5
Our group collaborate with county and national governments to control and eradicate chicken diseases	125	44.6	148	52.9	7	2.5

Through the group, members were able to collectively vaccinate their chicken against diseases (60%). This was made possible through collective access of the vaccines where members contributed money to purchase the vaccines. Majority of the members (92.1%) reported that they got disease outbreak information from fellow group members. This enables proper disease control. From focus group discussions, many discussants said that they collectively vaccinated their chicken with the help of group when there was an outbreak of diseases.

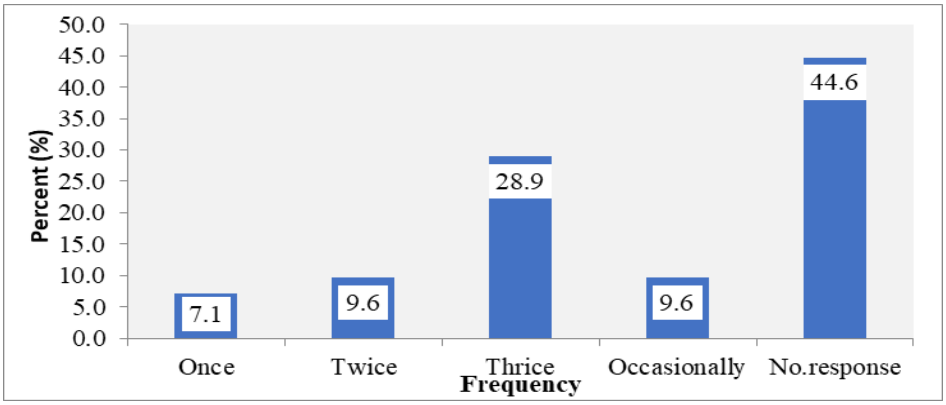
> *"We start looking for vaccines to give our chicken to prevent them from getting diseases"* (Women only FGD Discussant: Mbooni Sub county).

Groups also enabled members' access the services of veterinary officers (57.1%). From focus group discussions, many discussants said that they could access the services of the veterinary officer through the group.

> *Let us say if it's a disease, we call a vet officer, who treat our chicken and train us of the needed medicines because, if an outbreak erupts, let us say Newcastle it will affect all of us because we are close neighbours*" (Women Only FGD Discussant: Kibwezi West Sub county).

4.4.2 Frequency of Vaccination

Figure 4.5: Vaccination Frequency in a Year

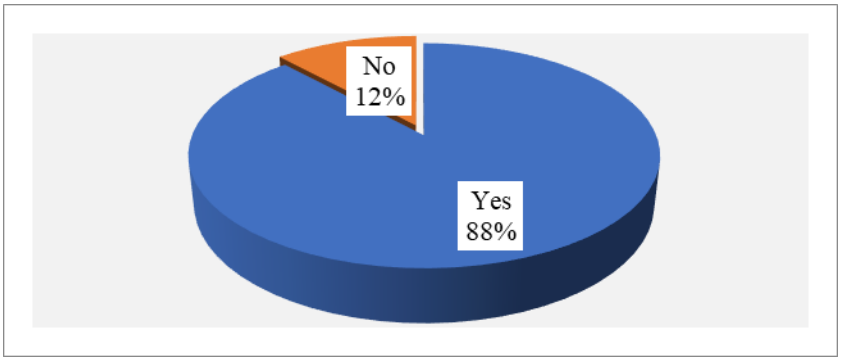


A few of the respondents reported that they vaccinated their flock three times a year (28. 9%).Majority of the respondents did not give any information on the number of times they vaccinated their flock (44. 6%).Reason would be they did not vaccinate at all despite being in groups. From the Focus group discussion, farmers vaccinated their chicken at least once in a year.

> *"We do vaccinate our chicken. We were told that we need to vaccinate they three times per year. However, we rarely follow the prescribed requirements. But each year we vaccinate our chicken even once or twice*" (Women only FGD Discussant: Mbooni Sub county).

4.4.2 Waste Handling

Figure 4.6: Whether Respondents Use Chicken Manure in Crop Cultivation



Majority of the individual women practicing chicken farming save at least between 1-20kgs of fertilizer by using chicken manure (88%). Through focus group discussions, it was revealed that from the training received, women used chicken dropping as manure. They applied them to nourish crops like vegetables and fruits. Some save a lot as they use chicken manure to plant and harvest abundantly.

> *"We were trained that chicken has another benefit. Manure from chicken droppings are good for vegetable and fruit farming. As for me, I save much money that I could use to buy fertilizers. And I get a good harvest from my vegetable just by using chicken manure*" (Women Only FGD Participant: Kibwezi West Sub county).

Table 4.14: Benefits Gained from the Group on Waste Handling in Chicken Farming

Statement	Agree		Disagree		No Response	
	N	%	N	%	N	%
a) Through the group I have been trained on how to maintain hygiene in the chicken house	261	93.2	16	5.7	3	1.1
b) Group leaders and extension officers regularly inspect my chicken house to ensure that chicken is reared in hygienic conditions	208	74.3	69	24.6	3	1.1
c) We are encouraged as farmers to regularly clean chicken houses	268	95.7	9	3.2	3	1.1
d) I am always encouraged to use droppings as manure in their farms	200	71.4	71	25.4	9	3.2
e) I have received training on waste management through the group	170	60.7	101	36.1	9	3.2

Maintaining hygiene of chicken houses through constant encouragement to clean them by other group members is the most benefit that most members reported to have gained from the group on waste handling. Members also received training on waste management (60.7%).

4.4.3 Flock Size

This section sought to address chicken production before and after joining groups

Table 4.15: Number of Flock Before and After Joining the Group

Age	Std. Deviation before joining	Std. Deviation after joining	maximum no. of chicken	maximum no. of chicken	mean before joining	mean after joining
Below 30 years	13.19	54.23	50	200	16.18	60.36
30-<40 years	24.15	86.65	120	620	25.58	86.65
40-<50 years	19.79	124.49	100	700	25.4	106.77
50-<60 years	20.24	120.21	80	600	22.97	91.10
60<70 years	15.58	75.12	65	305	31.20	75.42
70 years and above	93.96	216.32	300	750	68.33	123.63

Group membership helped members increase the number of chicken kept. The mean of women below 30years increased from 16.18 to 60.36, 30-40 years increased from 25.58 to 86.65, 40-50 years increased by 81.37, 50-60 years increased by 68.13, 60-70 years increased by 44.22 and those above 70 years increased by 55.3. This can be attributed to capacity building and training received on proper management skills, nutritious feeds, diseases ad control measures as confirmed by key informant.

"I have gained knowledge of rearing many chicken in the past I was rearing like 10-20 chicken but right now I am able to rear even 500 chicken…" (KII, Women Group Leader: Makueni Sub County).

4.4.4 Egg Production

Table 4.16: Egg production performance Before and After Joining the Group

Age	Std. Deviation before joining	Std. Deviation after joining	mean before joining	mean after joining
Below 30 years	9.94	41.06	12.75	33.29
30-<40 years	26.07	90.30	21.64	55.03
40-<50 years	15.78	102.75	17.17	58.91
50-<60 years	18.35	97.52	13.68	45.72
60<70 years	36.69	71.65	32.91	71.65
70 years and above	71.42	78.91	33.37	55.00

Mean of eggs produced before and after joining the group increased tremendously. The mean of individuals bellow 30 years increased by 20.24, 30-40 years increased by 33.39, 40-50 years increased by 41.74, 50-60 years increased by 32.04, 60-70 years increased by 38.74 and 70 years and above increased by 21.63. These could be attributed to right feed management on chicken. Collective activities increase farmers' ability to increase their production.

"Most feeds are bought from shops and the buying price is high for the farmers because they do not have a sustainable income to purchase these feeds leading to low number of eggs produced" (KII, Group leader, Kibwezi East).

CHAPTER FIVE: DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussions of the findings on influence of group structure, communication pattern and group cohesion on chicken farming among individual women. It also, provides study conclusions and recommendations emerged from fieldwork findings, limitations of the study and suggestions for further research that can be conducted in future.

5.2 Discussions

This study was conducted to determine influence of group dynamics on adoption of progressive chicken farming activities in Makueni County. It was guided by three research objectives which are to determine influence of group structure, communication patterns, and group cohesion on chicken farming activities.

5.2.1 Group structure and chicken farming

The objective of the present study was to establish influence of leadership, group membership and group rules and regulations on chicken farming practices. Good leadership equates to good performance (Maya et al., 2018). In this study, good leadership is depicted in leaders ensuring capacity building for their members. Participants through focus group discussions praised their leaders on the good leadership. They agreed that leaders have been at forefront in ensuring capacity building hence the success and development in groups. "*In our group, ...I don't see our leadership as being bad our leaders organize and call us to attend regularly from which we have acquire much knowledge and skills on chicken farming and capacity building*" (**Women Only FGD Discussant: Mbooni Sub county**).

Findings by Parzono (2012) reported that good leaders seek information. The information seeking behaviour by group leaders was supported by Mgbada and Agumagu (2007) who reported that leaders are responsible for bringing information from extension agents to the farmers. This is concurring with the findings of this study. Capacity building was a frequent benefit as reported by 85% of the respondents. Group leaders organized trainings and capacity building on diseases and control measures, nutritious feeds, how to construct and clean chicken houses, waste handling, and search markets for chicken products. Training was done during group meetings, farm visits, organized exhibitions, and workshops.

Findings by Dyalvane (2015) elucidate that smallholder farmers join groups to increase productivity and collectively negotiate better prices for needs like fertilizer, seeds, transport and storage. His findings agree with this study where by access to inputs (52.3%), search for markets (52.3%), and increase bargaining power (69.9%) are some of the reasons that drove individuals to join groups. Participants through Focus group discussion also stated various benefits they gained by joining groups. *"The group has benefited me in chicken farming. I have been trained in the group about chicken rearing, chicken feeding. I have gained knowledge of rearing many chicken in the past I was rearing like 10-20 chicken but right now I am able to rear even 500 chicken..... When one faces a challenge, we meet and discuss as one. Let us say if it's a disease, we call a vet officer, who treat our chicken and train us of the needed medicines because, if an outbreak erupts, let us say Newcastle it will affect all of us because we are close neighbours*" (**Women Only FGD: Kibwezi East Sub county**).

Findings by Simango (2015) elucidate that rules and regulations are important in giving direction to group operations, codes of conduct, and restrict certain behaviors for the benefits of all members. Findings concurs with this study as confirmed by focus group discussions that revel

groups had rules and regulations guiding the chicken farming activity that members were expected to follow. "*We have said it's a must for one to have a house and always clean the house, and if chicken lay eggs then the eggs hatch, one should buy the relevant feeds for the chicks. And if they reach 3 months' age, one can start selling"*. Members were expected to construct chicken houses, clean chicken houses, frequently vaccinate their chicken, and use nutritious feeds. By following group established rules and regulations on chicken farming, farmers constantly vaccinated their chicken and kept their chicken houses clean and used nutritious feeds on their chicken.

5.2.1 Communication pattern and chicken farming

Objective of the study was to establish influence of ways of communication among group members, kind of information shares and frequency of sharing information on chicken farming practices among individual women. Farming is an occupation that requires a constant flow of information (Asante, 2017). Findings by Agazarian (2018) reported that sharing information is vital for groups of people pursuing common goals. These findings agree with this study where members reveled that they constantly shared information on right feed management (92.6%), diseases and control measures (94.8%), market information (70.8%), waste handling (51. 8%). Modes of communication are significant to ensure that the information reaches target group more easily and effectively (GoK, 2018). As informed by focus group discussion, the use of mobile phones, that is, calls and short message services (SMS) are common among members and to and fro leaders too. "*When you have information in most cases we use our phones, we make calls and send messages*" (**Mixed Gender FGD Discussant: Kibwezi West Sub county**). Other researchers have found that farmers use televisions, newspapers, telephones, attending seminars (Byamugisha, Ikoja-Odongo, Nasinyama and Lwasa, 2008; Abeyrathne and Jayawardena, 2014).

Findings agree with this study where by information sharing in Makueni County was through mobile phones (92.4%), discussion during group meetings (57.6%), farm visits (52.5%), and extension officers (56.5%). Resultantly, farmers were able to learn new techniques in chicken farming leading to improved chicken nutrition (90.3%), improved hygiene conditions for chicken houses (77.3%), proper vaccination and disease control (70.6%), increase use of chicken manure (60.6%), as well as improving egg hatching techniques (51.7%) hence an increase in the number of chicken equating to increased economic status and women empowerment.

5.2.3 Group cohesion and chicken farming

Objective of the study was to establish influence of collective actions, member satisfaction and participation in group activities on chicken farming practices by individual chicken farmers. Relationship and bonding are key concepts influencing success of any group (Simango, 2015). Findings by Rosh, Offermann, & Van (2012) indicate that the nature of cohesiveness in a group is a reflection of bonding among group members and results in task, role commitment, group pride and interpersonal attraction. Findings concur with this study where farmers in Makueni performed some of the farming activities collectively. Focus group discussion reveled that farmers in Makueni bought chicken vaccines and vaccinated their chicken as a group. *"As you are aware, vaccines are packaged in large quantities and many of us have few chicken. So we contribute as a group and buy a large dose and vaccinate our chicken at ago. It has helped us in terms of cost and good outcomes. We encourage other groups to do the same*".

A study by Fischer and Qaim (2014) revealed that farmer group contracts can result to more favorable prices, transaction cost and better bargaining position (and market their produce collectively to get better prices. These findings agree with this study as farmers collectively sold their chicken and chicken produce for better prices (40.45%).

Findings by Sonam & Martwanna (2012) revealed that benefits and good output are expected by every member in a group. The concurs with this study as women smallholder chicken farmers in Makueni county have benefited a lot from joining and participating in group's activities. Some of the benefits include access to inputs (mean=3.283), access to extension services (mean= 3.307), access to training on chicken farming skills (mean=3.521), increased contact with buyers (mean=3.143). The mentioned benefits and opportunities make women stick to groups hence sustaining membership for a long period of time.

A study by Fischer and Qaim (2014) indicates that participation in collective activities may increase the ability of groups to provide useful services to its members. This concurs with the present study that elucidates that weekly training to group meetings enabled members acquire new farming skills from other group members (100%), weekly book keeping helped track of farmer performance and it's through these records that other members were able to detect which member needed their help (100%). Attending group organized trainings, members were able to gain new skills on chicken management and market referrals for their products.

5.3 Conclusion

Group dynamics influence chicken farming practices among individual women.

5.3.1 Group structure and chicken farming

Good leadership influence chicken farming practices among individual women. Leaders provide training and capacity building on chicken farming for their members. Group leaders organized trainings and capacity building on diseases and control measures, nutritious feeds, how to construct and clean chicken houses, waste handling, and search markets for chicken products. Training is done during group meetings, farm visits, organized exhibitions, and workshops.

Group norms bind group members to a certain behavior. Adhering to group rules and regulations on farming increases the of vaccination frequency, use of nutritious feeds and cleaning of chicken houses.

5.3.2 Communication and chicken farming

Effective communications stand to be brain of every group. Members in the groups look up to leaders to pass information on chicken farming skills. Communications lead to understanding, respect of other people's opinion and working together. Channels and modes of communication will determine whether the information will reach the target or not. Many groups in Makueni use, mobile phones and word of mouth to pass information from one person to another. Regular information prevents development of conflicts within a group, early prevention of diseases, and market referrals. Therefore, having access to relevant information on chicken farmers has benefited farmers to improve on chicken farming activities.

5.3.3 Group Cohesion and chicken farming

Relationships and interactions among members of a group is import for group's performance and help in achieving set goals. Members in all groups need to be recognized and appreciated regardless of their minimal efforts. During meetings, it is important to be aware of others and respect their opinions. Unity and working together as women in groups contribute to the success of the group. In addition, satisfaction of members enables many to stay and invest in group's activities. Women who join group expect benefits in return. Therefore, if the group fail to meet members' expectation, many will exit. Moreover, members are called upon to actively participate in group's activities. Each member should be aware of duties and responsibilities assigned to them. Teamwork is also important for groups to be sustainable.

.5.4 Recommendations

Small Scale women chicken farmers should join groups for them to benefit in terms of high bargaining power, pooling resources together and other important benefits that accrue from being a member of a registered and recognized farmer group.

Group leaders should ensure members access training on chicken management practices. Areas of focus should include disease control, feeding and hygiene.

Communication among group members is key in the production performance. Group members should be able to pass information and ideas freely among themselves. These can contribute to disease control, good hygiene, market access among another benefits gained from socializing. Cheap, easy to access and quick mode of communication should be embraced to encourage frequency of sharing information.

Groups should embrace unity among members. Group members are able to access inputs at a cheaper price when they purchase collectively. In addition, it's easy to access market and influence the price of products when group members sell their products collectively. To access veterinary services, trainings and other benefits from the government, groups should remain active and beneficial to members as the government channels help to the community through groups.

5.5 Limitations of the Study and suggestions for further research

Since the study employed mixed methods, in-depth findings from qualitative data are limited to study population and area. Therefore, external validity is limited. Findings are also limited to women farmers in groups. However, some of the variables of group dynamics can be generalized to entire population of chicken farmer groups in Makueni and beyond.

Further research can be conducted as suggested below:

1. Influence of women group in social and community development in Makueni county.

REFERENCES

Abdisa, T., & Tagesu, T. (2017). Review on Newcastle disease of poultry and its public health importance. *J. Vet. Sci. Technol*, *8*(441), 2.

Adisa, B. O., & Akinkunmi, J. A. (2012). Assessing participation of women in poultry production as a sustainable livelihood Choice in Oyo State, Nigeria. *Int. J. Plant Anim. Environ. Sci*, *2*, 73-82.

Aşçı, M. S., Çemberci, M., Civelek, M. E., & Günel, D. (2015). Groups and their effects in organizations. *European Scientific Journal November*.

Asrar-ul-Haq, M., & Kuchinke, K. P. (2016). Impact of leadership styles on employees' attitude towards their leader and performance: Empirical evidence from Pakistani banks. *Future Business Journal*, *2*(1), 54-64.

Ayala, A. J., Hernandez, S. M., Olivier, T. L., Welch, C. N., Dimitrov, K. M., Gorauchuk, I. V., ... & Miller, P. J. (2019).

Experimental Infection and Transmission of Newcastle Disease Vaccine Virus in Four Wild Passerines. *Avian Diseases*.

Bell, D. E., & Milder, B. M. (2008). Alliance for a green revolution in Africa (AGRA).

Burlingame, G. M., McClendon, D. T., & Alonso, J. (2011). Cohesion in group therapy. *Psychotherapy*, *48*(1), 34.

Bussmann, U. (2014). *Group dynamics: The nature of groups as well as dynamics of informal groups and dysfunctions*. Anchor Academic Publishing (aap_verlag).

Carnabuci, G., Emery, C., & Brinberg, D. (2018). Emergent leadership structures in informal groups: A dynamic, cognitively informed network model. *Organization Science*, *29*(1), 118-133.

Chemin, M. (2018). Informal groups and health insurance take-up evidence from a field experiment. *World Development*, *101*, 54-72.

Collier, P., & Dercon, S. (2014). African agriculture in 50 years: smallholders in a rapidly changing world? *World development*, *63*, 92-101.

County Government of Makueni (2017). *Empowerment of Groups for Socio Economic Transformation: A report on Groups Mapping.* Nairobi, Kenya.

De Hoogh, A. H., Greer, L. L., & Den Hartog, D. N. (2015). Diabolical dictators or capable commanders? An investigation of the differential effects of autocratic leadership on team performance. *The Leadership Quarterly*, *26*(5), 687-701.

Dugas, D. (2017). Group dynamics and individual roles: A differentiated approach to social-emotional learning. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *90*(2), 41-47.

Effron, D. A., Kakkar, H., & Knowles, E. D. (2018). Group cohesion benefits individuals who express prejudice, but harms their group. *Journal of Experimental Social Psychology*, *79*, 239-251.

Enimu, S., Eyo, E. O., & Ajah, E. A. (2017). Determinants of loan repayment among agricultural microcredit finance group members in Delta state, Nigeria. *Financial Innovation*, *3*(1), 21.

Evans, C. R., & Dion, K. L. (2012). Group cohesion and performance: A meta-analysis. *Small Group Research*, *43*(6), 690-701.

FAO (2009b). The role of poultry in people's livelihoods in Uganda. Prepared by state, A.E., Burundi, P.B., Han, N. Rome: AHBL-Promoting Strategies for Prevention and Control of HPAI. http://www.fao.org/docrep/013/a1690e/a1690e00.pdf. Accessed 6/10/2013.

Food and Agriculture Organisation (FAO). 2011. Women – Key to Food Security 2010-2011. [Online] Available at: http://www.fao.org/docrep/014/am719e/am719e00.pdf. (Accessed on 29/01/2014).

Forsyth, D. R. (2018). *Group dynamics*. Cengage Learning.

Frankel, A., & Jones, R. (2019). What leadership styles should senior nurses develop? *Hospital*, *6*, 08.

Franz, B., Leicht, R., Molenaar, K., & Messner, J. (2016). Impact of team integration and group cohesion on project delivery performance. *Journal of Construction Engineering and Management*, *143*(1), 04016088.

French, D. G., Bloksberg, L. M., Mogulof, M. B., & Stern, W. F. (1964). Homans' Theory of the Human Group: Applications to Problems of Administration, Policy, and Staff Training In Group Service Agencies. In *Journal of Jewish Communal Service: National Conference of Jewish Communal Service* (pp. 379-395).

Friend, T. H., Jennings, S. J., & Levine, W. C. (2017). Communication patterns in the perioperative environment during epic electronic health record system implementation. *Journal of medical systems*, *41*(2), 22.

Gibbs, A. L., & Clontz, N. S. (2017). *Factors That Affect Group Work: Group Cohesion and Therapeutic Alliance in Substance Abuse Treatment and Personal Growth Groups* (Doctoral dissertation, Brenau University).

Grenness, C., Hickson, L., Laplante-Lévesque, A., Meyer, C., & Davidson, B. (2015). Communication patterns in audiologic rehabilitation history-taking: Audiologists, patients, and their companions. *Ear and Hearing*, *36*(2), 191-204.

Guetzkow, H., & Simon, H. A. (1955). The impact of certain communication nets upon organization and performance in task-oriented groups. *Management science, 1*(3-4), 233-250.

Holten, A. L., & Brenner, S. O. (2015). Leadership style and the process of organizational change. *Leadership & Organization Development Journal*, *36*(1), 2-16.

Honeck, R. P., Voegtle, K., Dorfmueller, M. A., & Hoffman, R. R. (2018). Proverbs, meaning, and group structure. In *Cognition and figurative language* (pp. 127-162). Routledge.

Huddy, L. (2015). Group identity and political cohesion. *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*, 1-14.

Jones, A. (2019). The Tuckman's model implementation, effect, and analysis & the new development of jones LSI model on a small group. *Journal of Management (JOM), 6*(4).

Keister, L. A. (2008). Engineering growth: Business group structure and firm performance in China's transition economy. *American journal of sociology, 104*(2), 404-440.

Kelly L. Wester and Kelly King (*2018*) Family Communication Patterns and the Mediating Role of Communication Competence and Alexithymia in Relation to Nonsuicidal Self-Injury. Journal of Mental Health Counseling: July 2018, Vol. 40, No. 3, pp. 226-239.

Khasnabis, C., Motsch, K. H., Achu, K., Al Jubah, K., Brodtkorb, S., Chervin, P., ... & Goerdt, A. (2010). CBR and mental health. In *Community-Based Rehabilitation: CBR Guidelines*. World Health Organization.

Kiweewa, J. M., Gilbride, D., Luke, M., & Clingerman, T. (2018). Tracking growth factors in experiential training groups through Tuckman's conceptual model. *The Journal for Specialists in Group Work*, *43*(3), 274-296.

Klonek, F. E., Quera, V., Burba, M., & Kauffeld, S. (2016). Group interactions and time: Using sequential analysis to study group dynamics in project meetings. *Group Dynamics: Theory, Research, and Practice*, *20*(3), 209.

Kruijssen, F., K. Menno, and A. Giuliani. 2009. "Collective Action for Small-Scale Producers of Agricultural Biodiversity." Food Policy 34 (1): 46–52.

Lange, C., Costley, J., & Han, S. L. (2016). Informal cooperative learning in small groups: The effect of scaffolding on participation. *Issues in Educational Research*, *26*(2), 260.

Levi, D. (2015). *Group dynamics for teams*. Sage Publications.

Lin, C. H., & Shih, J. L. (2018). Analysing Group Dynamics of a Digital Game-based Adventure Education Course. *Journal of Educational Technology & Society*, *21*(4), 51-63.

Lobb, E. A., Kristjanson, L. J., Aoun, S. M., Monterosso, L., Halkett, G. K., & Davies, A. (2010). Predictors of complicated grief: A systematic review of empirical studies. *Death studies*, *34*(8), 673-698.

Lyon, L. A., & Green, E. (2018). Informal women's coding groups. In *2018 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)* (pp. i-i). IEEE.

March, K. S. (2019). *Women's Informal Associations in Developing Countries: catalysts for change?* Routledge.

Matthews, W. K., & Kitsantas, A. (2016). Group cohesion, motivational climate, and collective efficacy beliefs in community college and university bands. *Journal of Band Research*, *51*(2), 1.

Medina, L., Jonelis, M. A. W., & Cangul, M. (2017). *The informal economy in Sub-Saharan Africa: Size and determinants*. International Monetary Fund.

Miller, P. J., & Koch, G. (2013). Newcastle disease. *Diseases of poultry*, *13*, 89-138.

Naveenan, R. N., & Kumar, B. R. (2018). Impact of Group Dynamics on Team. *American International Journal of Social Science Research*, *2*(2), 16-23.

Nduthu, P. W. (2015). Social-economics influence on indigenous poultry production project in Kenya. A case of Machakos indigenous poultry.

Njiiru, M. (2010). Usage of Social Networking Sites and its Effects on Communication Patterns of College Students. *Kenya (Research Project)*.

Nkala, P., & Barbara, M. (2014). An Assessment of the effects of informal groups on employee performance: A case of High Schools in Bulawayo Province. *Journal Of Humanities And Social Science (IOSR-JHSS) Volume 19, Issue 7, Ver. I (July. 2014), PP 106-112*

Nollet, J., Beaulieu, M., & Fabbe-Costes, N. (2017). The impact of performance measurement on purchasing group dynamics: The Canadian experience. *Journal of Purchasing and Supply Management*, *23*(1), 17-27.

Nosenzo, D., Quercia, S., & Sefton, M. (2015). Cooperation in small groups: The effect of group size. *Experimental Economics*, *18*(1), 4-14.

Penunia, E. A. (2011). The role of farmers' organizations in empowering and promoting the leadership of rural women. *Accra, Ghana: UN Women, FAO, IFAD and WFP*.

Pepper, M. (2018). Ethnic Minority Women, Diversity, and Informal Participation in Peacebuilding in Myanmar. *Journal of Peacebuilding & Development*, *13*(2), 61-75.

Pottie-Sherman, Y., & Wilkes, R. (2017). Does size really matter? On the relationship between immigrant group size and anti-immigrant prejudice. *International Migration Review*, *51*(1), 218-250.

Rwelamira, J. (2015, October). Strengthening farmer's organizations and civil society organizations. In *Paper for Feeding Africa Conference*.

Saleem, H. (2015). The impact of leadership styles on job satisfaction and mediating role of perceived organizational politics. *Procedia-Social and Behavioral Sciences*, *172*, 563-569.

Schrodt, P., & Shimkowski, J. R. (2017). Family communication patterns and perceptions of coparental communication. *Communication Reports*, *30*(1), 39-50.

Simango, Patience Masimba. "An assessment of women's participation in agricultural production: a case study of Marange Irrigation Scheme in Zimbabwe." (2015).

Singh, D. & Vinay, D. 2013. Gender Participation in Indian Agriculture: An Ergonomic Evaluation of Occupational Hazard of Farm and Allied Activities. International Journal of Agriculture, 6 (1):157-1681.

Sonam T, Martwanna N (2012). Performance of smallholder dairy farmers' groups in the East and West central regions of Bhutan: Members' perspective. J. Agric. Ext. Rural Dev. 4(1):23-29.

Stavropoulou, M., Holmes, R., & Jones, N. (2017). Harnessing informal institutions to strengthen social protection for the rural poor. *Global food security*, *12*, 73-79.

Steward, M., Vipond, I. B., Millar, N. S., & Emmerson, P. T. (1993). RNA editing in Newcastle disease virus. *Journal of General Virology*, *74*(12), 2539-2547.

Teles, F. (2015). The distinctiveness of democratic political leadership. *Political Studies Review*, *13*(1), 22-36.

Thibaut, J. W. (2017). *The social psychology of groups*. Routledge.

Trincheria, J., & Otterpohl, R. (2018). Towards a universal optimization of the performance of sand storage dams in arid and semi-arid areas by systematically minimizing vulnerability to siltation: A case study in Makueni, Kenya. *International Journal of Sediment Research*, *33*(3), 221-233.

Trujillo, E. B., Dixon, S. W., Claghorn, K., Levin, R. M., Mills, J. B., & Spees, C. K. (2018). Closing the Gap in Nutrition Care at Outpatient Cancer Centers: Ongoing Initiatives of the Oncology Nutrition Dietetic Practice Group. *Journal of the Academy of Nutrition and Dietetics*, *118*(4), 749-760.

Turner, J. C. (2010). Social categorization and the self-concept: A social cognitive theory of group behavior.

Van den Bos, W., Crone, E., & Güroğlu, B. (2017). Peer Group Cohesion and Prosocial Behavior.

Verba, S. (2015). *Small groups and political behavior: A study of leadership* (Vol. 1289). Princeton University Press.

Waller, M. J., Okhuysen, G. A., & Saghafian, M. (2016). Conceptualizing emergent states: A strategy to advance the study of group dynamics. *The Academy of Management Annals*, *10*(1), 561-598.

Yahaya, R., & Ebrahim, F. (2016). Leadership styles and organizational commitment: literature review. *Journal of Management Development*, *35*(2), 190-216.

Zomeño, C., Birolo, M., Zuffellato, A., Xiccato, G., & Trocino, A. (2017). Aggressiveness in group-housed rabbit does: Influence of group size and pen characteristics. *Applied animal behaviour science*, *194*, 79-85.

APPENDICES

APPENDIX I: CONSENT FORM

INFLUENCE OF GROUP DYNAMICS ON CHICKEN FARMING PRACTICES AMONG INDIVIDUAL WOMEN IN MAKUENI COUNTY, KENYA.

Hello, my name is Barongo Nyaboke Lydiah, a master's student from The Cooperative University of Kenya. I am here to collect data for my master's thesis. You have been chosen to participate in a study about influence of group dynamics on chicken farming practices among individual women in Makueni county, Kenya. This will take 30 minutes for your time (For Survey questionnaire)/ 1-2 hours for your time (For Focus Group discussion)/ 30 minutes (For Key Informant Interviews). If you accept to be in this study, I will ask you a set of questions that I may record on paper or/and digitally audio-record, and you will be expected to respond to them.

There are no predictable benefits or risks to your participation in this study. No financial token to be given to you. If you have questions or concerns during the interview, please stop me and ask. Confidentiality of your information will be highly observed, but I cannot guarantee absolute confidentiality because, at one point, I will have to share the information that I get from the field with my supervisor. We will link your response to you initially by assigning special participant identity to the scripts, but this link will be removed later in order for anonymity. Your participation in this study is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop. May I continue? Yes____ No____

I certify that I have consented the participant (code no.) _____

Participant name: _____Signature_____

Researchers Name: _____ Signature_____

Date: _____

Appendix II: Research Questionnaire

This research questionnaire is structured to obtain information on group dynamics chicken farming practices among individual women in Makueni County. The information will be used only for academic and research purposes. Kindly respond objectively to the best of your knowledge.

NB: Do not provide any personal identification details.

SECTION I: DEMOGRAPHIC INFORMATION

1.Name of sub-county …….....

2.Please indicate your age.....

What is your Gender? [1] Male [2] Female

3.Are you a member of any livestock group? [1] Yes [2] No

Name the group(s) where you are a member.....

4. What is your highest level of education?

[1] Post Graduate [2] Undergraduate

[3] Diploma [4] Certificate

[5] Secondary school [6] Primary school

[7] Did not attend any formal education.

5. What is your position in the group?

[1] Chairperson [2] Treasurer

[3] Secretary [4] Member

6. For how long have you been a member in this group? .....

7. Do you keep chicken?

[1] Yes [2] No

8. How long have you been involved in chicken farming?.....

9. If you keep chicken, what do you keep them for?

[1] Home consumption [2]] Commercial reasons

[3] Home consumption and commercial reasons [4] Others (Specify)……..

10.There are 3 main types of chicken nowadays. Local types which have been kept by farmers for many years, the local types that have been improved to produce more eggs and grow faster and the hybrid commercial types popularly known as “kuku wa Gredi”. What type(s) of chicken do you keep? (Indicate all that apply)

[1] Local types [2] Improved local types

[3] Hybrid commercial (kuku wa Gredi) [4] Others (specify)……

SECTION II: GROUP DYNAMICS

GROUP STRUCTURE

Group leadership

11. Do your leaders organize trainings for capacity building?

[1] Yes [2] No

12. IF YES, select where you received information/training (Indicate all that apply)

[1] Field days	[2] Agricultural shows
[3] Farmer demonstrations	[4] Workshops
[5] Others (Specify) ……...	

13. Do you think the trainings you have so far received helped improve your chicken farming operations?

[1] Yes [2] No

14. IF YES, on which areas has training been more relevant? (Tick all that apply)

[1] Chicken feeds [2] Disease control/ vaccination

[3] Waste handling [4] Marketing [5] Others (specify) ……...

15.IF NO, what is the reason? (Tick all that apply)

[1] Information /training not relevant

[2] Information is not practical

[3] Information too difficult to understand

[4] Others (specify)…….

Group size

16. How did you join the group?

[1] Self-organization [2] Proposed by government

[3] Coerced by NGOs [4] *Others specify*.....

17. Mention any four reasons that made you join the group

[1] To search for market [2] To increase my bargaining power

[3] To sell collectively [4] Access inputs

[5] *Others specify*.....

18.Are you a member of more than one livestock keeping group?

[1] Yes [2] No

19. If YES, please tick the livestock groups you are involved in and indicate the number of members in each group

[1] chicken farming group [2] Dairy cattle keeping group

[3] goat keeping [4] fish keeping,

[5] rabbit rearing

20.What benefits do you derive from the membership size of the group? (Tick all that apply)

[1] Easy/fast communication among members

[2] More access to government/ NGO farming interventions (i.e. training).

[3] Better coordination of group activities

[4] Better management of my chicken operations due to extensive source of information.

[5] Wider opportunity for networking on chicken rearing matters and hence increased flock.

[6] High purchasing power of chicken farming inputs

[7] High bargaining power

[8] Knowledge sharing of chicken farming skills

[9] Others, *specify*.....

Group norms

21.Does your team have rules and regulations(By-Laws) that individual women are expected to live up to?

[1] Yes [2] No

22.IF YES, how do the rules that you are required to adhere to affect your chicken farming? (*Please tick where appropriate).*

[1] Frequent Chicken vaccination [2] Collective selling of produce

[3] Regular attendance to training [4] Use of high quality chicken feeds

[5] Rely only on information given by the group leaders, veterinary officers and extension officers, government officers

23.Are members in the group regularly reminded of the group norms?

[1] Yes [2] No

24. If Yes, is a breach followed by sanctions of any kind?

[1] Yes [2] No

25. How do such functions affect your chicken farming operations?

[1] .....

[2] .....

[3] .....

[4] .....

[5] .....

26. How frequent do you hold group meetings?

[1] Weekly [2] Fortnightly

[3] Monthly [4] others, (specify) …….....

27. How does the frequency of meeting affect your chicken farming operations?

[1] .....

[2] .....

[3] .....

[4] .....

[5] .....

COMMUNICATION PATTERN

Ways of communication

28. Do members of the group always share available information, that leads to superior decision making

[1] Yes [2] No

29. IF YES, what kind of information do you share among group members? (Please tick where appropriate)

[1] Right feed management

[2] Chicken diseases and control measures

[3] Market information on chicken produce

[4] Waste handling techniques

[5] proper water management

[6] Proficient brooding management.

[7] Others, (specify)…….……

30. How has such information helped improve your chicken management operations?

[1] .....

[2] .....

[3] .....

[4] .....

[5] .....

31. Are there instances that members selfishly withhold information that could help in decision making among individual women chicken farmers?

[1] Yes [2] No

32. Which communication channels does your group leaders use to share information in relation to chicken farming? (please tick where appropriate)

[1] Interpersonal communication (communication with extension workers, lead farmer concept, demonstration blocks)

[2] Electronic media (Radio)

[3] Organised group discussions

[4] Print media (leaflets, newspapers, pamphlets, folders, magazines)

[5] Farm home visits.

[6] Method demonstration

[7] Exhibition (photographs, charts, posters, actual specimen)

[8] Campaigns (Vaccination and prevention of chicken diseases)

[9] Mobile phones

Mode of communication

33.Do you agree/disagree with the following statements on modes of communication regarding chicken farming *(Tick appropriately)*

Statement	Yes	No
Our group has a WhatsApp group on which all communications are posted		
Most information about the group is passed by word of mouth during firm visits		
We hold consultative meetings to enlighten members on new developments		
Most information is shared through mobile phone calls and messages		
Most information is shared through radio		

Frequency of communication

34. Do you agree/disagree on the following statements on information sharing in relation to chicken farming *(Tick appropriately)*

Statement	Yes	No
Our leaders share updates about chicken farming during group meetings		
Most information shared to members happens when need arises		
There is regular communication from group leadership on social media		
Members rarely share information amongst themselves		
Frequency of information especially on chicken farming has helped improve chicken management and so increased the number of flock and minimized deaths		

GROUP COHESION

Interpersonal attraction

35. How does being with other group members make you feel?

[1] Feel alone [2] Hardly noticed by others

[3] I am aware of others [4] Others are aware of me

36. Do you agree/disagree on the following statements on the elements of group interpersonal attraction. *(Tick where appropriate)*

Statement	Agree	Disagree
In our livestock group a significant number of individual women are involved in chicken farming.		
We all come from the same locality		
The women involved in chicken farming employ common techniques in chicken farming		
Those involved in chicken farming collectively sell chicken produce		
Those involved in chicken farming individually sell their chicken produce		
Those involved in chicken farming purchase chicken farming inputs collectively		
Those involved in chicken farming purchase chicken farming inputs individually		
Those involved in chicken farming vaccinate against chicken diseases collectively		
Those involved in chicken farming vaccinate against chicken diseases individually		

Members' satisfaction

37. Do you think you have benefited from joining this group?

[1] Yes [2] No

38. If yes, how have you benefited and please rank them. *(1=very low, 2=low, 3=moderate, 4=strong, 5=very strong)*

Benefits	1	2	3	4	5
Access to inputs					
Access to extension services					
Access to training on chicken farming skills					
Access to training on chicken waste handling					
Access to training on chicken disease and control measures					
Increased contact with buyers					
Increased income					

39 In recent times, has any member left the group?

[1] Yes [2] No

40. IF YES, how many and why? ……..……..

(Reasons)…….

41. In recent times, has your group had any request from people who want to join?

[1] Yes [2] No

42. IF YES, how many members have joined the group in recent times

……

Participation in group activities

43. What activities have you been involved in since joining the group and frequency for each.

Activity	WEEK	FQ	MONTH	FQ	ANNUALLY	FQ
Group selling						
Training						
Purchase of inputs e.g. chicken fed						
Market search for products						
Vaccinate chicken						
Building chicken house						

44. To what extent do you agree on the following statements on the elements of participation in group activities? Where; 1=Strongly Disagree, 2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

Statement	1	2	3	4	5
My role in the group is clearly cut out for me					
I am required to actively participate in group activities					
I work well with other group members (teamwork)					
Conflicts between group members are solved early by group leaders before they escalate					

GROUPS AND CHICKEN FARMING ACTIVITIES

Management of operations

Disease control

45. Did you have chicken before joining the group?

[1] Yes [2] No

46. List the four main challenges you experience in chicken farming (starting with the most severe)

[1] .....

[2] .....

[3] .....

[4] .....

47. What diseases affect chicken in your location and which is the most dangerous?

[1] .....

[2] .....

[3] .....

[4] .....

48. IF NEWCASTLE *(is listed in question 56 above)*, what did you do when there was an outbreak of Newcastle before joining the group? *(Tick the most appropriate)*

[1] Vaccinate chicken

[2] Did not vaccinate the chicken

[3] Sell off the chicken

[4] Slaughter and consume

[5] Treat chicken with drugs

49. If (1), how often did you vaccinate in a year?

[1] Once

[2] Twice

[3] Thrice

[4] Occasionally, (specify the frequency) ……

50. List the main challenges you encounter in accessing and administering the Newcastle disease vaccine

……

51. IF DID NOT VACCINATE, why didn't you vaccinate your chicken *(Tick the most appropriate)*

[1] I don't think it's important to vaccinate

[2] I don't know how to use the vaccine

[3] I don't think vaccines are effective

[4] I have no knowledge on vaccines

[5] Vaccines are not readily available

[6] Others, (Specify)…….....……

52.What do you do to your chicken when there is an outbreak of Newcastle disease? *(Tick the most appropriate)*

[1] Vaccinate chicken

[2] Do not vaccinate the chicken

[3] Sell off the chicken

[4] Slaughter and consume

[5] Treat chicken with drugs

53. If Vaccinate, how often do you vaccinate in a year?

[1] Once

[2] Twice

[3] Thrice

[4] Occasionally, (specify the frequency) ……

54. IF DOES NOT VACCINATE, why don't you vaccinate your chicken *(Tick the most appropriate)*

[1] I don't think it's important to vaccinate

[2] I don't know how to use the vaccine

[3] I don't think vaccines are effective

[4] I have no knowledge on vaccines

[5] Vaccines are not readily available

[6] Others, (Specify)…… ……

55. Please indicate whether you agree/disagree with the following statements on chicken farming.

Statement	Agree	Disagree
I always join other group members to collectively vaccinate our flock against such diseases as Newcastle disease		
I always get information on outbreak of diseases through group members and they communicate the symptoms quickly to be on the lookout.		
Through the help of the group the veterinary officer regularly comes to inspect and examine my chicken for any diseases		
Our group collaborate with county and national governments to control and eradicate chicken diseases		

Waste handling

56. Do you use chicken manure in crop cultivation?

[1] Yes [2] No

57. If YES, how much of fertilizer is saved from using chicken manure.....kg.

58. Do you use feathers of the birds?

[1] Yes [2] No

59. If YES, for what purpose are those feathers used?

.....

60.Please indicate whether you agree/ disagree with the following statements regarding the benefits gained from the group on waste handling on chicken farming.

Statement	AGREE	DISAGREE
Through the group I have been trained on how to maintain hygiene in the chicken house		
Group leaders and extension officers regularly inspect my chicken house to ensure that chicken are reared in hygienic conditions		
We are encouraged as farmers to regularly clean their chicken houses		
I am always encouraged to use droppings as manure in their farms		
I have received training on waste management through the group		

Flock size

61. Number of chicken before and after joining the group

Type of bird	Before joining the group	After joining the group
Number of cocks		
Number of hens		
Number of chicks		

62. How do you get your chicks?

[1] From the flock through traditional hatching

[2] Artificial hatching

[3] Buy chicks from other farmers

[4] Donations from non-governmental organizations

[5] Donation from government organizations

63. At what age are the chicken usually disposed off? .....

Egg production performance

64. How has group membership increased your egg production performance?

[1] Yes [2] No

65.Number of eggs before and after joining the group

Egg production	Before joining the group	After joining the group
Number of eggs		

66. Please indicate the number of eggs produced per week during the following seasons

	Summer (Jan-Feb, Hot dry season and high temperatures)	Spring (March-May, long rains, temperature max 26^0C	Winter (June-Oct, cooler dry season, temperature max 23^0C	Autumn (Nov-Dec, short rains, hot temperature max 25^0C	Total per Annum
Egg production per week					

67. Please indicate the number egg set for hatching per hen during the following seasons

	Summer (Jan-Feb, Hot dry season and high temperatures)	Spring (March-May, long rains, temperature max 26^0C	Winter (June-Oct, cooler dry season, temperature max 23^0C	Autumn (Nov-Dec, short rains, hot temperature max 25^0C	Total per Annum
Number of egg set for hatching per hen					

68. What percentage of eggs incubated hatch to chicks?

	Summer (Jan-Feb, Hot dry season and high temperatures)	Spring (March-May, long rains, temperature max 26^0C	Winter (June- Oct, cooler dry season, temperature max 23^0C	Autumn (Nov-Dec, short rains, hot temperature max 25^0C	Total per Annum
Eggs incubated					
Eggs hatched					
Percentage					

THANK YOU FOR YOUR TIME

Appendix III: Key Informant Interview guide

Introduction

This interview aims to identify influence of group dynamics on chicken farming practices among individual women. It will focus on thematic areas that are critical to chicken farming and groups. That is: Challenges and Benefits.

I want to thank you for taking the time to meet with me today. My name is _____ and I would like to talk to you about influence of group dynamics on chicken farming among individual women. The interview should take less than an hour. I will record the session because I don't want to miss any of your comments. Although I will be taking some notes during the session, I can't possibly write fast enough to get it all down. Because we're recording, please be sure to speak up so that we don't miss your comments. All responses will be kept confidential and will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent. Remember, you don't have to talk about anything you don't want to and you may end the interview at any time. Are there any questions about what I have just explained? Are you willing to participate in this interview?

Interviewee ……. Witness …….. Date ……

How do you ensure chicken farmers use and handle vaccines appropriately?

Does the county government offer training to groups in relation to chicken farming?

How does weather conditions affect chicken production in this area?

Explain the factors affecting chicken farming in this area

Identify the major diseases affecting chicken

THANK YOU FOR YOUR TIME

Appendix IV: Focused Group Discussion Guide

Consent

I want to thank you for taking the time to meet with me today. My name is _____ and I would like to talk to you about influence of group dynamics on chicken farming among women. The interview should take less than an hour. I will be taping the session because I don't want to miss any of your comments. Although I will be taking some notes during the session, I can't possibly write fast enough to get it all down. Because we're on tape, please be sure to speak up so that we don't miss your comments. All responses will be kept confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent. Remember, you don't have to talk about anything you don't want to and you may end the interview at any time. Are there any questions about what I have just explained? Are you willing to participate in this interview?

Interviewee ..... Witness ..... Date.....

_____ Legal guardian (if interviewee is under 18)

What benefits do you derive from being a member of your group that enhance your chicken farming operations?

Do you get any assistance from the government/non-governmental organizations in relation to chicken rearing?

What are the main challenges do you experience in chicken rearing?

What are the common diseases that affect chicken farming in this area?

What are some of the weather conditions that affect chicken production?

THANK YOU FOR YOUR TIME

Appendix v: Introductory Letter

Nyaboke Lydiah Barongo,

The Co-operative University of Kenya,

Dear Sir/ Madam,

RE: REQUEST FOR RESEARCH PARTICIPATION

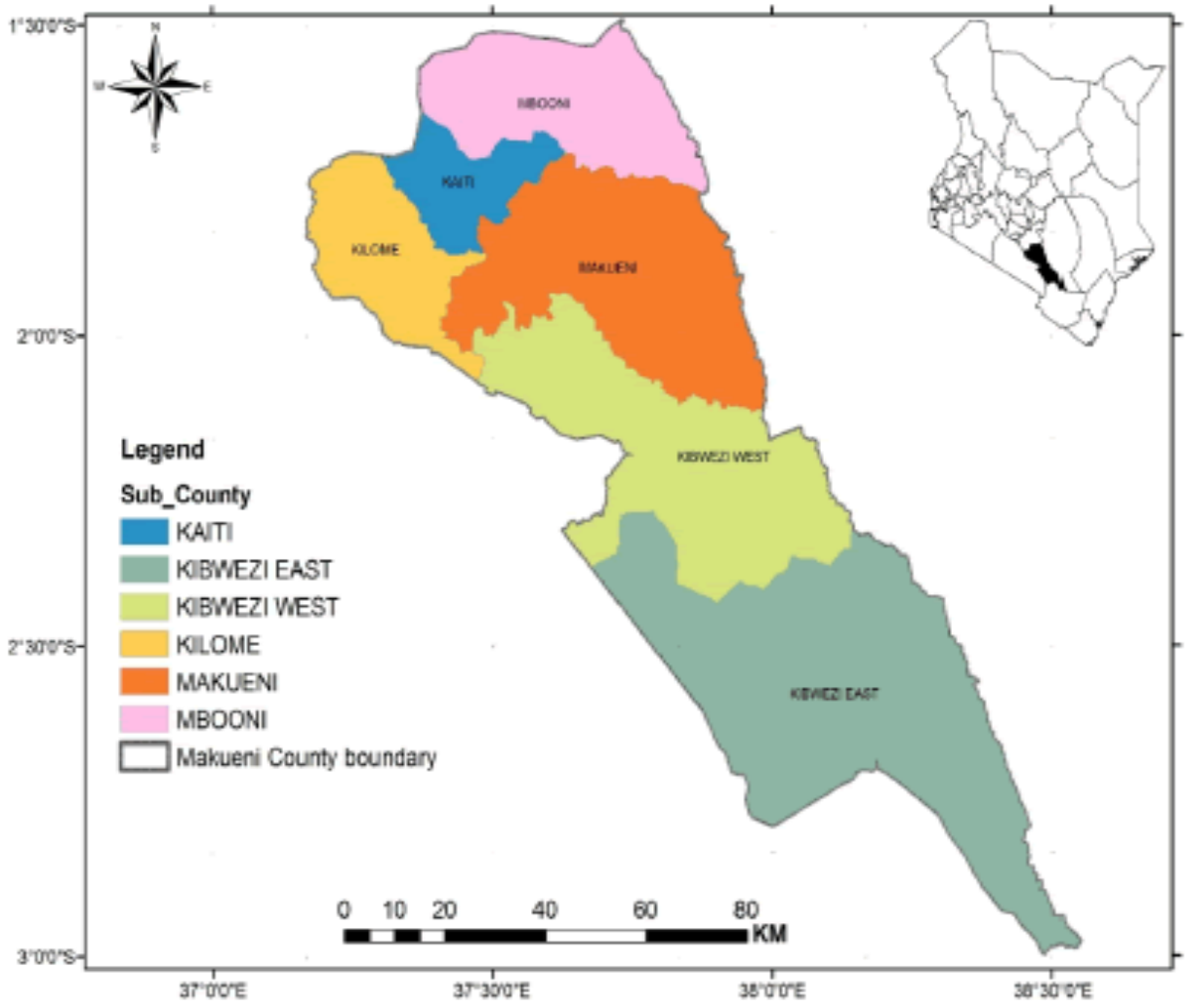
I am a postgraduate student at The Co-operative University of Kenya undertaking a master's degree in Cooperative Management. I am currently carrying out a research on INFLUENCE OF GROUP DYNAMICS ON CHICKEN FARMING PRACTICES AMONG INDIVIDUAL WOMEN IN MAKUENI COUNTY as part of my course requirement. I therefore invite you to participate in the study by responding to the attached questionnaire.

Your identity will be treated with confidentiality and the information provided will be used for purpose of the study only. Kindly read each question carefully and give you most objective response my making a tick in the provided area. Look forward for your co-operation.

Yours Faithfully,

Nyaboke Lydia Barongo

Appendix VI: Map of Makueni County



Map of Makueni County (Google Maps Outlay @2019).

Appendix VII: Research Budget

NO	ITEM	DESCRIPTION	QNTY	RATE	TOTAL
A) TOOLS AND MATERIALS					
1	Biro Pens		15	20.00	300.00
2	Pencils	Steindler Pencil	15	30.00	450.00
3	Foolscaps	Ream	3	500.00	1,500.00
4	Photocopiers	Ream	6	500.00	3,000.00
5	Box File		3	500.00	1,500.00
6	Clip board		3	200.00	600.00
7	Paper Punch		1	300.00	300.00
8	Stapler		1	400.00	400.00
B) RESEARCH SERVICES					
9	Training research assistants	Monthly	2	10,000.00	20,000.00
10	Payment to Research assistants	Monthly	2	30,000.000	60,000.00
10	Internet Services	Monthly	3	5,000.00	15,000.00
11	Telephone airtime	Monthly	3	6,000.00	18,000.00
12	Photocopying cost	Monthly	3	2,500.00	7,500.00
13	Audio recorders	-	3	7,000	21,000.00
14	Printing cost	Monthly	3	3,000.00	9,000.00
15	FGD-	4 per sub county9	6	@500.00	36,000.00

	Compensation	4 sub counties)	Discussants		
16	KII-Compensation	3per sub county(4 sub counties)	1	@500.00	6,000.00
17	Transport				40,000.00
D) COPY OF PROPOSAL AND FINAL RESEARCH					
18	Data analysis				30,000.00
16	Printing	Copy	12	1,000.00	12,000.00
17	Binding	Copy	12	500.00	6,000.00
	GRAND TOTAL COST				288,000.00