

**EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE
IN DEDER DISTRICT: ETHIOPIA.**

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DECLARATION

I declare that “**EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA**” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. This work has not been submitted before for any other degree at this or any other institution.

SIGNATURE

DATE



O. Sagne

June 2022

DEDICATION

*In loving memory of my father, Professor
Challi Jira.*

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First of all, I am grateful to the Almighty God for giving me health, opportunity and strength to complete this study.

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EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT, ETHIOPIA

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ABSTRACT

Scabies is an ectoparasitic, highly contagious skin disease caused by an infestation of the skin by the human itch mite, and the major cause of morbidity and disease burden in developing countries. In 2017, the WHO recognised scabies as a neglected tropical disease. The aim of this study was to evaluate the current management approach to scabies at primary health care in the Deder district in order to develop a strategy that enhances the management of scabies.

The study objectives were designed to explore the current knowledge and experiences of health care users on the management of scabies provided at primary health care facilities. Furthermore, the study sought to evaluate the current management of scabies, describing in the process the enablers and barriers thereto. This study also explores and describes the needs with regard to improving the management of scabies within health care providers' views and experiences. Ultimately, the study designs and proffers a strategy that would contribute toward enhancing the management of scabies in primary health care.

A multiphase qualitative research design was used to address the research objectives. Data were collected using focus group discussion, and in-depth face-to-face interviews with 58 healthcare users and 18 healthcare providers respectively. Thematic analysis was performed on the verbatim transcriptions using Tesch's approach. Overall, thirteen themes emerged from the analysis of the data from phase one and phase two of the study.

The findings of the study identified that the knowledge of health care users on scabies, their management, prevention and control was limited, and healthcare users experienced different challenges regarding scabies and the management thereof. This study also verified that there are different difficulties in diagnosing and managing scabies and identified different challenges that need serious redress in improving the management of scabies in primary health care. These challenges contribute to low quality of health service with undesirable health outcomes.

Accordingly, after a review of diverse but related literature and the Ministry of Health policies, the researcher used the findings of the study to develop a strategy that enhances the management of scabies at the primary health care level. Programme managers working at different levels in the Ethiopian health system also validated the strategy developed here, and the researcher strongly recommends full utilization of the strategy to enhance the management of scabies at the primary health care level.

Keywords

Scabies, management, evaluation, health care users, health care providers, primary health care, strategy, programme managers, Ethiopia.

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List of Abbreviations

AHRI	Armauer Hansen Research Institute
ALERT	Africa Leprosy Rehabilitation and Training Center
CDC	Centre for Disease Control and Prevention
COVID	Corona virus Disease
CSA	Central Statistics Agency
DALY's	Disability-adjusted life-years
EHZHO	East Hararge Zonal Health Office
FGI	Focus Group Interview
FMOH	Federal Ministry of Health
GBD	Global Burden of Disease
HCP	Health Care Provider
HCU	Health Care User
IDSR	Integrated disease surveillance and response
IEC	Information Education and Communication
IOM	Institute of Medicine
IPSL	Integrated Pharmaceutical Logistic System
MDA	Mass Drug Administration
NGO	Non-Governmental Organization
NTDs	Neglected Tropical Diseases
OPD	Out Patient Department
PFSA	Pharmaceutical Fund and Supply Agency
PHC	Primary Health Care
RHB	Regional Health Bureau
SDG	Sustainable Development Goal
TOR	Terms of Reference
UNISA	University of South Africa
WASH	Water Sanitation and Hygiene
WHO	World Health Organisation

CHAPTER ONE

STUDY OVERVIEW AND ORIENTATION

1.1. INTRODUCTION

Globally, it is estimated that more than 200 million people are affected by scabies at any time (WHO 2020:1), although additional effort is required to establish the veracity of this evaluation. Scabies is endemic in many resource-poor tropics, with an estimated average prevalence of 5-10% in children. Prevalence estimates in recent scabies literature range from 0.2% to 71% (WHO 2019a: 1; Thomas, Christenson, Walker, Baby & Peterson 2017: 793). The burden of scabies infestation and its complications place a huge cost on health systems. In high-income economies, cases occur sporadically, but outbreaks in health care facilities and vulnerable communities in developing countries contribute to substantial economic costs of health services (WHO 2019a: 1).

1.2. BACKGROUND OF THE STUDY

The burden of disease is measured using the disability-adjusted life-years (DALY) metric, which typically combines mortality and morbidity components in the estimation. By assessing the epidemiology of disease on a global scale, the global burden of disease (GBD) informs health policy and identifies under-appreciated or neglected conditions like scabies (Karimkhani, Colombara, Drucker, Norton, Hay, Engelman, Steer, Whitfeld, Naghavi & Dellavalle 2017:1248). The DALY metric has broad clinical relevance and is a significant research priority because it measures both the prevalence and impact of diseases, allowing for comparisons between diseases. Scabies caused 0.2% of DALYs in all conditions studied globally by GBD 2015 (WHO 2019a: 1; Karimkhani et al 2017:1248).

In sub-Saharan Africa, a study conducted in Nigeria showed the prevalence of scabies among children under 5 years and school-going children is about 2.9% and 4.7% respectively. Among children with scabies infestation, about 66.7% sought at least one form of treatment; however, 75% of those seeking treatment used traditional methods like local herbs and creams (Sambo, Idris, Umar, & Olorukooba 2012:27). In another study undertaken in Cameroon, the prevalence of scabies was 17.8% among children and adolescents (Kouotou, Nansseu, Kouawa, & Zoung-Kanyi Bissek 2016:1).

In Ethiopia, a scabies epidemic occurs in many parts of the country, making this a public health problem affecting diverse geographic areas and populations. In one study conducted after an epidemic outbreak in Northern Ethiopia in the Amhara region, the prevalence is much larger and the range was much wider from the estimated 2% to 67%. The prevalence of scabies among children under 2 years, from 2 to 18 years and under 18 years was 45.9%, 48.1% and 18.6% respectively (Enbiale & Ayalew 2018:5).

In a study conducted in southern Ethiopia, the prevalence of scabies was about 11% among the population with an age range of eight months to 70 years and children of 5-14 years of age were the most affected at 65%. In the same study, most of the infected had shown signs of secondary infection attributable to scabies in Badewacho district (Jarso, Yusuf & Achamyelesh 2018:1). In another study in southern Ethiopia, the prevalence of scabies was 2.5% among the population with an age range of five to 65. From this study, the highest cases of about 51% were identified in children aged five to 14 years in the Kechabira district (Wochebo, Haji & Asnake 2019:3).

The information from the international disaster database indicates that more than 40 million people in Africa were affected by drought from 2015 to 2016. Following the 2015-2016 El-Nino event, which ravaged many countries around the world, Ethiopia experienced extreme drought and water scarcity across a large part of the country. Access to water for basic and personal hygiene is limited for many individuals, especially those in rural communities. Such lack of access to water increases the risk of exposure to infectious diseases such as scabies (Enbiale & Ayalew 2018:6). Currently, the southern and eastern part of Ethiopia continues to battle the impact of the current Horn of Africa drought, exacerbated by disease outbreaks in the form of scabies, large-scale loss of livelihood assets and displacement (OCHA 2019: 2). The recent report from the Federal Ministry of Health (FMOH) in Ethiopia shows that more than one million people were affected by scabies from five different regions of the country from July 2018 to January 2019 as obtained from the primary health care (PHC) facilities in the country (FMOH 2019:6).

The PHC unit is the most effective and sustainable point of health care delivery for communities (WHO 2019b:1). In this setting, the health problem is diagnosed early and prompt treatment is provided to prevent the development of complications that are expensive to treat. The disease burden affects communities in extreme ways across the health system.

1.3. STATEMENT OF THE PROBLEM

Scabies is an ectoparasitic and highly contagious skin disease caused by an infestation of the skin by the human itch mite. It is the major cause of morbidity and disease burden in developing countries. This disease affects both sexes of all ages; ethnic groups and socioeconomic levels but the most affected age groups are small children and the aged in resource-poor societies. This disease affects people who are exposed to scabies as well as to the secondary complications of the infestation (WHO2015:1). The problem of scabies infestation and the attendant complications astronomically raise the cost of the health care system (WHO 2019a:1).

Scabies was recently included in the WHO list of neglected tropical diseases (NTDs), in recognition of the disease burden caused by the mite *Sarcoptes scabiei*. Scabies exerts a significant economic burden on individuals, families, communities and health systems. The intense discomfort caused by the disease, the life-threatening complications of secondary bacterial infection, as well as the challenges and costs of correct diagnosis and appropriate treatment make the disease a public health concern. Inadequate knowledge about scabies by health professionals and the community can lead to mismanagement in combating the prevalence and spread of scabies.

According to clinical data and rapid assessment, the number of people affected by scabies keeps increasing and this has been aggravated by El Nino effects between 2015 and 2016 (FMOH 2019:6). According to the Oromia Regional Health Bureau, the public health emergency surveillance report, more than half a million scabies cases were reported. This significantly high number shows clinical cases are beyond sporadic and turning to be a public health concern affecting wide geographic areas and population of the region (ORHB 2019:8). From more than half a million cases reported in the Oromia region, 67% of cases were reported from East Hararge Zone

(ORHB 2019: 9). From the reported cases, 49% were reported from the Deder district. In the Deder district, scabies is one of the top ten diseases, accounting for 38% of all cases. It has therefore been reported as the main reason for visiting primary health care facilities (ORHB 2019: 9). Evidence from the East Hararge zone report shows 54% of the scabies cases are referred to the nearby hospital for dermatology examination (EHZHO 2019: 2). This particular disease distribution shows poor awareness within the community on the prevention and control of scabies. This is further complicated by other environmental factors and the

discernible gap in the management of the cases in the area (EHZHO 2019: 5). This finding was supported by the study conducted in North India, none of the participants knew that scabies can be prevented, and 93.5% did not know that scabies can also be treated (Rawat and Thakur 2020:597).

Despite increased efforts to understand the disease individually, recent studies remain scarce in the country regarding its management. The disease burden affects communities with the existing health system and may have lifelong effects on health outcomes when experienced in early life. Hence, there are no specifically allocated resources, formulated policies or developed strategies to deal with the problem; the current study aims to evaluate the current practices in a bid to develop strategies that would enhance the current management and control of scabies in Ethiopia.

1.4. CONCEPTUAL FRAMEWORK OF THE STUDY

Polit and Beck (2017:119), suggest that the overall conceptual foundation of a study is a theoretical framework. In this study, the ecological and Donabidian models were used to examine health services and assess the quality of care in clinical practice at primary health care levels in Ethiopia. The ecological model is a health framework that emphasises the associations and relationships between several factors affecting health (Maus & Satariano 2017: 24). This model allows the researcher to identify the interventions that could effectively address determinants of infection and the spread of scabies at all levels.

Donabidian model is a conceptual framework that provides scope to examine health services and evaluate the eminence of health care provision in clinical practice (Donabidian model [S.a.]:1). According to the Donabidian model (1988:1745), the health service is assessed in three categories such as structure, process and outcome. The structure is defined as the physical context or organisational setting in which service is delivered (Kajonius & Kazemi, 2016:700). The structure includes health policy, staff, health system, accessibility and availability of service. The process entails the actual service delivery, ranging from diagnosing, treating and educating the patient in the prevention and control of scabies. The outcome is constituted of the end result which include decreased morbidity and mortality, decreased secondary complications, increased patient satisfaction with the management of scabies and adequate patient knowledge on the prevention and control of scabies.

Donabidian recommends that a good structure increases the likeliness of a good process; a good process increases the likeliness of good outcomes (Donabidian 2002:46). As indicated

by Haj, Lamrini and Rais (2013: 27), the Donabidian Model was used as a multidimensional model for the quality of health care service in health institutions, and it is considered as a benchmark for evaluating health care service quality.

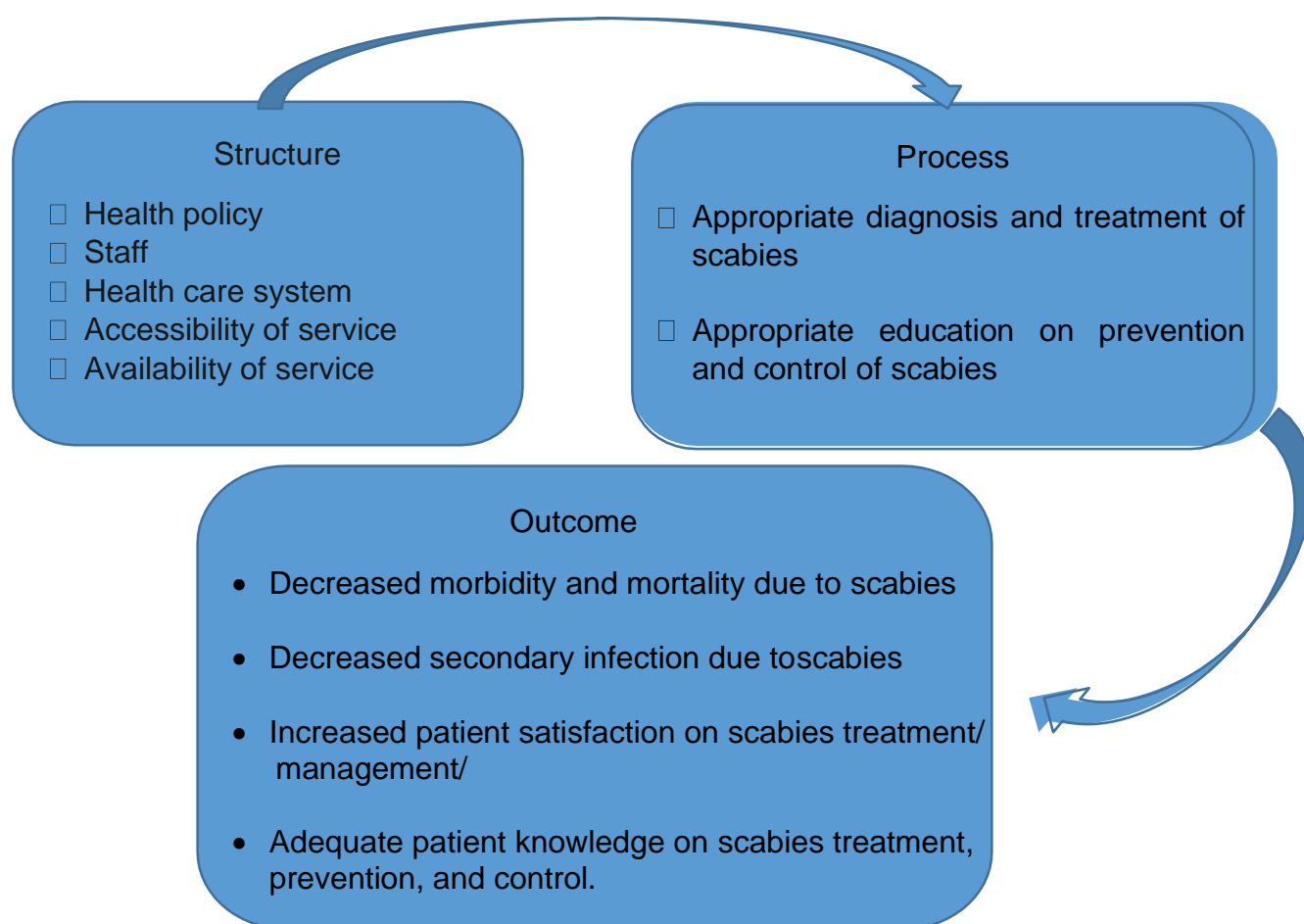


Figure 1.1: Conceptual Model adapted from Donabidian model (1988:169).

The model presented above was used in this study to assist the researcher in conceptualising the structures and the processes available in the Ethiopian health system for controlling and treating scabies. This allowed a full assessment of what processes were followed when the patient presents with scabies and how such patients were assisted in reflecting back on the outcomes of treating scabies.

1.5 DEFINITION OF TERMS AND OPERATIONAL DEFINITIONS

1.5.1 Definition of terms

Evaluation: This is a process of accountability and assessment of whether planned activities are achieved or not (Stanhope & Lancaster 2012:550). In this study, the evaluation is an assessment of how well the scabies management in Deder district is working.

Primary health care: This is a whole-of-society approach to health and well-being centred on the needs and preferences of individuals, families and communities. It addresses the broader elements of health and emphasises the comprehensive and interrelated aspects of physical, mental and social health and wellbeing (WHO, 2019b:1). In this study, primary health care refers to the actions taken by the community in seeking health care when they are infected with scabies.

Health care: These are the various services provided for the prevention or treatment of disease, illness, and injuries (*Medical Dictionary* 2019). In this study, health care refers to the treatment offered to the community members suffering from scabies.

Health care users: These are individuals and communities who consume health care services available to them (Baim-lance, Tietz, Schlefer & Agins 2016: 254). In this study, health care users are the individuals who seek medical services for the treatment of scabies.

Strategies: These constitute an overall plan or set of plans intended to achieve something, especially over a long period (*Collin English Dictionary* 2019). In this study, strategies are the measures taken to control and treat patients suffering from scabies.

Health Care professional: This refers to a provider of health care services licenced by the government in which they practise (*Law Insider Dictionary* 2019, "health care professional"). In this study, health care professional provides scabies health services for the patient suffering from scabies.

Scabies: Human scabies is a parasitic infestation caused by *sarcoptes scabiei* var *hominis*. The microscopic mite burrows into the skin and lays eggs, eventually triggering a host immune response that leads to intense itching and rash (WHO 2015). In this study, scabies refers to a skin condition that causes itching and leads to scratching of the skin.

1.5.2 Operational Definitions

Evaluation: This is an assessment of how well the scabies management in Deder works.

Primary Health Care: Primary health care is essential health care targeted towards the provision of basic services to individuals, families, communities, or groups including the management of scabies that is affordable and accessible for the recipient of care.

Health care: This is the process of maintaining or restoring physical, mental, or emotional well-being by a health care professional working in health facilities.

Health care users: These are members of a community who live in the areas where service was provided to a prospective consumer of health care.

Strategies: These entail the development of an appropriate course of action for the improvement of the management of scabies at the primary health care level.

Health care professional: This is an individual qualified in the health care profession who renders service to the community.

Scabies management: The scabies management refers to the measures and precautions that are taken to reduce the spread and complications of scabies.

1.6 PURPOSE OF THE STUDY

The purpose of this study was to evaluate the current management approach of scabies at primary health care in the Deder district in Ethiopia so as to develop strategies that ultimately enhance the management of scabies at primary health care.

1.7 RESEARCH OBJECTIVE AND QUESTIONS

1.7.1 Objective of the study

The objectives of this study were designed to:

Phase one

- Explore the current knowledge and experiences of healthcare users with regard to the management of scabies at the primary health care level.

Phase two

- Evaluate the current management of scabies at selected primary health care facilities in the Deder district.
- Describe the enablers and barriers to scabies management at the primary health care level.
- Identify and describe the needs with regard to improving the management of scabies at the primary health care level.

Phase three and four

- Develop strategies for the enhancement of management and control of scabies.

1.7.2 Research questions

This study is specifically framed to respond to the following research questions:

- What is the level of knowledge and current experiences of health care users regarding the management of scabies at the primary health care level in the Deder district?
- What are the enablers and barriers to scabies management at primary health care levels in the Deder district as viewed by health care professionals?
- What measures are required to enhance scabies management at primary health care in the Deder district?
- What strategies could be developed in order to enhance the current management of scabies at primary health care in the Deder district?

1.8 RESEARCH PARADIGM

Guba (1990:17) defines paradigm as “a basic set of belief that guided action.” Babbie (2010:33) also describes a paradigm as a model or frame of reference through which to observe and understand a specific phenomenon of interest to the researcher. Neumann (2011:35) submits that a paradigm is a general organising framework for theory and research that includes basic assumptions, key issues, models of quality research, and methods for seeking answers.

Creswell (2014:35) describes paradigm as a general philosophical orientation about the world and the nature of research that a researcher brings to a study. Paradigms are convictions and values that researchers bring to a study, and they may be drawn from at least one or more perspectives, such as post-positivism, constructivism, participatory action research, and pragmatism (Creswell & Plano Clark 2011:51).

The research paradigm for this study is the constructivism paradigm. According to Creswell (2014:37), the process of interaction between individuals by focusing on the specific settings in which people live and work to understand the setting informs the constructivist paradigm. This paradigm shows the reality exists within a study context, and it maximises the knowledge when the distance between the inquirers and those participating in a study are minimised.

In this paradigm, the research participants’ expressions and interpretations are crucial to understand the phenomenon of interest, and the individual interactions are the primary means of approaching it.

In this study, the constructivist paradigm was used to make sense of the meanings that participants have about the conundrum related to scabies and then subsequently develop a strategy to promote meaningful contribution through genuine experiences, leading to the integration of findings. The basic beliefs or philosophies are viewed as an assumption. As stated by Polit and Beck (2017:720), a trust that was accepted as being true based on logic or reason, without proof is called an assumption. Assumptions in this study were as follows:

1.8.1 Methodological assumption

The methodological assumption is a research design to choose and use a specific method to conduct research (Polit & Beck, 2017:11). Besides, it is the development and analysis of how the research process was designed. This methodological assumption helped the researcher to choose the appropriate method. The methodological assumption of this study was a qualitative multiphase research approach, which was used to study the management of scabies at the primary healthcare in Deder district, Oromia region, Ethiopia.

1.8.2 Ontological assumption

Ontology is defined as “the philosophical study of the nature of being, becoming, existence or reality” (Creswell & Creswell, 2018:41). Furthermore, the ontological is mainly concerned with socially constructed reality, which is dynamic and complex. The ontological assumption used in this study was to identify the current measures by health care users in scabies management at the primary health care level, to understand the enablers and barriers to scabies management.

1.8.3 Epistemological assumption

The epistemological assumption is a way of understanding and explaining the question of how and what we know and the content of truth ((Polit & Beck, 2017:11). This study evaluated the current management of scabies at primary health care to understand the knowledge of health care users and health professionals regarding scabies management so as to develop strategies that enhance the management of scabies at primary health care.

1.9 RESEARCH DESIGN AND METHODOLOGY

1.9.1 Research Design

A research design is a comprehensive plan for conducting an investigation that stretches from the initial research question through the method of data collection, analysis,

interpretation and reporting (Gray, Grove & Sutherland, 2017: 106).

According to Polit and Beck (2017: 743) research design is viewed as a plan for addressing the research question and specifications for enhancing the study's integrity. This study used a multiphase qualitative research design. As stated by Creswell (2014: 278), this design contains multiple phases, in which a researcher generates only qualitative data in a longitudinal study with a focus on a common objective. This form of research was common in the field of programme implementation in which multiple phases of the project stretch and build on each other to address a common objective. This research study followed a multiphase qualitative design, which was divided into four phases. The first phase of the study addresses the first objective and the second phase of the study addresses objective number two, three, and four.

In phase one of the study, the data were generated through focus group discussions from purposively sampled health care users in selected primary health care facilities in Deger district, Ethiopia. Phase two was conducted after phase one was finalised and data were generated through in-depth individual interviews from convenience sampled health care providers in the same health facilities. Phase three of the study was conducted after phase one and phase two of the study was finalised and based on the findings and literature control where the researcher developed the strategies that could enhance the management of scabies at the primary health care level. In phase four of the study, the developed strategies were validated and finalised with programme managers working at different levels in the health care system in Ethiopia.

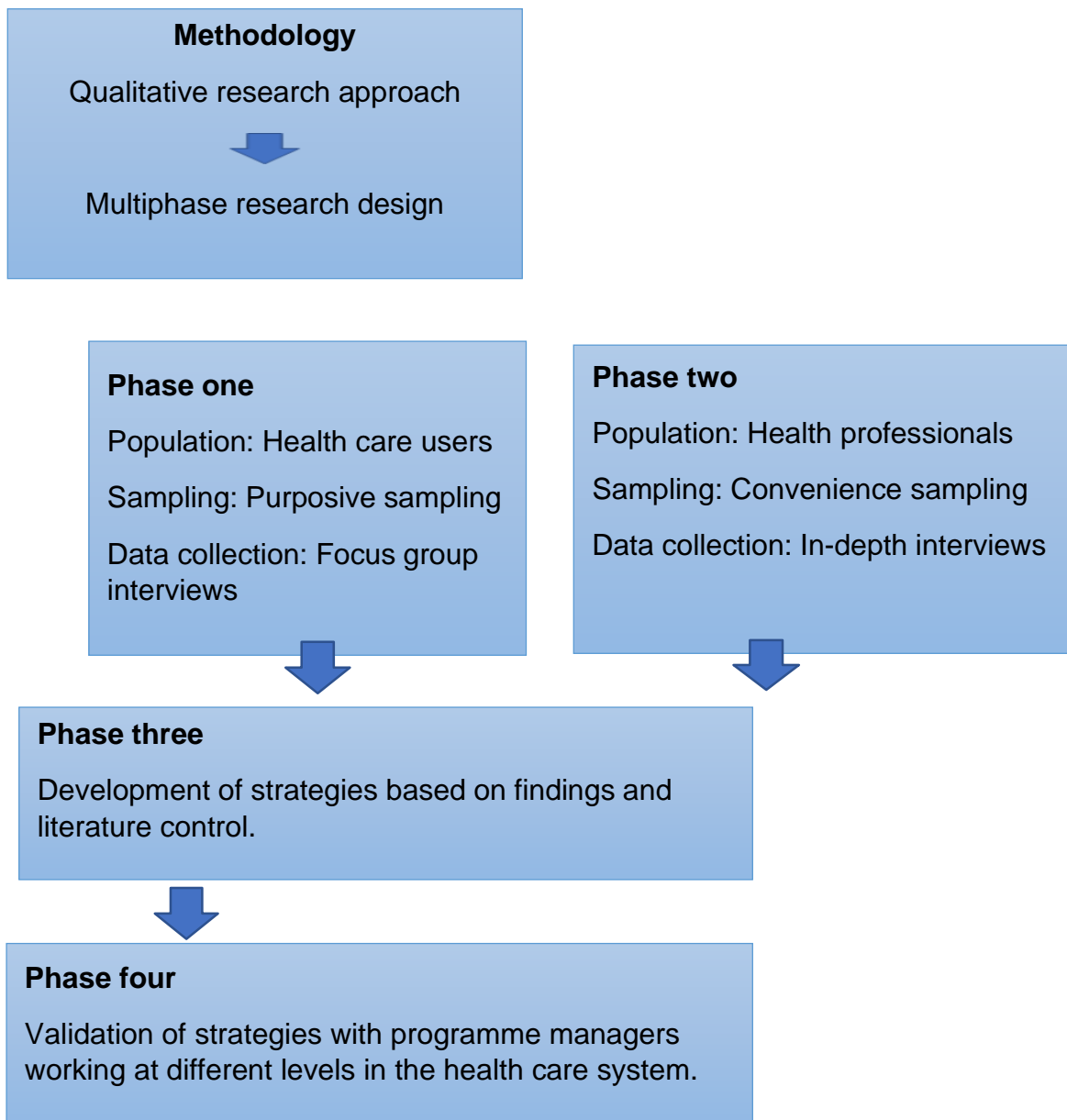


Figure 1.2: Diagrammatic illustration of different phases of the study methodology Developed, Jira (2020).

1.9.2 Study Setting

Polit and Beck (2017:744) state that a study setting is the physical location in which data collection takes place. According to Gray, Grove and Sutherland (2017:552), the study setting is a field in which the phenomenon of interest lives. These authors also indicate that the setting can be homes, health facility, community or sites selected by the researcher. This study was conducted in the Deder district, Ethiopia.

Deder district is one of the districts in southeastern Ethiopia, in the East Hararge zone of the Oromia Region, which has a surface area of 545 square kilometers. According to the projection of the Central Statistics Agency (CSA) of Ethiopia, its population is about 333,793 in 2020. In the district where this study was implemented, there is one district Hospital, nine primary health care facilities, and 40 health posts providing curative, preventive, promotive and rehabilitative services to the community.

Deder district is one of the areas highly affected by scabies. The health system data indicate that scabies is among the ten top diseases in the area. In 2020, among the total (4 122) under-five children who visited the primary health care facility about 32.6% (1 344) were diagnosed with scabies (see Table 1.1). The Deder district health office report of 2020 also indicates that of the total number of outpatient cases in the primary health care facilities (17 416), about 29.3% (5 103) were diagnosed with scabies (see Table 1. 2) (Deder district health office 2020).

Table 1.1. Five top diseases of under-five children in Deder district in 2020.

S.no	Type of disease	Number	Percent
1	Scabies	1344	32.6
2	Pneumonia	752	18.2
3	Intestinal Parasite	647	15.7
4	Diarrhoea	558	13.5
5	All other diseases	821	20.0
	Total	4122	100.00

Table 1.2. Ten top diseases in Deder district in 2020G.C

S.no	Type of disease	Number	%
1	Scabies	5103	29.3
2	Malaria	2742	15.7
3	Pneumonia	1622	9.3
4	Tonsillitis	1536	8.8
5	Intestinal Parasite	1297	7.5
6	Gastritis	1134	6.5
7	Diarrhoea	942	5.4
8	Injury	604	3.5
9	Arteritis	201	1.2
10	All other cases	2235	12.8
		17416	100.0

The setting for this study was all primary health care facilities in the Deder district. Services provided in these facilities examine the patients reporting ailments, and some of these patients are referred to the hospital depending on the severity.

1.9.3 Study population

According to Polit and Beck (2017:249), the entire collection of cases in which the researcher interested constitute a population. The target population (often referred to as the population) is the aggregate of cases about which the researcher seeks to generalise. Babbie (2017:202) suggests that the meaning of population is different for different studies depending on the research objectives. Based on the above description of the study population, the following were the study population for this study.

In phase one, the population was all healthcare users who present with a scabies diagnosis at all selected primary health care facilities in the Deder district. Also, in phase two, the population was all the health care professionals at the same primary health care facilities dealing with the treatment of patients diagnosed with scabies. In phase four, programme managers working at different levels in the health system (district, Zonal, Regional and Federal Ministry of Health) were part of the population for validation of the developed strategies.

1.9.4 Sample and sampling methods

According to Polit and Beck (2017:250), a sample is a subset of population elements, which are the most basic units about which data are collected. Clark and Creswell (2015: 234) describe a sample as a subgroup of a population that participate in the study. Additionally, sampling is a process of selecting a group of people, behaviours, or elements with which to conduct a study. This study utilised non-probability sampling techniques which are the purposive and convenient techniques.

Purposive sampling

Purposive sampling is a technique in which participants are selected based on the judgment of the researcher, and they exhibit features that are of interest in a particular study (Gray, Grove & Sutherland 2017: 539). Sampling in a qualitative study is usually purposive to ensure that understanding, meaning and views held by the participants are identified and described (Polit & Beck 2018: 291). In this study, purposive sampling was used for selecting health care users diagnosed with scabies and have knowledge about how their condition has been managed at the primary health care centre in phase one of the study.

Convenience sampling

Gray, Grove and Sutherland (2017: 536), suggest that a sampling technique in which the researcher selects available research participants who are willing to participate in the study is called convenience sampling. Polit and Beck (2012: 724) describe convenience sampling as the use of the most readily available individuals or objects as participants in a study. This sampling technique was used in phase two and phase four of the study as described below.

In phase two of this study, the health care professionals working in the primary healthcare facility and those willing to participate in the study and available during data collection and also involved in scabies management were recruited as the study participants.

In phase four of this study, programme managers (health programme directors and the programme expert) working at different levels in the health system were recruited as the study participants.

1.9.4.1 Inclusion criteria

According to Polit and Beck (2017:250), the inclusion criteria describe the specific features of the target population by which people are selected for inclusion in a study. In this study, the following criteria were used to identify eligible participants:

- Participants who are over the age of 18 years and older.
- Participants who have been living in the area for three months or more
- Participants (healthcare users and healthcare professionals) willing to participate in the study and who signed an informed consent and were available during data collection in all primary health care facility in the Deder district and were also involved in the scabies programme.
- Programme managers (health programme directors and the NTD programme expert) working at different levels in the health system and are responsible for the scabies programme.

1.9.4.2 Exclusion criteria

As stated by Polit and Beck (2017:250), the criteria identifying characteristics that the target population does not have is the exclusion factor. In this study, the following categories were excluded.

- Health care users in a primary health care facility who were critically sick or not

diagnosed with scabies.

- Health professionals working less than three months in the primary health care facility and those who are not involved in treating scabies patients.
- Any manager who is not involved with the scabies programme.

1.9.5 Data collection method and procedures

Polit and Beck (2017:725), describe data collection as how the information is obtained from participants to address a specific research problem. Data collection is described as the specific, systematic gathering of information relevant to the research objectives and questions of a study (Gray, Grove & Sutherland 2017: 768).

The selection of data collection methods depends on the nature of the problem or setting and the study question. As Trolley, Ulin, Mack, Robinson and Succop (2016:41) contend, there are different types of data collection methods used in a qualitative study. These are focus group interview, in-depth interview and observation, including existing documents. In this study, the data were collected by utilising focus group discussions and in-depth interviews as discussed in the paragraphs below.

1.9.5.1 Focus group discussion

Creswell and Creswell (2018:188) define focus group discussion (FGD) as the data collection method where the researcher interviews participants in a group. Additionally, the results have high “face validity”: because the method is readily understood, the findings appear believable. The advantage of the focus group interview is relatively low cost; they provide quick results and increase the sample size by permitting about 6-12 people to be interviewed at one time. Creswell and Creswell (2018:188) describe focus group discussions as a planned discussion that takes benefit of group dynamics for economically accessing information and the acceptable group size is 6 to 12 people.

This data collection method was used in the first phase of the study for healthcare users. The healthcare users as they came in for their regular service were selected based on inclusion criteria and asked to participate in the study. Those willing to take part in the focus group interview were asked to give written consent before the discussion began. To avoid long waiting hours, the researcher selected six to eight participants before the service began and focus group discussions were done after receiving services. Data were collected until saturation was reached. The researcher collected data from 58 participants from nine primary

health care facilities. The research assistant guided the discussion, according to a written set of questions in the interview guide while the researcher took field notes during interviews. The focus group discussions were tape-recorded and notes were taken in the meantime. During the interview, the researcher ensured that Covid-19 regulations were strictly adhered to.

1.9.5.2 *In-depth interview*

Leavy (2017: 139) indicates that interviewing is a means of data collection that generates information about non-concrete things which cannot be observed such as thoughts, intentions and feelings. The in-depth individual interview is the best method of data generation when the purpose of the research is to explore the informant's views. As stated by Polit and Beck (2017: 730) interviewing is the best data collection instrument in qualitative research and it is a sincere, non-intrusive way of accessing people's perceptions, meanings, definitions of situations and reality. This method assists the researcher to describe and explore the informant's views through the help of a few interview guides on the topic. Polit and Beck (2017:720), also describes the quality of the data collected from an interview as strictly dependent on the skills of the interviewer who investigates and generates more information and the quality of the interview guide.

This method of data collection is based on an assumption fundamental to qualitative research. The participant's perspective on the phenomena of interest should unfold as the participant understands it (the emic perspective), not as the researcher views it (the etic perspective) (Marshall & Rossman 2011:144). Interviews have to be attenuated through beliefs, experiences, or knowledge relevant to the research question (Vogt, Gardner & Haeffele 2012: 141,148). In the second phase of the study, the researcher conducted in-depth interviews using semi-structured guiding questions for healthcare providers working at all primary health care facilities in the Deder district; those who are involved in scabies management.

A guiding principle to determine sample size in qualitative research is data saturation, which implies sampling to the point at which no new information is obtained and redundancy is achieved (Polit & Beck 2017:702). Interviews were conducted until the researcher was convinced the data was saturated, and it lasts on average 45 to 60 minutes. Eighteen healthcare professionals working on the management of scabies in all nine primary health care facilities participated in the interview. The researcher ensured that the COVID 19

regulations like social distancing, sanitising and wearing of masks were strictly adhered to during data collection.

1.9.5.3 *Development of strategies*

As described by Fuertes, Alfaro, Vargas, Gutierrez, Ternero, and Sabattin (2020:1), an appropriate course of action which takes into consideration the anticipated outcome; or a pattern or consistency of behaviour to determine the realised result is called strategy. The strategy is an overall plan or set of plans intended to achieve something, especially over a long period (*Collins English Dictionary* 2019). The main purpose of the strategy was to guide programme owners, implementers, and health care providers to have a well-organised scabies management approach at the primary health care facility level.

In phase three of this study, the researcher used the findings from health care users and healthcare professionals in phase one and phase two, and the literature control to develop the draft strategy document. The Federal Ministry of Health Policy was also used to refine and sharpen these strategies. The researcher used the Donabidian model to guide the development of the strategy document.

In phase four of the study, the researcher validated the developed strategies with the programme managers using validation tools. Programme managers were given the developed strategies for their input and recommendations within a pre-set period.

1.9.5.4 *Pre-testing of data collection tools*

As indicated by Polit and Beck (2017:739), the benefit of pre-testing a tool helps the researcher to assess the appropriateness of the data collection instrument and method, solve potential problems that might be encountered during data collection. In this study, a pilot study for both in-depth and focus group interview tools were conducted before the main study in one similar public health facility to determine whether the interview guides elicited the intended information or not.

The unclear questions during the pilot study were clarified, reshaped and modified before the main data collection process. There was no change in methodology and the results of the pre-test was not included in the main study.

1.9.6 Data Management and analysis

According to Polit and Beck (2017:725), the process of organising and generating data to answer the research question comprises the data analysis. Furthermore, Creswell (2014:245) suggest that data analysis in qualitative studies commence at the beginning of data collection, then the interpretation of the information, and finally writing up the report. The same authors also indicate that data analysis in a qualitative study commences with organising data into manageable sizes.

All audio recorded data from the in-depth interview and focus group interview were transferred into a computer following translation from Afan Oromo into English and then transcribed verbatim and coded into themes and sub-themes. The researcher coded the data for patterning of data presentations. Grouping of similar information was done from each phase together to derive themes. The developed themes, categories and patterns were analysed using Tesch's approach (Creswell and Creswell, 2018: 195).

Tesch (1990), as cited by Creswell and Creswell (2018: 196), developed eight data analysis steps in a qualitative study. The researcher used Tesch's data analysis steps during analysing the collected data. These steps are discussed fully in Chapter three (methodology chapter).

1.9.7 Ethical considerations

Polit and Beck (2017:727) state that a system of moral values that is alarmed by the degree to which a research procedure follows professional, legal and social obligations to the study participant is Ethics. Research ethics communicate moral concerns and the standard of professional actions in research that are under the researcher's control (Neumann 2014:69). Therefore, this study was conducted by observing the following ethical principles:

1.9.7.1 *Permission to conduct study*

Ethical clearance was sought from the Ethics and Higher Degrees Committee of the department of health studies in the college of human sciences at the University of South Africa (UNISA). Permission to conduct the study was obtained from the Oromia Regional State Health Bureau Ethics committee, and permission to conduct the study was obtained from the East Hararge Zonal health office. Besides, an approval letter from the Armauer Hansen Research Institute (AHRI/ALERT) ethics review committee was obtained.

1.9.7.2 *Informed consent*

Resnick (2018: 115) indicates informed consent as an essential feature of research ethics in which the participants are fully informed about the proposed research before they participate in the study. In this study, informed written consent was obtained from each participant after the explanation of the purpose and objectives of the study. All those who participated got a chance to ask questions where clarification was needed.

The consent document was translated into Afan Oromo, a language that all the participants were fluent in and could therefore understand in full. If there were any participants who could not use this language, the consent was read aloud; a thumbprint was accepted as a legal effective signature. Also, the researcher informed respondents that participation was voluntary, they could refuse to participate, and they had the right to withdraw from the study at any time without any penalty. The participants were informed that they were not directly benefiting from this study; yet the information they contributed would improve the management of scabies at primary health care levels in the Deder district, Ethiopia.

1.9.7.3 *Confidentiality*

According to Polit and Beck (2017:723), a key standard for ethical practice, which means keeping and protecting information gained from the study in other settings, is confidentiality. In this study, the participants were coded to protect their identity and all information (electronic) was secured by protecting the computer system using a password. All unprocessed data, field notes and signed consent forms were locked in a cabinet to ensure confidentiality.

1.9.7.4 *Privacy*

The participants' privacy was respected in the way that data was collected only when the participants were available. Family times were respected as laid down by the participants.

1.9.7.5 *COVID 19 infection control/prevention*

In order to prevent infection between the participants, the focus group participants were limited to a maximum number of six. This allows for social distances in line with WHO recommendations for COVID-19 infection prevention. In both focus groups and in-depth interviews participants had their temperature checked before the start of the session. All participants were sanitised and masks were available for those who did not have them.

1.9.8 Trustworthiness

Creswell (2014:201), refers to the validity of research work, which is one of the strengths of qualitative research and this stems from defining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of such data.

To ensure the trustworthiness of this study, the researcher used five criteria as described by Polit and Beck (2017: 559) for developing the trustworthiness of a qualitative inquiry, and these criteria were credibility, dependability, conformability, transferability and authenticity.

1.9.8.1 Credibility

Credibility, according to Polit and Beck (2017:559), is an assurance of the truth of the data. In this study, to ensure credibility, the researcher triangulated multiple data sources (data that was generated from the interview, focus group discussions and the field notes taken to capture non-verbal behaviour during the interviews). The researcher took extensive field notes to confirm a credible capturing of participants' descriptions and gave sufficient time to the participants to have an in-depth understanding of what they communicated until data saturation was reached (Polit & Beck 2017:559). The researcher asked probing questions in cases where clarity was needed. Additionally, a summary of viewpoints was presented at the end of each in- depth and focus group interview.

1.9.8.2 Dependability

Polit and Beck (2017:559) refer to dependability as evidence that is reliable and stable over time and conditions. In this study, to confirm dependability, the researcher conducted a pilot study as mentioned above to modify the final study tool and questions and dealt with unforeseen issues to ensure that the data collected was consistent and stable. Where necessary, tool modification was done to ensure that the final results included and presented were truthful representations of what the participants have experienced, and the records correctly captured what they explained from their personal view or understanding.

1.9.8.3 Conformability

Conformability refers to the statement that the findings and the conclusions are supported by the data and that another researcher can reach the same conclusions as the primary researcher (Polit & Beck, 2017:560). Sparkes and Smith (2014:181) state one of the approaches of ensuring the conformability of the study is to publicise the data collected, the

code generated and the process of research so judgments are created on the overall quality of research. In this study, to ensure conformability, the researcher collected all-inclusive data that allowed an independent examiner to come to the same interpretation and conclusion. These data included field notes, transcripts, audio records, a consolidated dataset with detailed themes and subthemes.

1.9.8.4 *Transferability*

According to Polit and Beck (2017: 560), the degree to which results are meaningful and can be transferred to another setting is called transferability. Providing a strong and detailed explanation of the research findings is the other way of ensuring transferability (Creswell & Creswell 2018:290). In this study, to ensure transferability, the researcher provided detailed and contextualised information to allow readers to make an interpretation about the findings and to transfer it to other settings.

1.9.8.5 *Authenticity*

Authenticity refers to the degree to which researchers equally and faithfully describe a range of realities (Polit & Beck, 2017:560). In this study, to ensure authenticity, the researcher provided a detailed report that readers can understand the lives with some feeling, experience, language and context of those lives. The researcher also ensured that the data from participants was as truthful as possible by making sure that the participants meet the inclusion criteria.

1.10 SIGNIFICANCE OF THE STUDY

The quality of health of a scabies patient largely depends on early diagnosis and management of the disease. It was of paramount importance to conduct this study as there is a scarcity of research available that explains the management of scabies at the primary health care level. Similarly, no other study reviews and develops a strategy for improving the management of scabies in Ethiopia. The developed strategy could be useful in the enhancement of scabies management at the primary health care level in Ethiopia. The developed strategy could also serve as a source of information to develop an action plan for others who are working in areas.

Moreover, the findings of this study could contribute to improving the management of scabies by providing the finding to policymakers; it would also provide useful information to formulate useful interventions, which could help the affected community in Ethiopia. The

recommendations based on study findings and the strategy developed could be utilised as the basis for further research.

1.11 STRUCTURE OF THE DISSERTATION

The study is organised into six chapters as follows:

Chapter 1: Study overview and orientation Chapter 2: Literature review

Chapter 3: Research methodology and conceptual framework Chapter 4: Data collection, presentation and analysis of findings Chapter 5: Strategic development and validation of the strategies Chapter 6: Recommendations, limitations and conclusion

1.12 CONCLUSION

This chapter presented an overview of the study on the evaluation of the scabies management approach at primary health care in the Deder district of Ethiopia. The introduction highlighted existing literature on the scabies programme. The problem statement and purpose of the study were amplified in lieu of the specific objectives of the study. The research methodology outlined the intended plan of action used by the researcher in undertaking the research project.

The next chapter, the literature review, focalises the recent and relevant literature on scab

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The first chapter presented an overview of the study, which includes the background and a statement of the research problem, purpose and objectives of the research, conceptual framework and brief methodology followed. This chapter deals with the literature review, which entails the thorough reading of different scientific studies and material including textbooks and journal articles on the conundrum. Polit and Beck (2017: 63) describes literature review as a critical summary of research on a topic, often prepared to put a research problem in context or to summarise the existing evidence. Gray, Grove and Sutherland (2017:7) describe the literature review as a synthesis of research findings, an overview of relevant theories and a description of the accumulated knowledge on a topic of study.

2.2. HISTORY OF SCABIES

Scabies is a prevalent and contagious parasitic skin disease caused by the mite *sarcoptes scabiei*. It is significantly overlooked in many countries. The word “sarcoptes” is derived from the Greek word “sarx” meaning flesh and *koptein* meaning “to smite or to cut.” The term “scabies” comes from the Latin term ‘*scabere*’, which means ‘to scratch.’ Human infestation occurs through the ectoparasite *sarcoptes scabiei* variety *hominis* (Farhana et al 2018:1).

During the first half of the 20th century, the late Dr Reuben Friedman reviewed the history of scabies. At that time, he divided the history into three eras: “ancient, medieval and modern, or pre-acarian, acarian and post-acarian.” In ancient times there is a biblical mention of the term *zaraath*, which refers to scabies (Currier, Walton & Currie 2011: 1). Aristotle and Galen are Greek and Roman scholars who prised the “contagious” value of the condition. As Friedman noted, Aristotle was the “first to have used the term *acarus* to designate an animalcule as minute as to be un-cuttable or indivisible (Friedman 1934:428).

The Italian physicians Giovan Cosimo Bonomo and Diacinto Cestoni described the causative relation between the itch mite and therefore the typical skin lesions seen once infestation commences, marking the primary description of the parasitic theory of this infectious disease in 1687. Their study was also the first to provide a graphic representation of the parasite (Leung, Lam & Leong 2020: 1). The Roman Celsus, described that the puncture of the small,

itchy blisters that had not yet formed a scab gave the infected relief. He identified a small, barely visible white speck within the blister secretions. Ancient Rome coined the term "scabies" to describe this condition (Currier et al., 2011:3).

An Austrian dermatologist Ferdinand Ritter von Hebra defined the mite's life cycle as well as its stages of infection, confirming that the mite was the only cause of scabies through a series of precisely described experiments in 1844 (Currier et al 2011: 3). Kenneth Mellanby was an entomologist in the United Kingdom, and he proved an immune response to the mite and marked scabies transmission methods among soldiers during World War II in a hospital. His work stands as a commemorative contribution to devastating old myths about the condition and that human investigation can be done ethically with sensitivity as long as the correct preparations are set up in advance (Currier et al 2011:4; Friedman 1934:430).

Subsequently, scabies has been commonly associated with overcrowding in unhygienic conditions and spreads rapidly during drought and extreme water shortage in many developing countries. This overcrowding in unhygienic conditions, limited access to water for personal hygiene and basic sanitation for many individuals, especially those in rural communities, contribute to a surge in the risk of a communicable disease like scabies (Enbiale & Ayalew 2018:6). Currently, the southern and eastern part of Ethiopia continue to battle the impact of the current Horn of Africa drought, exacerbated by disease outbreaks like scabies, large-scale loss of livelihood assets and displacement (OCHA 2019: 2).

2.2 ANATOMY, LIFE CYCLE AND TRANSMISSION

2.2.1 Anatomy

The scabies mite is an eight-legged parasitic arthropod, whitish brown in colour and scarcely observable with the naked eye (Goldstein & Goldstein 2019:1). The size of female mites is approximately 0.3 x 0.4mm and these are twice the size of male mites (Leung et al 2020: 2). The female mite has an oval body that is flat on the under-surface and convex on the upper surface. It has two pairs of anterior and posterior legs respectively. The anterior legs terminate in long, unjointed stalks referred to as 'suckers', whereas the posterior legs end in long bristles (Leung et al 2020: 2). The symptom of scabies is caused by the female mites, which burrow into the skin after being fertilised and continues till she dies. A person who is infected with scabies typically has around 12 mites at any specific time (Goldstein et al 2019:1).

2.2.2 Life cycle

The life cycle of the mites has four main developmental phases. It starts with an egg, hatches into the larva, moults into a nymph and then an adult. Larvae develop within two to four days after the eggs have been laid, and the entire development life cycle from egg to adult mites takes 10 to 14 days. The female mites burrow into the epidermis of human skin using their mouth and their front legs, within 15-30 minutes. The female mite lives for 4-6 weeks and produces a maximum of four eggs per day, which are deposited in the burrowed tunnel. The mites survive for 24 to 36 hours outside of the human body in normal room condition (21°C and 40–80% relative humidity); during this time, they remain capable of infestation (Chandler & Fuller 2019:1-2).

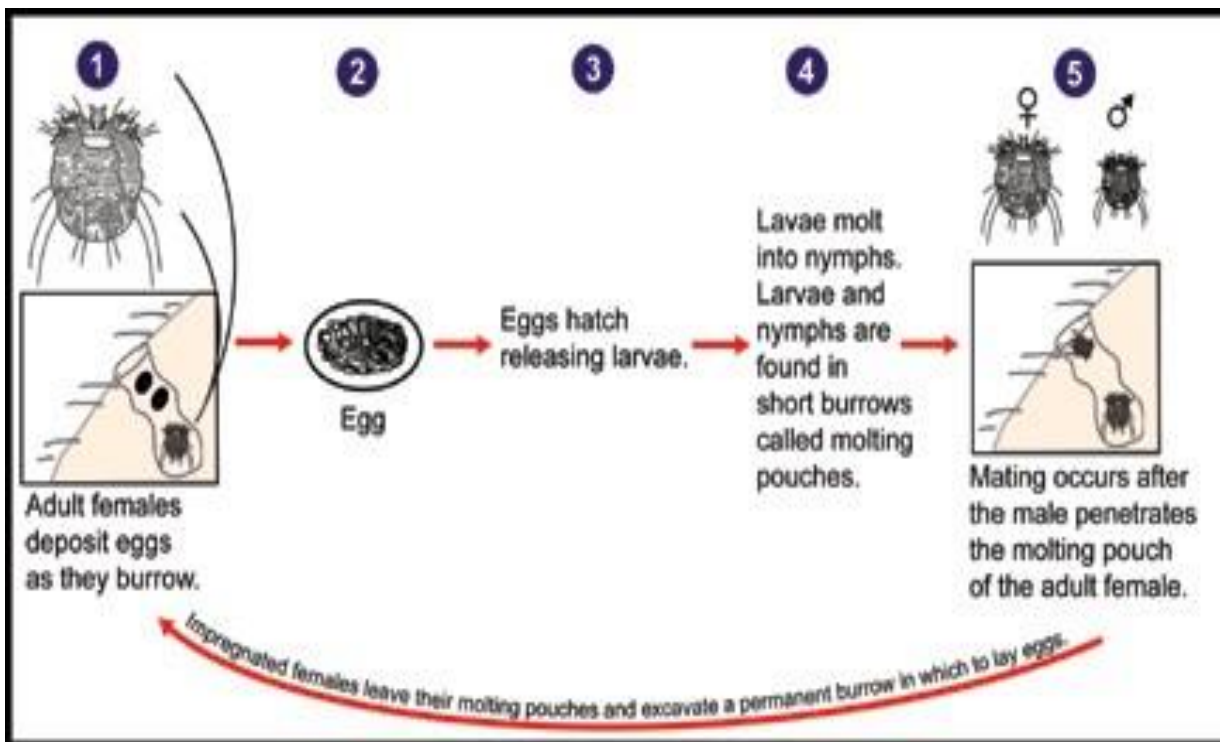


Figure 2.1: The life cycle of scabies mites (Life cycle... 2019).

2.2.3 Transmission

Scabies is usually transmitted from one person to another through close skin-to-skin contact. The scabies mite infects the host within 15 to 20 minutes, so holding hands, sexual contact, breast-feeding and nursing babies become high-risk activities if in contact with an infected individual. Scabies mite uses body odour and heat to find a new host. For these stimuli to be strong enough, an individual must be in close contact, for example, prolonged contact with bed linen, clothing, and other fabrics from the infested host and during sexual intercourse.

Transmission between a family member and an institutional setting such as a health facility is the most common source of infection (Alslyali, Alaithan, Almubarak, Alibrahim, Almansour, Albalawi, Daimi, & Mohiuddin 2019:3).

2.3 CLINICAL PRESENTATION AND MAIN TYPE OF SCABIES

There are different clinical presentations of scabies. Understanding these different forms of clinical presentation is quite important for diagnosing scabies. The predominant symptom of scabies is itching, which gets significantly severe at night.

The scabies rash presents with burrows and pruritic papules that typically occur in the hand between the fingers, elbow, shoulders, wrists, the pre-umbilical skin, buttocks, ankles, and genital area, including the penis and scrotum in males, and the breast in women. In immunocompromised individuals, the head and neck are rarely affected, but in infants and young children, all skin surface is prone to infection (Sule & Dankyau 2015:224).

There are two known forms of scabies: classic and crusted scabies. The different clinical manifestation is the result of the type and the magnitude of the infestation in response to mite proteins and individual immune response (Alslyali et al 2019:3).

2.3.1 Classic scabies

Classic scabies is characterised by an erythematous papular eruption, tunnels, and intense pruritus. The papules are multiple, erythematous, and usually 1 to 2 millimetres in diameter. The symptoms are more severe at night because the burrowing happens at that time. The burrow looks like a greyish, whitish, reddish, or brownish serpiginous threadlike elevation, and 0.5 millimetres wide and several millimetres long in the superficial epidermis (Leung et al 2020: 3). On average the patient may have 12 mites at any given time (Sule et al 2015:225). The clinical presentation confuses with other common skin conditions, such as urticarial, contact dermatitis, eczema, fungal infection and insect bites.

Another type of classic scabies is nodular scabies, which is a rare clinical type of scabies and characterised by extremely pruritic, erythematous nodules that can persist even after the treatment of scabies. The main characteristics feature is skin nodules rather than rash and usual sites are axillary folds, genitalia, groin and buttocks. The pruritus is most intense at night. The nodules do not contain live mites and do not indicate any active infestation due to deeper penetration of the mite from the epidermis into the dermis, resulting in a more vigorous inflammatory response (Leung et al 2020:4).

2.3.2 Crusted scabies

Crusted scabies is also known as Norwegian scabies, scabies crustosa, hyperkeratotic scabies or Boeck scabies. It is less itching but a highly contagious variant of scabies characterised by profuse proliferation of mites in the epidermis and widespread erythroderma with scaly, crusted, hyperkeratotic, grey to yellow, white papules, fissured plaques, and nodules (Leung et al 2020: 3; Alslyali et al 2019:3). The hyper infestation with thousands of mites are present in the affected individual, commonly occurs as a result of impaired immunity in the affected individual and it shows similar appearance both in adult and children (Leong et al 2019: 4). When the crust is removed, the skin surface appears smooth, velvety, and red. The nails of the individual with crusted scabies are often discoloured, thickened, and dystrophic (Suleet al 2015:225; Leung et al 2020: 4).

2.4 EPIDEMIOLOGY

The prevalence of the disease varies among individual geographic areas. According to a systemic review done in 2015, the worldwide prevalence of scabies ranges from 0.2% to 71%. The disease is endemic in many resource-poor tropical settings, with an estimated average prevalence of 5-10% in children (WHO 2019 a: 1; Thomas, Christenson, Walker, Baby & Peterson 2017: 793; Leung et al 2020:2). In temperate climates, the incidence is higher in the fall and winter than in summer. Children under the age of two and elderly individuals are at the greatest risk. Predisposing factors include overcrowding, poor hygiene, malnutrition, poverty, and homelessness, reduced access to health care, haphazard sexual contact, poor sensory perception and immunodeficiency (Leung et al 2020:3).

The recent report from the Federal Ministry of Health (FMOH) in Ethiopia shows that more than one million people were affected by scabies from five different regions of the country from July 2018 to January 2019 from Primary health care (PHC) in the country (FMOH 2019:6). Today, 200 million people worldwide are estimated to have the disease each year, the enormous majority living in developing countries (WHO 2020: 1). A study conducted in Pakistan showed that the prevalence of scabies in dermatological patients is 38.15%. Infestation was higher in males than females, and children of early school age were the group most susceptible to this disease. Analysis of risk factors explained 89% of the variation in disease prevalence. A clear trend in the seasonal pattern was observed, with the highest infestation in winter and the lowest in summer (Farhana et al 2018: 3).

In Brazil, scabies is hyper endemic in many poor communities and slums and is commonly associated with considerable morbidity. In this area scabies and bacterial super infection present in 53% of children diagnosed with scabies and scabies is also linked to feelings of shame, limits on leisure activities, behavioural changes, social exclusion and stigmatisation (Fernanda & Elston 2017: 2; Lopes, Silva, Janete Ca, Gonçalves, Rodrigues, Mandjuba, Nakutum, D'Alessandro, Achan, Logan, Bailey, Last, Walker & Marks 2019: 4). In Fiji, 18.5% of primary school children and 14% of the infants had scabies respectively. Scabies represents a major health concern worldwide due to the strong relationship between scabies and secondary infection (Fernanda & Elston 2017:2).

An epidemiological study done in Japan showed that 47.7% of health institutions experienced epidemics of scabies, and from this 15.3% of the institutions had crusted scabies. This study also identifies patients and hospital staff who had visited the intensive-care unit in the institution and had been treated in dermatology care with scabies, thus resulting in 11.9% of secondary infection and 44% of tertiary infection (Park 2019: 2).

In sub-Saharan Africa, in a study conducted in Ghana, the prevalence of scabies was 10.3% among high school students (Maleki, Oroei, Emadi, Peyvandi, & Kwabena 2019:3). Another community-based study on scabies conducted in Nigeria revealed that the prevalence of scabies was 65%. The high prevalence found in this study indicates the under-recognition of the disease in resource-poor communities and difficult access to the health system. The disease was also associated with poverty-related variables within the examined communities, which can be described as extremely resource-poor with precarious living conditions (Ugbomoiko, Oyedeji, Babamale, & Heukelbach 2018:4).

In one study done in the Gambia, the prevalence of scabies was 15.9%. The prevalence fluctuates during and after the rainy season, which is 15.3% before and 16.3% after. In another study done in South Africa, the scabies prevalence was observed at 15.9% consistent (Armitage, Senghore, Darboe, Barry, Camara et al 2019: 3). In another study done in Guinea-Bissau in the Bijagos community, scabies is associated with social isolation, a feeling of repudiation, discriminatory attitudes and behaviours associated with stigma. This condition results in delayed presentation and its health consequences may be influenced by the stigmatising nature of the condition (Lopes et al 2019:2).

In a study done in Northern Ethiopia, the overall prevalence of scabies was 23.8% and there was a higher prevalence of scabies among male participants than females. Of the total 139 scabies cases, 33.7% were found between the age range of 10-14 years, and 25.5% of cases were living in a family size of more than five (Haile, Sisay & Jemere 2020:5).

In a study done in North West Ethiopia, the prevalence of scabies was about 9.3% among school-age children. Among children with confirmed scabies cases 65% had mild, 28% had moderate, and 6.5% had severe lesions. Eighteen (39%) of children with scabies encountered discrimination due to their status and 43% of children reported a sleeping problem due to frequent itching (Dagne, Dessie, Destaw, Yallew & Gizaw 2019:4). In another study done in southern Ethiopia, the overall prevalence of scabies was 16.4% among school-age children. And the highest case was seen in females, which was higher than in male children, 17.1% and 15.7% respectively (Girma, Churko, Alagaw, Haftu, Tunje & Tsegaye 2021: 3).

In a study done in the Oromia region, Illu Aba Bora zone, the overall point prevalence of any skin disease was found to be 58.3%, from this 63.5% of affecting children in the age range from 6-15 years are by scabies. According to this study, 60.1% of children who do not have access to tap water have predominantly seen with skin disease. Among children with skin disease majority, 31.7% of them are affected by two or more skin diseases (Lulu, Tolesa & John 2017:7378-82).

In another study done in the Oromia region, West Arsi zone, Gambo Hospital, the overall prevalence of scabies in children under five years who attended the outpatient department was 13.6%. From the detected scabies cases 7.7% present without complication, and 5.8% were complicated scabies, mainly scabies with impetigo. Approximately 89.5% of children with complicated scabies are referred by their parents than children with non-complicated scabies, which is 72% (Ramos, Moles-Poveda, Tessema, Kedir, Safayo, Tesfasmaria, Reyes & Belinchon 2016:626-27).

2.5 DIAGNOSIS

Diagnosis of scabies can be divided into two phases:

- The presumptive diagnosis (history and physical examination).
- The definitive diagnosis (investigations).

2.5.1 Presumptive diagnosis

In the presumptive diagnosis, the health professional takes the history, and this is followed by a physical examination. During history taking, the most important point is enquiring for any member of the family with similar symptoms of scabies. In the physical examination, the health professional assesses the patient's skin from head to toe, looking for signs of mites, including the characteristic burrows (Leung et al 2020:3).

2.5.2 Definitive diagnosis

In definitive diagnosis, the laboratory investigation, which helps the diagnosis of scabies, is performed in addition to presumptive diagnosis. These are mainly microscopic examination, and other important examinations are Dermatoscopy and Ink burrow test. Microscopic examination mainly consists of skin scraping and skin biopsy. In case of skin scraping, the skin from the affected area of the body is scraped with the help of the scalpels. This scraped skin sample is then examined under the microscope, looking for mites, eggs, or faecal matter. If the skin scraping results are negative, the health professional performs a skin biopsy to confirm the diagnosis (WHO, 2019a:1; Leung et al 2020:3).

Dermatoscopy is an accurate method for the diagnosis of scabies when the examination is performed by trained practitioners. In this method, the examination of the skin is done by using a handheld dermatoscope to allow visualisation of specific signs of the presence of scabies. During the examination, finding small, dark triangular structures at one of the ends of the burrows confirms the presence of the mites (Ong & Vasanwala 2018:3). It is less time consuming and is more acceptable to patients than skin scrapings. It can be used to replace skin scrapings as it allows quick screening of a large number of sites. In another study conducted to compare the accuracy of diagnostic method, sensitivity for the diagnosis of scabies was 91% and 90% using dermoscopy and microscopic examination, respectively (Srinivas, Herakal, Murthy, & Suryanarayan 2019:2).

The ink burrow test is the simplest test used to identify the burrow caused by the scabies mites. When using this method, first, apply ink on the skin that looks like a burrow and wipe the ink away with an alcohol pad. If the patient is infected with scabies, an S-shaped ridge appears on the skin. This technique is particularly useful in children and individuals with very few burrows (Leung et al 2020:3; Barry 2019: 4). If the ink is not available, topical tetracycline is an alternative to the burrow ink test. After applying and removing excess tetracycline solution with alcohol, the burrow is then examined under a wooden lamp (Barry 2019: 4).

2.6 DIFFERENTIAL DIAGNOSIS

Several differential diagnoses should be considered for scabies according to their classification. Differential diagnosis of classic scabies is broad and include delusional parasitosis and pruritic dermatoses, such as atopic dermatitis, contact dermatitis, drug eruption, viral exanthema, neuro-dermatitis, nummular eczema, seborrheic dermatitis, arthropod bites, varicella, popular urticaria, tinea corporis, body lice, folliculitis, pyoderma, psoriasis, dermatitis herpetiformis, infantile acropustulosis, ichthyosis Vulgaris, systemic lupus erythematosus, lichen planus and prurigo nodularis. The differential diagnosis of crusted scabies includes erythroderma, seborrheic dermatitis, drug eruption, arthropod bites, contact dermatitis, cutaneous lymphoma and lichen planus. Nodular scabies may mimic a solitary cutaneous mastocytoma as it can present with a positive Darier sign (Currier et al 2011:6; Leung et al 2020:3; Barry 2019: 4).

2.7 COMPLICATION ASSOCIATED WITH SCABIES

Scabies has a number of important complications. The vigorous rubbing and scratching of the skin allow a secondary bacterial infection, which is caused by streptococcus pyogenes and staphylococcus aureus (Chandler & Fuller 2019:4). Secondary bacterial infection, including impetigo, cellulitis, furunculosis, ecthyma, lymphangitis, and sepsis (Leung et al 2020:3). These bacteria have been isolated from skin burrows and mite products suggesting that mite could contribute directly to the spread of bacteria.

Post streptococcal glomerulonephritis, scarlet fever, acute rheumatic fever, rheumatic heart disease, necrotising fasciitis, reactive arthritis-synovitis, and paediatric autoimmune neuropsychiatric disorder may follow streptococcus pyogenes infection of the skin. This happens especially in crusted scabies, due to secondary bacterial infection, the patient develops malodour and if superinfected with herpes simplex, they develop scabies herpeticum. Acute post-streptococcal glomerulonephritis can occur after throat and skin infection. Different type of skin infection accounts for at least 50% of acute post-streptococcal glomerulonephritis, which acts as a strong risk factor for developing chronic kidney disease in later life. The disease can also lead to stigmatisation, social exclusion, shame, embarrassment, and depression and can negatively affect the quality of life (Chandler & Fuller 2019:82; Leung et al 2020:3).

2.8 TREATMENT OPTION OF SCABIES

A variety of options are available for the effective treatment of scabies. Currently, there are a number of topical treatments include 5% Permethrin, 8%-10% sulphur, 10%- 25% benzyl benzoate, 10% crotamiton, 1% lindane and 0.5% malathion. There is only one oral treatment, ivermectin, available for scabies treatment in the epidemic situation (WHO 2019a:1; Barry 2019: 4). Each option has its own characteristics and the choice of treatment depends on local availability, the severity of disease, health care practitioner's preference and cost.

2.8.1 Topical treatment

Topical treatment is a treatment that is applied to a particular place on or in the body. Most commonly, topical treatment is applied to body surfaces such as the skin or mucous membranes to treat ailments via a large range of classes including creams, foams, gels, lotions, and ointments.

The main features of each treatment are described below.

2.8.1.1 *Permethrin*

Permethrin is the first line and gold standard treatment of scabies in many countries. It is a synthetic pyrethroid, often effective after a single application due to its ability to kill both mites and eggs, although a second dose is frequently prescribed. Permethrin is a neurotoxin that causes paralysis and death of ectoparasites. Permethrin 5% is judged to have relatively low toxicity and few side effects. It is compared to other topical agents, however, it is widespread in many developing countries. An adult is recommended to apply permethrin to the entire body from head to toe and leave it on for 8 to 14 hours before washing it off. It is advised to apply it before bedtime and wash it off in the morning. It is safe for an infant over the age of 2 months and younger children (Barry 2019: 4; Vasanwala, Ong, Aw & How 2019: 3).

2.8.1.2 *Sulphur*

Sulphur has been used for centuries as a treatment for scabies. It is one of only a few scabicide treatments that can be used safely in very small children (< 2 months of age) and in a pregnant mother. Sulphur is messy, odorous, stains clothes and requires repeated use, resulting in poor compliance. It should be used only when a patient cannot tolerate other options. It is cheap and can be used for mass therapy in resource-poor economies. Cream or ointment preparation is available in a range of 2-10% (6% preferred) (Barry 2019:4; Vasanwala et al 2019:3).

2.8.1.3 *Benzyl benzoate*

Benzyl benzoate cream or lotion, using a 10% or 25% solution, applies toxic effects on the nervous system of the parasite, resulting in its death. The exact mechanism of action is unknown. In vitro, benzyl benzoate has been shown to kill the itch mite within minutes. Benzyl benzoate should be applied to the entire body and left on for up to 24 hours, and repeating the application on two to three days with the process repeated after ten days. When used in children and breastfeeding mothers, the lotion should be diluted to 12.5% and 6.25% on infants to minimise irritation, but this can potentially decrease its efficacy. Antihistamine and analgesics can be used to reduce discomfort. When the drug is misused, neurological complication is possible. The treatment requires extensive washing of the body and clothes after use which can be challenging, particularly for people living in undeveloped areas with scarce or no water availability (WHO 2019c:1).

2.8.1.4 *Crotamiton*

Crotamiton is an anti-parasitic drug that is toxic to the scabies mite, although its mechanism of action is unknown. It is applied from the neck down and should be left on for up to 24 hours before being washed off. The applications should be repeated daily for five days. This treatment requires multiple application and because of that it is less practical than other treatments (Sunderkötter, Feldmeier, Fölster-Holst, Geisel, Klink-Rehbein, Nast, Philipp, Sachs, Stingl, Stoevesandt & Hamm 2016:1159).

2.8.1.5 *Lindane*

Lindane is available in 1% lotion or cream. Lindane stimulates the nervous system of parasites, causing paralysis, convulsions and death of the mite. Lindane 1% has been withdrawn as the first-line of treatment and is now considered a second-line drug, to be used if other treatment fails or cannot be tolerated. Lindane should be left on for up to eight hours and avoided by infants or children, pregnant and lactating mothers, because of an increased transcutaneous absorption leading to possible neurotoxicity. The systemic absorption rate of lindane is 10 times greater than that of permethrin, and its serum levels are more than 40 times higher (Barry 2019:5; WHO 2019c:1).

2.8.1.6 *Malathion*

Malathion is a non-systemic, wide-spectrum organophosphate insecticide, causing toxicity in the nervous system of the parasite and ultimately death. It has a good safety profile. Like most

other anti-scabietics, Malathion has to be applied from neck to toe and left on 24 hours. Its application needs to be repeated after seven days (Vasanwala et al 2019:3).

2.8.2 Oral treatment

2.8.2.1 Ivermectin

Ivermectin is an oral synthetic macrocyclic lactone belonging to the ivermectin group of antibiotics. It is a highly active, broad-spectrum, anti-parasitic treatment, leading to paralysis and death of the parasite either directly or by starvation. The drug is currently approved for the treatment of onchocerciasis and lymphatic filariasis (Barry 2019:5). Ivermectin has been used as a treatment for scabies in outbreaks, crusted scabies patients, immunocompromised patients or in the case in which infestation was recurrent and did not clear with topical treatment. In developing countries, there is an increasing interest in the use of ivermectin to reduce the community prevalence of scabies and associated morbidity. Compared to other treatment, ivermectin has the additional benefit of eliminating, simultaneously, a number of common parasitic diseases. This is a significant advantage for populations in many tropical developing countries, where intestinal nematodes and other ectoparasites are co-endemic (Chandler & Fuller 2019:84).

For the treatment of scabies, ivermectin is recommended at a dose of 200µ/kg to be taken with food. Single doses may not be sufficient to eradicate the various stages of the parasite. A second dose is recommended after one to two weeks, because of its limited ovicidal activity, as ivermectin may not kill eggs that are unhatched at the time of initial treatment. Ivermectin is contraindicated in patients with an allergic reaction or nervous system disorders and in women who are pregnant or breastfeeding. Children younger than 5 years or weighing less than 15kg should not be treated with ivermectin (WHO 2019c:1; Chandler & Fuller 2019: 84-85).

2.9 CURRENT TREATMENT RECOMMENDATIONS

Current scabies treatment recommendation based on guidelines available in different countries varies due to several factors including the severity of the disease, level of endemicity and availability of the treatment. Although treatment recommendation from Centres for Disease Control and Prevention (CDC), European guideline for the management of scabies and Ethiopia interim-guideline for multi-sectoral scabies outbreak emergency response was made only between recommended and alternative treatments; in practice, the choice of the treatment is also variable (Salavastru, Chosidow, Boffa, Janier & Tiplica

2017:1249).

In most instances, case management recommendations of scabies include immediate treatment of the patient with topical or oral treatment. In the European guidelines for the management of scabies; for classic scabies or a common type of scabies, Permethrin 5% cream or Ivermectine *p.o.* 200µg /kg/dose repeated after 7 days was a choice of drug. As an alternative treatment, the guidelines recommended that Malathion 0.5% aqueous lotion or Ivermectine 1% lotion or Sulfur 6-33% ointment or lotion on three successive days or synergized pyrethrins foam was recommended. For the crusted scabies, both a topical scabicide and ivermectine was recommended by these guidelines (Salavastru et al. 2017:1250).

In Centres for Disease Control and Prevention (CDC) guidelines for the management of scabies, case management recommendation for classic scabies or a common type of scabies, Permethrin 5% cream, Crothamiton 10% lotion or cream, sulfur 5%-10% ointment, Lindane 1% lotion and Ivermectine *p.o.* 200µg /kg/dose was a choice of drug. For crusted scabies, both oral and topical agents should be used. The recommended drugs were Ivermectine *p.o.* 200µg /kg/dose, Permethrin 5% cream, Benzyl benzoate 25% lotion and Keratolytic cream (CDC 2019:1).

Ethiopia interim-guidelines for multi-sectoral scabies outbreak emergency response has described the drug of choice in scabies outbreak. The drug used was Ivermectine *p.o.* 200µg /kg/dose and Permethrin 5% cream, 12.5 to 25% Benzyl benzoate lotion and Sulfur 5% -10% ointment. Ivermectine and Permethrin used as the first-line drug and benzyl benzoate lotion and sulfur used as the second-line drugs. The treatment used for the secondary infection was Cephalexin *p.o.* as a first-line drug and Cloxaciline 25-50mg/ kg/ day for 7 days as second-line treatment. In case hypersensitive reaction occurs, Phenergan *p.o.* 25mg once per day and diphenhydramine 2-50mg cap *p.o.* every 6 hours, was used. Alternatively, chlorpheniramine 4-6 mg *p.o.* every 6 hours was used (FMOH 2015a: 7-9).

In addition to case management, contact management was needed to prevent the disease if they have symptoms of infestation or not. This is vital to prevent the spread of the disease as the interval between initial infestation and clinical manifestation of the symptoms can take as long as 10 weeks, and a lot of individuals may not be aware that they are carrying the mite.

2.10 PUBLIC HEALTH SCABIES PREVENTION AND CONTROL MEASURES

Scabies is a major cause of morbidity in many developing countries, regardless of available therapies for the treatment of classic and crusted scabies. This could lead to reducing the quality of life of the patient, decreased economic income and markedly increased risk of a serious complication due to secondary bacterial infection. Recently, scabies has been a low priority for health programmes and research. This may be due to its complication, spread across a range of disciplines including dermatology, infectious disease and paediatrics. On the other hand, there is increasing recognition of neglected tropical diseases as a public health problem by the Ministry of Health of Ethiopia and developing a national master plan for prevention and control.

To understand the prevention and control of scabies as a public health problem, it is important to understand not only of the approaches for the reduction of scabies prevalence, but also the risk factors associated with the disease to confirm that control measures are properly targeted.

2.10.1 Socio-demographic risk factors for scabies

A limited number of studies has been conducted in developing countries to describe a strong relationship between the prevalence of scabies and socio-economic status that may occur due to overcrowded living conditions among others. Factors that were specifically investigated with the prevalence of scabies and associated factors include large family size, parental literacy, and low annual income of the household (Ejigu et al. 2019: 122).

A study conducted in Ethiopia, Arbaminch Zuria also confirmed, overcrowding, contact with family members, wealth index, knowledge about scabies, climatic zone, frequency of washing one's body, washing clothes, hairs and sharing of clothes were associated with scabies (Tunje, Churko, Haftu, Alagaw, & Girma 2020:17).

As for the study conducted in Northwest Ethiopia, Dabat district, the factors contributing to scabies infestation transmission were physical contact with scabies cases, the presence of family members with itchy signs and the use of only water for hand washing. In addition, parental educational status, student grade level and location of the school play a vital role in scabies transmission (Dagne, Dessie, Destaw, Yallew, & Gizaw 2019:4). In another study conducted by Jarso, Yusuf and Achamyesh (2018:7), the main socio-demographic factors for scabies transmission were family size (>5), sleeping with scabies infected person, the

water source on a daily basis and home being affected by flooding.

One study conducted in South Gondar, Amhara region, during an outbreak investigation, they identified predisposing factors for scabies transmission as sleeping and washing with scabies patient, putting on clothes from a scabies infected individual and household daily water consumption (Adamu & Tsegaye 2020:12). The above finding supports other evidence that scabies control programmes need to involve social and behavioural aspects of the public health control of the disease. The achievement expected by the community was realised by integrating disease control strategies with other neglected tropical diseases (NTDs) towards long-term change.

2.10.2 Environmental and Household approach for scabies control

Environmental approaches for the prevention and control of scabies are recommended by researchers and different treatment guidelines to balance individual- based treatment approaches in respect of scabies (CDC 2018: 7). Yet, a limited amount of data is available in the literature regarding these.

In Centre for Disease Control and prevention (CDC) treatment guidelines, besides individual-based treatment, all household members and other potentially exposed people should be treated at the same time to prevent reinfection. All clothing worn and bedding used before 3 days of the treatment should be washed and dried using hot water and these ought to be dry cleaned. The clothes that cannot be dry cleaned or laundered can be disinfected by storing in a closed plastic bag for several days to a week (at least 72 hours) to kill the mites and to prevent re-infections (CDC 2018:7).

In a study conducted by Chandler and Fuller (2019: 85), it is stated that all household members, close contact with scabies patients and homes of patients with crusted scabies are reflected as an important contributors to the effective management of scabies. To maximise the effectiveness of treatment and control measures, and to prevent further spread, health education of the patients and all staff within an institution is a recommended strategy. Post-treatment surveillance is important for patients with crusted scabies because they are main infectors of other community members. Also, regular follow-up of patients and household contacts are important to increase community awareness and engagement, which contribute to the success of the management of scabies at the community level.

2.11 NEGLECTED TROPICAL DISEASES

The World Health Organisation (WHO) identified twenty major NTDs, which occur under tropical and sub-tropical climate conditions and disproportionately affect populations living in poverty. These diseases affect more than one billion people worldwide, and they cause a devastating human, social and economic burden. The absence of timely treatment access and care of neglected tropical disease leaves hundreds of millions more severely disabled, disfigured or debilitated, and it cost developing economies comparable to billions of dollars each year in direct health costs, lost productivity and decreased socio-economic and educational achievement (WHO 2020: 2).

Neglected tropical diseases cause a wide range of clinical manifestations. Some of the diseases produce unspecified symptoms in people suffering from them that lead to the wrong diagnosis and others remain a symptomatic until complication develops, which leads to delay in diagnosis. So, to solve this, all clinical manifestation and epidemiological backgrounds are considered in the field, but laboratory and other imaging studies are required to confirm their presence. These measures would then offer an integrated approach to the patients timeously (Alvarez-Hernandez, Rivero- Zambrano, Martinez-Juarez & Garcia-Rodriguez-Arana 2020:1).

Most of neglected tropical diseases emerge in areas with limited resources, where appropriate diagnostic tools are not available and affordable. Investment and commitment are essential for early case detection, treatment and prevention of the NTDs. Proper public health measures are required for effective control (Hernandez et al. 2020: 2). WHO has five key points to reduce the burden of NTDs which were preventive chemotherapy, innovative and intensified disease management, vector ecology and management, veterinary health services, safe water, sanitation, and hygiene. Of the above-mentioned interventions, the availability of affordable and safe preventive chemotherapies has led to a reduced prevalence of NTDs (WHO 2017: 1).

2.12 MASS DRUG ADMINISTRATION FOR NEGLECTED TROPICAL DISEASES.

The global plan to eliminate several major neglected tropical diseases are the implementation of mass drug administration approaches. Mass drug administration approaches were used for the five most common neglected diseases which were lymphatic filariasis, onchocerciasis, schistosomiasis, soil transmitted helminths and trachoma. The five recommended drugs for mass drug administration for NTDs were ivermectine, albendazole, diethylcarbamzine,

praziquantel and azithromycin. Most individuals eligible for mass drug administration receive the drugs annually or biannually. A drug like ivermectine was the most used drugs for the last decade, with the dose 100-200 µg/kg given for lymphatic filariasis and onchocerciasis with a minimum or no side effect (WHO 2019c:1).

Previously, neglected tropical diseases have worked as a vertical programme, but recently to enhance programme effectiveness most of these have included integration approaches. This integration approach shows that the drugs used for mass drug administration can also be used to treat other additional NTDs.

2.13 MASS DRUG ADMINISTRATION FOR THE CONTROL OF SCABIES

Mass drug administration for the control of scabies has been encouraging evidence to control the community prevalence of scabies in a developing country. It shows a direction in implementing large-scale scabies control, which is a key to achieving the Sustainable Development Goal (SDG) target of eliminating scabies by 2030 (UN 2015:1). As in the study conducted in the Solomon Islands, mass drug administration of ivermectine or permethrin was recommended. The results showed that the prevalence of scabies decreased from 25% to less than 1%, and the prevalence of secondary infections decreased from 40% to 21% (Barry 2020: 7).

According to one study conducted in Ethiopia. Ivermectin based mass drug administration was significantly effective for community outbreak control of scabies. In this study, there was a higher cure rate for those who received ivermectin through mass drug administration is 92%, when compared to those who received regular treatment in the facility is 88% (Enbiale, Ayalew, Gebrehiwot, Mulu, Azage, Zachariah, Romani, Verdonck, Griensven & Vries 2020: 83S).

2.14 CHALLENGES IN LITERATURE REVIEWED

2.14.1 Challenges related to diagnostic tools

Diagnostic methods for scabies have important limitations. To date, the diagnosis relies on the identification of clinical signs and microscopic examination of skin scrapings. However, typical skin lesions and burrows are not easy to recognise and are often covered by eczematous changes and impetigo. These features can confuse the picture with that of several other diseases and conditions such as bacterial impetigo and folliculitis, insect bites, eczema, contact dermatitis, popular urticarial, and psoriasis. In addition, microscopic

inspection of skin scrapings has a low sensitivity of only 50%, due in part to the low density of mites in ordinary scabies (Walton & Currie 2007: 72). Indian ink staining has been described as impractical and thus is rarely used.

2.14.2 Challenges related to therapy

Oral Ivermectin has been considered for the epidemiological control of scabies, especially in settings where compliance with topically applied agents may pose a problem (Worth et al 2011: 4). However, the utilization of oral Ivermectin in mass drug administration (MDA) remains a controversial issue (Heukelbach, Mazigo, & Ugbomoiko 2013: 129). First of all, the drug is not approved in several countries for the indication to treat scabies and is associated with some safety issues in children under the age of 5 and pregnant women (Romani, Whitfeld, Koroivueta, et al 2015: 2311). Second, resistance may develop after repeated, prolonged courses with oral Ivermectin, as for topical compounds (Mounsey, Holt, McCarthy, et al 2009: 840). Third, some studies have shown evidence against the better effect of Ivermectin over topical agents (Goldust, Rezaee & Hemayat 2012: 546).

2.14.3 Future research plan and other needs

Many important gaps remain in research on scabies. In terms of treatment, areas of concern include, first, the limitations of available therapeutic options and safety. There are concerns about Ivermectin and other drugs in young children and during pregnancy, and optimizing Ivermectin dose is an area that requires further study. Second, there is a need to continue working on the emergence of generations of mites resistant to various Scabicide drugs, the best treatment for crusted scabies, and the low effectiveness of available treatments in preventing recurrence. A final area awaiting progress is vaccine development (Arlian and Morgan 2017:14-22).

Furthermore, guidelines should be established for the best therapeutic options to manage scabies and its complications such as inflammatory skin responses, secondary bacterial infections, and others. Comparative research to evaluate new drugs ought to be encouraged. Although still in the preclinical phase in animals, research on single-dose Moxidectin is an example of such efforts (Bernigaud, Fang, and Fischer 2016:7).

2.15 CONCLUSION

In this chapter, the history, anatomy, life cycle, transmission, clinical presentation, and main types of scabies was discussed in detail. The global, sub-Saharan and Ethiopian epidemiological situations were also discussed. Diagnosis and treatment of scabies, including the drugs used to treat according to their ages were amplified and explained in detail. Finally, the complication of scabies, current treatment recommendation, public health measures and gaps in literature were also described. Chapter 3 presents the research design and methodology as well as the conceptual framework for this study.

CHAPTER THREE

RESEARCH DESIGN, METHODOLOGY AND THEORETICAL FRAMEWORK

3.1 INTRODUCTION

The previous chapter presented and discussed the literature review on the history, anatomy, life cycle, transmission, clinical presentation, and main types of scabies. The global, sub-Saharan and Ethiopian epidemiological situation were also critically examined. Diagnosis and treatment of scabies, including the drugs used to treat it according to their ages were also explained. Lastly, the complications arising from scabies, current treatment recommendation and public health measures were amply described.

This chapter presents the research design and methodology used in different phases of this study and describes how the study was conducted, including the population, sampling procedures, data collection, data analyses, ethical considerations and theoretical framework of the study. The purpose of this study was developed as per the paragraph that follows.

3.2 PURPOSE OF THE STUDY

The purpose of this study was to evaluate the current management approaches to scabies at primary health care in the Deder district in order to develop strategies to enhance the management of scabies in primary health care centers in Ethiopia.

3.3 STUDY OBJECTIVES

Based on the purpose of this study as stated above, the following objectives were developed to:

3.3.1 Phase one: Health care users

- Explore the current knowledge and experiences of healthcare users with regard to the management of scabies at primary health care level.

3.3.2 Phase two: Health care Providers

- Evaluate current management of scabies at selected primary health care facilities in Deder district.
- Describe the enablers and barriers to scabies management at primary health care level.

- Describe and explore the needs with regard to improving the management of scabies at primary health care level.

3.3.3 Phase three and four: Development and validation of strategies with program managers.

- Develop and validate strategies for the enhancement of management and control of scabies.

3.4 RESEARCH DESIGN

A research design is a comprehensive plan for conducting an investigation that stretches from the initial research question through the method of data collection, analysis, interpretation and final reporting (Gray, Grove & Sutherland, 2017: 106). Polit and Beck (2017: 743) indicate that a research design is essentially a plan for addressing the research question and specifications for enhancing the study's integrity.

As stated by Creswell and Creswell (2018: 49), the choice of research design depends on the research problem studied and on the researchers' experiences on the design and the audiences of the research. The first step in the research design is deciding on the overall approach of the study such as a mixed-method that focuses on collecting both qualitative and quantitative data, or quantitative that focuses on collecting and analysing numbers, qualitative that focuses on collecting and analysing words and images. After selecting the approach, the research design follows an overall plan for identifying and selecting participants, collecting the data about the research questions, analysing the data and writing the report on the findings (Creswell & Creswell, 2018: 43).

Creswell (2014: 278) also describes a research design as containing multiple phases, in which a researcher collects mixed methods, convergent or sequential approaches, sometimes including only quantitative or qualitative studies in a longitudinal study with a focus on a common aim. This variety of research is common in programme implementation, in which multiple phases of the project stretch and build on each other to address a common aim. In line with the above consideration, this study employed a multiphase qualitative research design, which was divided into four phases as described in the paragraphs that follow.

3.4.1 Qualitative research design

Creswell and Creswell (2018:37) emphasises that qualitative research adopts a technique to explore and understand the meanings that individuals or groups have for a social or human problem. This research design focuses on getting deep and significant information from small groups which fulfils a certain standard set by the researcher (Polit & Beck 2017: 90). Qualitative research design is systematic, interactive and flexible way to collect data in a real-world, naturalistic setting to describe the experiences and give them meaning (Polit & Beck 2017: 657; Creswell 2014:103). Qualitative research also involves a check on the qualities or features that cannot be presented in numerical value. It focuses on the phenomena that follow within a natural setting and comprises studying such phenomena within all complexities (Creswell 2015:204).

As cited in Polit and Beck (2017: 655), the features of qualitative research can be designed to achieve the following:

- Get the meaning of the information given by the participants on the situation and understand their experiences on the actions they are involved in;
- Achieve awareness on the contexts in which a certain action takes place;
- Understand the process of undertaking certain kind of actions;
- Identify experience and knowledge of the participant which have not been identified by using different data collection techniques; and
- Involvement in continuous data processing to develop subsequent methods and decide when data collection is carried out.

In this study, the qualitative research design was followed to explore and describe the current scabies management approach at the primary health care in the Deder district, Ethiopia. Qualitative research is primarily descriptive and exploratory; the application of these features is explained below.

3.4.2 Descriptive aspect of the design

Descriptive research focuses primarily on defining a situation, problem, phenomenon, service or programme. It identifies the community living conditions, attitudes or behaviour towards the subject studied (Leavy 2017: 24). In this aspect, the researchers usually assess and are interested in finding out why the observed patterns exist and what they indicate. Descriptive studies answer questions such as what, where, when and how of practices/experiences observed in a study setting.

As described by Babbie (2016:91) the descriptive study can provide valuable information about the appearances of a population of interest and about the speed of community change, along with influencing factors. In qualitative research, the description of information is produced in the participants' own words or vignettes. The main purpose of descriptive studies is to explain and describe the topic under study or the situations under investigation (Walliman 2018: 26). It also gives an overall picture of the phenomenon.

In this study, the researcher strove to describe the current scabies management approach at primary health care in the Deder district, Ethiopia. Using the Donabidian model as a guiding framework, the following areas are described accordingly:

- The knowledge and experiences of health care users on the management of scabies
- The current scabies management approach by health care providers
- The enablers and barriers to scabies management; and
- The needs with regard to improving the management of scabies.

3.4.3 Exploratory aspect of the design

Creswell and Creswell (2018:162), state that exploratory research is carried out if there is insufficient information on the topic under investigation, and the primary aim of the researcher is to analyse the complex issues surrounding the occurrence. This research begins with an occurrence of interest, then proceeds into observing and describing it. Creswell and Creswell (2018:162), shows that one of the main reasons for conducting qualitative research is that the study is exploratory. This generally means that there are not many articles on the topic being studied, and the researcher is trying to listen to the opinions of the participants and build a full understanding based on what they hear.

Babbie (2016:90) states that exploratory research is conducted on a subject that has not been described or known in detail. It strives to understand the topic under investigation in a totally different way, specifically from the study participant viewpoint. In this study, to explore the viewpoint of the participants, the most commonly used methods are in-depth individual interviews and focus group discussions. This helped the researcher to understand the populations, individuals, and groups involved in the study (Babbie 2016:90).

This study explores the current scabies management approach from the viewpoint of the health care users and the health care providers. Focus group discussions were conducted

among health care users on how to utilise the scabies management, and in-depth interviews were conducted with health care providers working in primary health care facilities and engaged in the management of scabies. This helped the researcher to identify the gaps and develop strategies to enhance the management of scabies at the primary health care level.

3.5 CONCEPTUAL FOUNDATION OF THE STUDY

As stated by Polit and Beck (2017:119), the overall conceptual foundation of a study, which is based on a theory, is a theoretical framework. Theoretical frameworks are used by focusing on specific ideas and identifying the specific point of view from which the researcher has come to analyse and interpret the data collected. It is also a combination of many interconnected ideas employed to explain a phenomenon within limited assumptions and conditions. In this study, by considering the purpose and objective of the study, the ecological and Donabidian model were used for examining health services and assessing the quality of care at primary health care levels.

3.5.1 Ecological Model

The ecological Model is a health model that emphasises the associations and relationships between several factors affecting health (Maus & Satariano 2017: 24). This model is useful for the researcher to identify the interventions that could be more effective by addressing health determinants related to scabies at all levels. The ecological models identify multiple factors, namely individual, interpersonal, institutional, community and public policy factors. These factors are explained below.

3.5.1.1 Individual factors

An individual factor concerns an individual's behaviour such as knowledge, attitude, beliefs, and personality. In this study, the individuals refer to those affected by scabies and living in the study area and their interaction with their home and community. The age, education, income, religious beliefs, values and expectations affect the management of scabies at individual levels.

3.5.1.2 Interpersonal factors

Interpersonal factors entail the communication relationship with other people, which can provide social support. In this study, interpersonal factors shape the communication within the household, community and health facilities. Partner, family member, peers, and health

care providers influences their behaviour and experience which affect the management of scabies at primary health care levels.

3.5.1.3 Institutional factors

Institutional factors are rules, regulations, policies, guidelines and informal structures that have a positive or negative impact on an individual's behaviour. In this study, institutional factors refer to primary health care facilities, health posts, health care regulations and guidelines that can affect the management of scabies in individual or households.

3.5.1.4 Community factors

Community factors refer to social norms that exist among individual, groups, or organisations that can limit or improve community health. In this study, community factor refers to individuals or health care users who live in the area.

3.5.1.5 Public policy factors

Public policy factors include the local, regional, and national policies and laws that support the scabies management approach. In this study, public policy factors refer to the management of scabies in terms of access to health care at community level through health extension workers, availability of health development army and of supporting partners that may affect individual or community scabies management.

3.5.2 Donabidian Model

The Donabidian Model is a conceptual model that provides a framework for examining health services and evaluating the eminence of health care in clinical practice (Donabidian model [S.a.]: 1). According to the Donabidian model (1988:1745), the health service can be assessed in three categories being structure, process, and outcome.

The structure is defined as the physical context or organisational setting in which a service is delivered (Kajonius & Kazemi, 2015:700). In this study, the structure consists of health policy, health care providers, health care system, accessibility, and availability of service. As Donabidian (2002:50), suggests, the structure is the main component of the health care that the organisation can give.

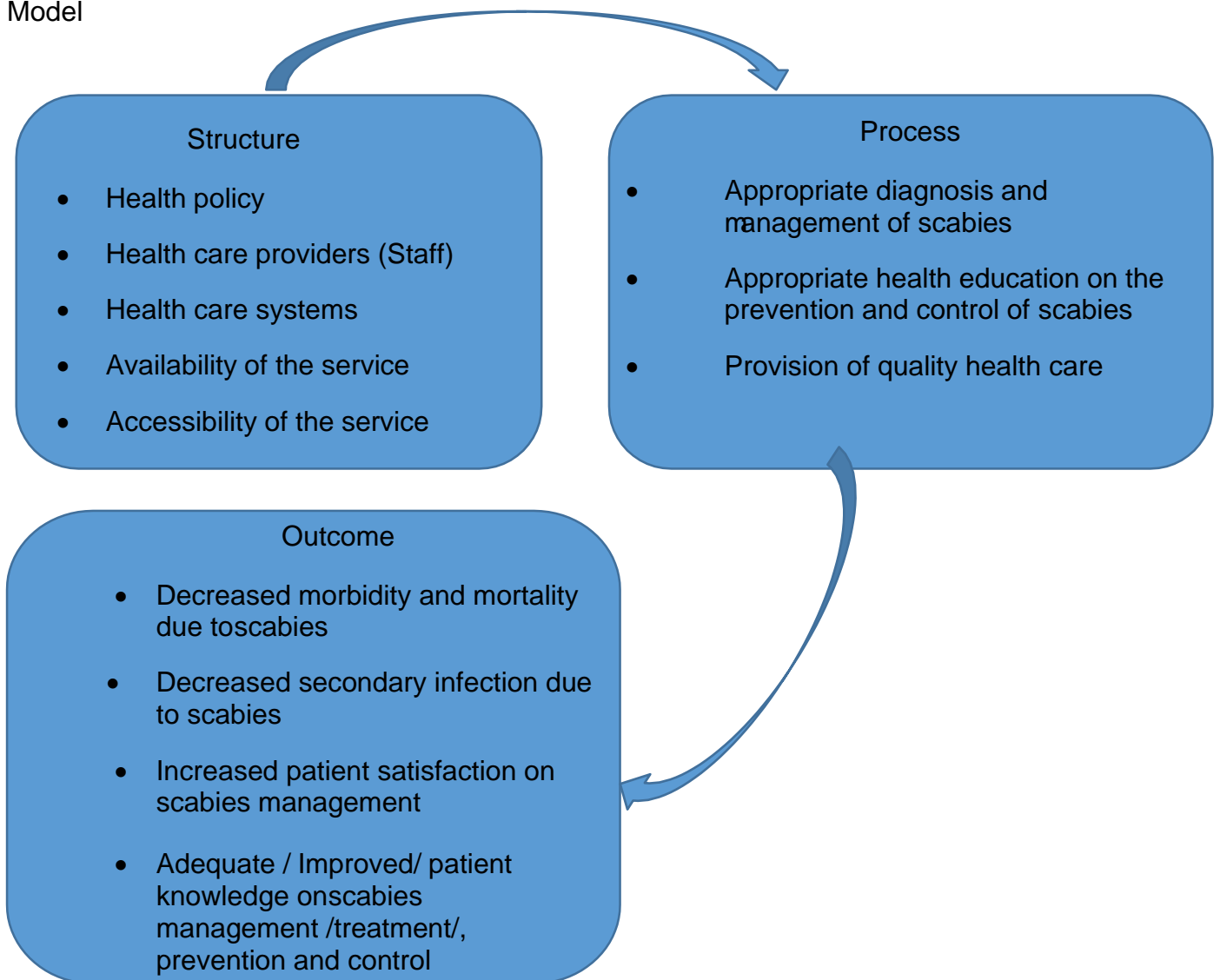
The process is the actual service delivery, which includes diagnosing, treating, educating the patient in the prevention and control of scabies, and provision of quality care. The process is directly connected with the outcome and the structural domain of the model (Donabidian

2002:52).

Outcome refers to the changes that are expected or unexpected in individuals and populations that can be attributable to the provision of health care (Donabidian 2005:691-694). Outcome variable include changes in morbidity and mortality, decreased secondary complications, increased patient satisfaction in scabies management, and adequate patient knowledge on prevention and control of scabies. Donabidian recommends that a good structure increases the likeliness of a good process; a good process increases the likeliness of good outcomes (Donabidian 2002:46). As indicated by Haj, Lamrini and Rais (2013: 27), the Donabidian Model was used as a multidimensional model for the quality of health care service in health institutions, and it is considered as a benchmark for evaluating health care service.

In this study, the researcher further explained the structure and process component through the adaptation of the ecological models. The structure and process are an important factor for giving appropriate quality service to the patient. The figure below shows the interrelationship between the Donabidian and ecological model for this study (Figure 1).

Figure 3.1: Conceptual Model adapted from Donabedian (1988:169) and Ecological Model



3.6 EXPLORATION OF THE CURRENT KNOWLEDGE AND EXPERIENCE OF HEALTH CARE USERS

In this phase, the health care user's current knowledge and experience regarding the current scabies management approach was explored using focus group discussions.

3.6.1 Methodological approach for phase one

Polit and Beck (2017:10) describes that phases, procedures and strategies are taken to examine the problem studied and are used to analyse the collected data as a research method. This section contains the full process taken to collect data. It commenced with a description of the study setting, data collection tool, the method of data processing, and other administrative procedures used in the study (Creswell & Creswell 2018:40). In line with the above explanation, the following section gives details on the study setting, population, sample, data collection and analysis for phase one.

3.6.2 Study setting for phase one

Polit and Beck (2017:744) state that the study setting is the physical location in which data collection takes place in a study. According to Gray, Grove and Sutherland (2017:552), the study setting is a field in which the phenomenon of interest actually lives. These authors also indicate that the setting can be homes, health facilities, communities or sites selected by the researcher.

This study was conducted in the Deder district. Deder district is one of the districts in southeastern Ethiopia, in the East Hararge zone of the Oromia Region, which has a surface area of 545 square kilometers. According to the projection of the Central Statistics Agency (CSA) of Ethiopia, its population was about 333,793 in 2020. In the district where this study was implemented, there was one district hospital, nine primary health care facilities, and 40 health posts providing curative, preventing, promotive and rehabilitative service to the community.

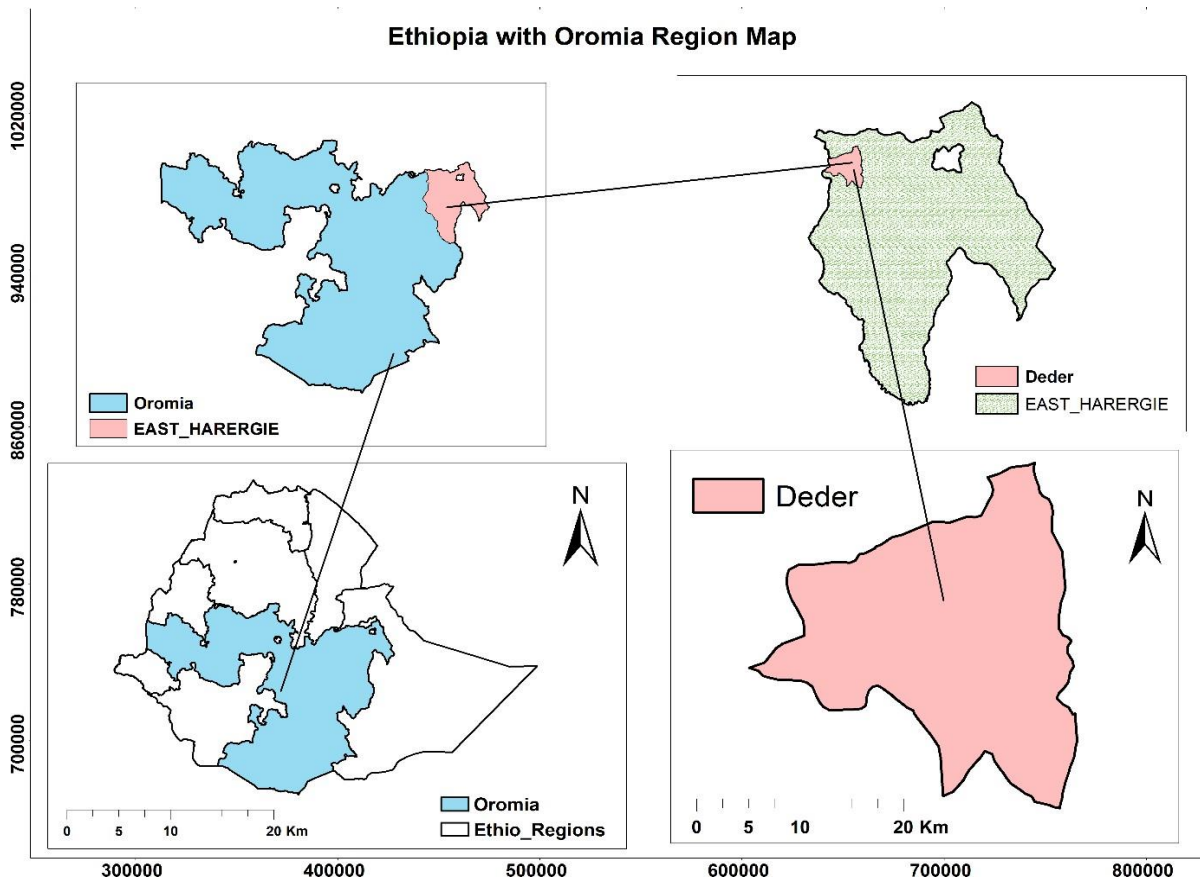


Figure 3.2: Map of Ethiopia, Oromia, East Hararge zone and Deder district (Google map 2020).

3.6.3 Study population for phase one

According to Polit and Beck (2017:249), the set of cases that the researcher is interested in is called a population. The target population (often referred to as the population) is the aggregate of cases about which the researcher seeks to generalise. Babbie (2017:202) shows that depending on the study objective, the concept of population is different for multiple studies. If we take the concept of the population in everyday life, it means all individuals living in a given area. For research purposes, a population is a group of individuals that the researcher seeks to make a statement about.

In line with the above explanation and description, the study population for phase one of these studies was health care users at all primary health care facilities in the Deder district. Deder district is one of the areas highly affected by scabies. The health system data indicate that scabies is among the ten top diseases in the area. In 2020, among the total (4122) under-five children who visited the primary health care facility, about 32.6% (1344) of children were diagnosed with scabies. The Deder district health office report of 2020 also indicates that of

the total number of outpatient cases in the primary health care facilities (17416), about 29.3% (5103) were diagnosed with scabies (Dederdistrict health office 2020). The health care users included in this study were those who got scabies management service at the facilities prior to the study.

3.6.4 Sample and sampling methods for phase one

According to Polit and Beck (2017:250), a subset of population items, which are the most basic units for which data is collected, is called a sample. Sampling is a process of selecting a group of people, behaviours, or factors to conduct a study (Polit & Beck2017:250). As indicated by Brink, Van der Walt and Van Rensburg (2014:132), the process of selecting a sample from a group in order to get information regarding the phenomenon in a way that represents the group of interest is called sampling.

A purposive sampling technique was used for selecting study participants in this phase. Purposive sampling is when participants are selected based on the judgment of the researcher, and they show some features that are of interest in a particular study (Gray, Grove & Sutherland 2017: 539). It has been considered as a useful sampling method to make sure that the knowledge, meanings and perspectives held by the participants are clearly identified and described (Polit & Beck 2018: 291).

In phase one, purposive sampling was used for selecting health care users. The healthcare users as they came in for their regular service were selected based on inclusion criteria and introduced to the purpose of the study and asked to participate in the study. Those willing to take part in the focus group interview were asked to give written consent before the discussion began. To avoid long waiting hours the researcher intended to select six to eight participants before the service began and focus group discussions were done after receiving services in a place convenient for the participants. Data were collected until saturation was reached. The researcher collected data from 58 participants from all nine primary health care facilities.

3.6.4.1 Inclusion criteria for phase one

According to Polit and Beck (2017:250), the inclusion criteria set out the specific features of the target population by which people are selected for inclusion in a study. In this phase, the following criteria were used for eligibility to participate in this study.

- Participants were over the age of 18 years.
- Participants who have been living in the area for three months or more.

- Participants willing to participate in the study and who sign informed consent and are available during data collection period in all primary health care facilities in the Deder district.

3.6.4.2 Exclusion criteria for phase one

As stated by Polit and Beck (2017:250), the criteria identifying characteristics that the target population does not have is the exclusion factor. In this phase, the following were excluded.

- Health care users in a primary health care facility, those who are critically sick or
- Health care users in a primary health care facility who are not diagnosed with scabies.

3.7 DATA COLLECTION METHOD AND PROCEDURES FOR PHASE ONE.

Polit and Beck (2017:725) describe data collection as a way of gathering information from participants to solve a research problem. Data collection is defined as the specific, systematic and specific collection of information related to research objectives and questions (Gray, Grove & Sutherland 2017: 768). In this phase, focus group discussions were conducted with health care users who are willing to participate in the study in all primary health care facilities in the Deder district.

3.7.1 Focus group discussions

Creswell and Creswell (2018:188) define the data collection technique where the researcher interviews participants in a group as focus group discussions. Additionally, the results have high “face validity”: because the method is readily understood, the findings appear believable. The advantage of the focus group discussions is relatively low cost; they provide quick results and increase the sample size by permitting about 6-12 people to be interviewed at one time. In this phase, the focus group discussions comprised of six health care users per primary health care facility with a total of 58 participants.

Before data collection, training was given to the research assistant who helped the researcher in the data collection process. This research assistant had experience in qualitative data collection. The researcher and research assistant introduced themselves and explained the purpose and objective of the research to the participants before the start of focus group discussions. The researcher took into consideration all ethical principles. The researcher asked the study participants for informed consent and permission to record their

voices and take notes of the focus group discussions. The focus group discussions session lasted between 45 and 60 minutes.

The focus group discussions were recorded, and field notes were taken during the interviews. All voice recordings were transferred to a computer at the end of each day. The focus group interview was conducted in the local language (Afan Oromo) which facilitated better understanding and communication with participants. Data were collected until data saturation, and then translated to English and transcribed in script form by an experienced translator and reviewed by the researcher and experienced public health expert while listening to the original audio content. Each transcript was also compared with the field data. Lastly, the collected data were categorised and analysed into themes and sub-themes. The researcher made sure that COVID 19 regulations like social distancing, sanitising and wearing masks were all followed during data collection. During the focus group discussions, not more than 10 people were in the room, so as to allow social distancing.

The main question asked is:

1. *What are your experiences and views regarding the scabies management in this primary health care facility?*

Probing question:

What knowledge do you as health care user have regarding management of scabies?

2. *What do you think could be done in order to treat scabies better?*
3. *Any other information you think would be important to enhance this study?*

3.8 THE EXPLORATION AND DESCRIPTION OF CURRENT SCABIES MANAGEMENT

In this phase, the health care providers were asked to express their perceptions on the current scabies management, the enablers and barriers to scabies management and the need with regards to improving the management of scabies by using in-depth interviews.

3.8.1 Methodological approach for phase two

3.8.1.1 Study population for phase two

The study population for this phase was health care providers at the same primary health care facilities who deal with the treatment of patients diagnosed with scabies and those who meet the inclusion criteria.

3.8.1.2 Sample and sampling methods for phase two

Gray, Grove and Sutherland (2017: 536) submit that a sampling technique in which the researcher selects available research participants who are willing to participate in the study is a convenience sampling. In this study, convenience sampling method was used to select two health professionals working in primary health care facilities with a total of 18 participants for the in-depth interviews on the current scabies management approach at the primary health care levels in the second phase of the research.

The purpose of the convenience sampling was to identify the health care providers who participated in the diagnosis and management of scabies at each primary healthcare facility. Hence, this method was considered as a useful sampling method that comprises collecting appropriate information from a sampled population in the area investigated (Leavy 2017: 76). Therefore, the convenience sampling method was utilised, as eligible healthcare providers working in primary healthcare facilities in the Deder district, which were willing to participate and available during the time of data collection were included. In the case of the availability of more than two respondents in the primary healthcare facilities, the researcher conveniently selected the respondent based on inclusion criteria and willingness to participate. In case all were willing to participate in the research, the researcher explained the protocol of the research and the need for only two people to participate. Therefore, the health care providers had to choose two people among themselves who would participate in the study.

Then, the participants were requested to sign an informed consent form just before the beginning of the interviews. The in-depth interview was conducted in the local language (Afan Oromo). "Afan Oromo" is a local and working language in the region that all health providers easily understand and communicate fluently, and most of the documents produced in the region were also written in Afan Oromo. Therefore, Afan Oromo was used for the interviews with health care providers.

Data was collected using voice recorders and field notes and collected until data saturation was reached, and then all voice recordings were transferred to the computer daily and translated to English and transcribed in script form by an experienced translator and reviewed by the researcher and experienced public health expert while listening to the original audio content.

3.8.1.2.1 *Inclusion Criteria for phase two*

In phase two, the following criteria were used for eligibility to participate in this study.

- Health care professionals who have been working with the diagnosis and treatment of scabies for three months or more in the primary health care.
- Health care professionals willing to participate in the study and who sign informed consent are available during data collection in all primary health care facilities in Deder district.

3.8.1.2.2 *Exclusion criteria for phase two*

In phase two, the following were excluded.

- Health professionals working less than three months in the primary healthcare facility and those who are not involved in treating scabies patients.

3.8.2 Data collection methods and procedures for phase two

Data collection is defined as the specific, systematic and specific collection of information related to research objectives and questions (Gray, Grove & Sutherland 2017: 768). In this phase, the data were collected by using in-depth interviews as described below.

3.8.2.1 *In-depth interview*

Interviewing is a means of data collection to elicit information about non-concrete things which cannot be observed such as intentions and feelings. An interview is pre-planned and focused conversations between the study participant and the researcher. In-depth interviews are the best data collection method when the purpose of the research is to explore the views and experiences of the participant (Leavy 2017: 139). As stated by Polit and Beck (2017: 730), in-depth interviews are the best data collection instrument in qualitative research and are a good way of accessing people's perceptions, meanings, definitions of situations and buildings of reality. This method assists the researcher to explore and describe the participants' views through the help of a few interview guides on the topic.

Polit and Beck (2017: 720) describe the quality of the data collected from an interview, which depends on the skills of the interviewer who investigates and gathers more information and the quality of the interview guide. In phase two of this study, in-depth interviews were conducted with health care providers working at all primary health care facilities in the Deder district; those involved in scabies management. The interviews took place in a private office

at their institutions. Convenience time was selected by the informants to minimize the disturbances of their work responsibilities. The in-depth interview was audio recorded after explaining the purpose and getting written consent from each participant in order to keep the participants' original accounts of views towards the scabies management approach at primary health care facilities. The researcher took field notes for non-verbal cues.

The guiding principle for determining sample size in qualitative research is data saturation, which involves sampling to the point where no new information is obtained and redundancy is achieved (Polit & Beck 2017: 702). Interviews were conducted and these lasted on average 45 to 60 minutes. In total, eighteen health professionals working on the management of scabies in a primary health care facility participated in the interview. The researcher ensured that the COVID 19 regulations like social distancing, sanitising and wearing masks were well-adhered during data collection.

The main question asked is:

1. *What are your views regarding the management of scabies in the health facility where you are employed?*

Probing questions:

2. *What do you think are the enablers and barriers to scabies management?*
3. *Can you tell me the measures you think are required to improve scabies management in primary health care facilities?*
4. *What strategies can be developed in order to enhance current management of scabies at primary health care facilities?*

3.8.3 Pre-testing of Data Collection Tools for phase one and two

As indicated by Polit and Beck (2017: 739), the benefit of pre-testing a tool is that this helps the researcher to assess the appropriateness of a data collection instrument and method, solve potential problems that might be encountered during data collection. In this study, pre-testing for both in-depth and focus group discussions were conducted prior to the main study in one similar public health facility in order to determine whether the interview guides brought the intended information or not. The unclear questions during the pre-testing were clarified, reshaped and modified prior to the main data collection process. There was no change in methodology, and the result of the pre-test was not included in the main study.

3.8.4 Data Management and analysis for phase one and two

According to Polit and Beck (2017:725), the process of organising and generating data to answer the research question is data analysis. Furthermore, Creswell (2014:245) submit that analysis starts at the beginning of data collection, the interpretation of the information, and finally writing the report. The same author also indicates that analysis commences with organising data into manageable sizes. Creswell and Poth (2018: 248) aver that analysis starts with organising the collected data, coding and developing a theme, and finally interpreting the data. The purpose of data analysis was to reorganise, give structure, and draw meanings from data.

Polit and Beck (2017: 748) states that the analysis of the study subject, idea or theme starts from the beginning of the data collection. In this study, all audio recorded data from the in-depth interview and focus group interview were transferred into a computer following translation from Afan Oromo to English and then transcribed verbatim and coded into themes and sub-themes. The researcher coded the data which helps for patterning of data presentations. Grouping of similar information was done from each phase together to derive common themes. The developed themes, categories and patterns were analysed using Tesch's approach (Creswell & Creswell 2018: 195).

Tesch's (1990), as cited by Creswell and Creswell (2018: 196), shows eight data analysis steps in a qualitative study. For this study, the researcher used Tesch's data analysis approach to analyse the collected data as described below:

- The researcher reads and re-reads all transcription data from the focus group discussions and in-depth interviews to get a sense of the whole ideas given by the participants.
- After reading the entire transcript, the most interesting and the shortest one was chosen. The file was examined from the following points of view: What is this about? To focus on its content and its underlying meaning. The researcher jotted down her thoughts in the margin.
- After jotting down the ideas, the researcher organized the data to make a list of all topics and then cluster similar topics together. After clustering similar topics together, the researcher tried to identify major topics, unique topics, and leftovers and write these in the margin.
- Then the researcher generated codes for similar topics and reorganised these to

see if they become categories from both focus groups and in-depth interviews separately.

- The researcher then finds matching phrases for them and regroups them into categories.
- Finally, the researcher decided to abbreviate each theme or category, and the codes were arranged alphabetically.
- A preliminary analysis was performed by collecting the data associated with each theme. This time, the researcher focused on the content of each theme, keeping an eye on the research question to exclude irrelevant data.
- Existing data was checked again to determine if it needed to be re-coded.

3.9 PHASE III: DEVELOPMENT OF STRATEGIES TO ENHANCE THE MANAGEMENT OF SCABIES

This phase presents the development of a strategy for enhancing the management of scabies at primary health care level.

3.9.1 Formulation of the draft strategy

As described by Fuertes et al (2020:1), strategy is defined as a demonstration of target, approaches, purposes, objectives, and plans to realise them tended to in such a way that they characterize the organization in which the organisation would be. The strategy is an overall plan or set of plans intended to achieve something, especially over a long period (*Collin English Dictionary* 2019, "strategy"). The main purpose of the strategy was to guide programme owners, implementers, and health care providers to have well-organized scabies management approach at the primary healthcare facility level. In this study, the researcher used the findings from health care users and health care providers in phase one and phase two, and the literature control to develop the draft strategy document. In addition, the Federal Ministry of Health policies (FMOH 2019) were used to develop these strategies.

The researcher followed the conceptual model adapted from the Donabidian and ecological model to guide the development of the draft strategy document. The draft strategy document was developed based on the key findings identified. The developed draft strategy was discussed with programme managers working at different levels in the health system to reach agreement on the document and add their comment on the validation tools. The program managers validated the draft strategy document based on the following ways of validating strategies such as clarity, acceptability, applicability, relevance, effectiveness, feasibility,

sustainable and achievable. The researcher incorporated all comments, recommendations and suggestions given by the program managers. During the second round validation, further clarity and consensus were obtained and final strategy document development was finalized.

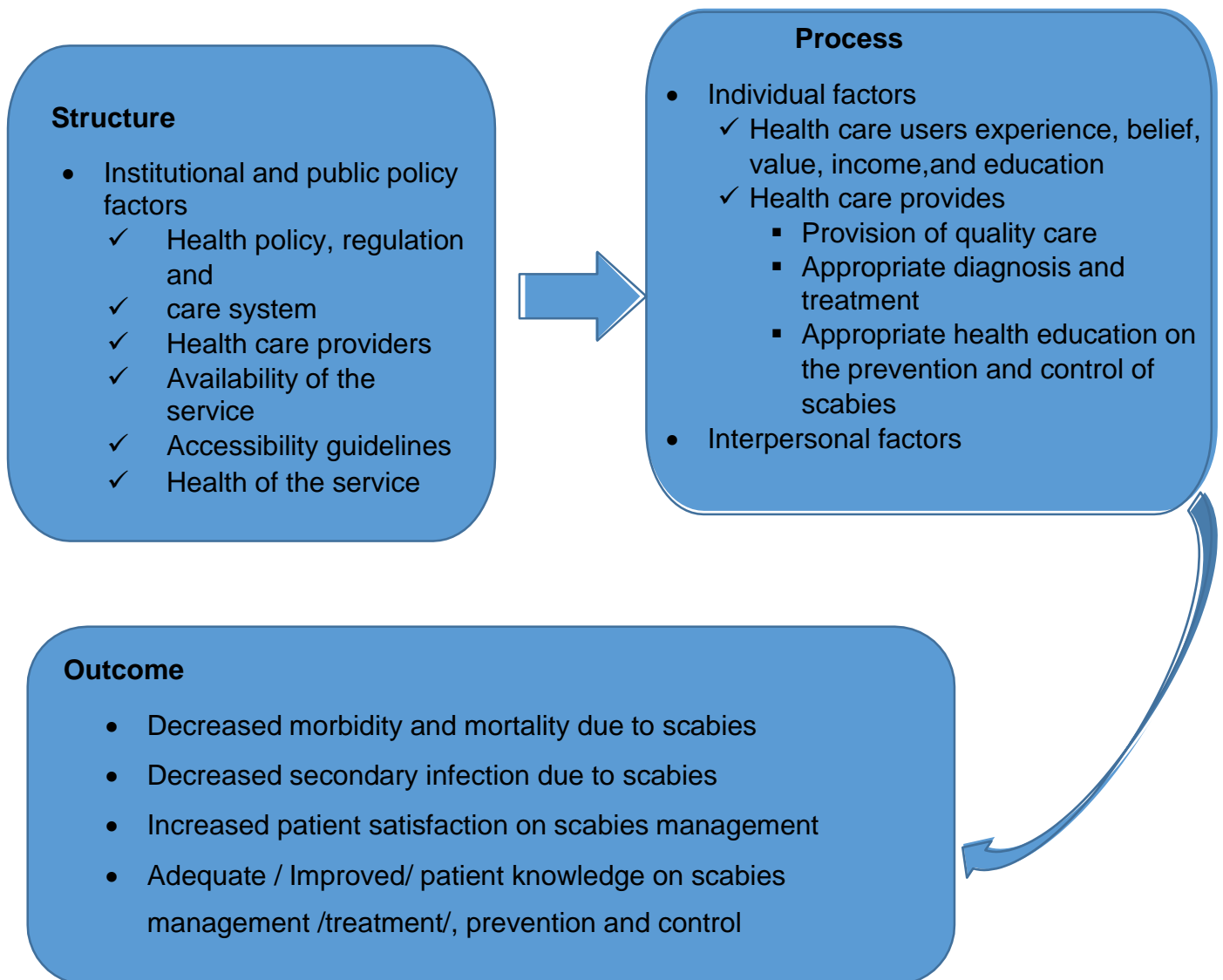


Figure 3.3: A pictorial presentation to guide the development of strategies based on the Donabedian and ecological model

3.10 PHASE 4: VALIDATION OF STRATEGIC DOCUMENT

In this phase, the program managers working in the different health systems validated the developed strategic document by using validation tools (annexure 27). The program managers were selected based on their program and practical experience in the area of scabies management, prevention and control. The purpose of validation was to confirm that the developed strategies were feasible, acceptable and sustainable for the anticipated context.

3.10.1 Study population for phase four

The study population for the validation of the developed strategy document were programme managers working at different levels of health systems (district, Zonal, Regional, Federal Ministry of Health, and neglected tropical disease experts).

3.10.2 Sample and sampling methods for phase four

In phase four, convenience sampling was used for the selection of programme managers working at different levels of the health system. In the validation process two programme managers each were selected from the Ministry of Health, regional health office, zonal health office and district health office, neglected tropical disease experts were participating.

3.10.3 Data collection process for validation of the draft document

The researcher invited all selected programme managers working at the Ministry of Health, regional health office, zonal health office, district health office, and neglected tropical disease experts for the validation session and gave each invited participant the information letter (see Annexure 13). The researcher planned the exact date of the validation session, time and venue and communicated it to participants based on their availability.

3.10.3.1 Venue of the validation

The researcher arranged the meeting room in the Armauer Hansen Research Institute in the new building on the first floor as the venue of preference. The room had enough space to accommodate all participants in order to prevent infection, and the temperature was also comfortable. The researcher confirmed that every seating place has a pen, a copy of the draft strategy document, the instrument for validation, argument paper, a bottle of water, sanitizer and it keeps social distancing as per the WHO recommendations. All participants were checked for the temperature before the start of the session and using masks. A flip chart and markers were available in the room. The seating arrangement was in a U-shape pattern to confirm that all the participants would see the flip chart, one another, and the researcher, and there were enough spaces for free movement among participants.

3.10.3.2 Validation process

After all the participants were seated and registered for their availability, the researcher invited each participant to introduce themselves. Then, the researcher explained the purpose, the process of validation and the steps that followed in the process and made sure that all participants understand the importance of their participation in the validation of the draft strategic document.

The researcher followed the following steps:

Step 1: The researcher presented the summary of the results and the draft strategy document and how to develop it to the participants.

The researcher presented a summary of findings, the process of strategy document preparation and the draft strategy document to the participants. The purpose of the presentation was to inform the participants about the findings, opportunities and the challenges experienced by the health care providers and health care users. This evidence was necessary to confirm that participants validate the strategies based on the evidence collected from the study area by using the components of the Donabidian Model.

Step 2: The participants reviewed the draft document, added their comments on the validation tool and discussed.

After presentation of the draft strategies, the researcher introduced the validation tool to the participants who then reviewed the draft document, put their comments and any additional points in the validation tool and discussed with the team.

Step 3: The participants discussed this tool till they reached consensus on the details included and excluded. All comments were discussed, confirming that every participant had an equal voice and that the comments were incorporated. Before the start of the discussion, the participants presented their comments and suggestions on the draft strategies. The researcher put the idea of the participant on the flip chart where every participant could see it and led the discussion on the comment and the idea to be included and excluded in the document given by the participants. Each point raised by the participant was discussed in detail and incorporated the idea in the final document in the next session.

Step 4: The researcher took all comments and agreed on the strategies to finalise the second draft strategy document.

The researcher included all comments and additional ideas from the participants to produce the second draft strategy document. The prepared document was sent to the participants before the second validation session by email for their additional comment and suggestion. The researcher used the comments and any additional suggestions to complete the second draft strategic document. After finalising the second strategy document, the researcher sent the document to the participants through email for their consensus and approval during the Zoom meeting.

Step 5: The revised strategy document was again validated during a Zoom meeting to confirm that all participants reached consensus on the final strategy document.

The participants returned the final document in ten days indicating their suggestions or approval against the document. Finally, the researcher arranged the Zoom meeting to validate the final strategy document.

3.11 TRUSTWORTHINESS OF THE STUDY

Creswell (2014:201) refers to the validity of research work, which is one of the strengths of qualitative research and is based on confirming whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of such data. To ensure the trustworthiness of this study, the researcher used five criteria as described by Polit and Beck (2017:559) to develop the trustworthiness of a qualitative study, and these criteria were credibility, dependability, conformability, transferability and authenticity. The collective of all these criteria are called trustworthiness criteria, which is used for refereeing the quality of qualitative research. So, the researcher followed these criteria to ensure the quality of this study.

3.11.1 Credibility

Credibility, according to Polit and Beck (2017:559), is an assurance of the truth of the data. Credibility is used to assess the extent to which the research findings are based on the lived experiences of participants. The focus is on assessing how correct the research results are from the point of view of research participants, researchers and readers/evaluators (Creswell

& Creswell 2018:274). As stated by Sparkes and Smith (2014:189), credibility is achieved through triangulation, prolonged engagement, peer debriefing, negative case analysis, and member check. For this study, to achieve credibility, the researcher was used triangulation, prolonged engagement and peer debriefing.

3.11.1.1 *Triangulation*

A collection of information about an event under study from multiple sources and minimising biases that may arise from using only one type of method, one observer and one theory is called triangulation (Polit & Beck 2018:419). These authors also indicate that triangulation is achieved by gathering data from a different source and through different methods useful for creating credibility in a study. Triangulation can be classified into four types (Polit & Beck 2018:419). These were triangulation of source, method triangulation, analyst triangulation, and theoretical triangulation. The researcher used two triangulation methods, namely source triangulation and theoretical triangulation. Data were generated from the health care provider's in-depth interviews, health care user's focus group discussions and the notes that were taken to capture non-verbal behavior while watching the participants. The study of different literature control sources also provides theoretical triangulation.

3.11.1.2 *Prolonged engagement*

Polit and Beck (2017:559) indicates prolonged engagement of the researcher in the study area and with the participants, which helped them to understand their culture, language or opinions on them. It also helped to gather enough information until saturation of information. Creswell and Creswell (2018:275), suggest that prolonged engagement with study participants provides the researcher with a better opportunity to understand and describe the phenomenon under investigation and thereby ensure the credibility of the study. The researcher for this study took extensive field notes to confirm a credible capturing of participants' descriptions and give sufficient time to the participants in collecting data in order to have in-depth understanding of what the participants tried to communicate until saturation of a key category was reached.

3.11.1.3 Peer debriefing

Polit and Beck (2017:559) indicates one of the approaches to ensure the quality of qualitative study is peer debriefing. By the time of peer debriefing, the researcher brings together experts, including individuals who have had experiences with the study under examination of the methodology that was followed. Throughout this process, the collected data, the codes developed and emerging themes were presented to the experts, and the discussion emphasized on identifying any biases during data collection, giving a decision on the richness of the data collected to answer the research question, and detecting errors introduced during the interpretation of data. Consequently, the researcher involved expertise in a qualitative study from health sectors and also expertise in the area of study in order to avoid bias and wrong interpretation of data. Based on the expert comments, all the necessary measures were undertaken.

3.11.2 Dependability

Polit and Beck (2017:559) refer to dependability as the evidence that is reliable and stable over time and conditions. It is important to note that there is evidence that if a study were repeated with the same participants in the same context, those findings would be similar (Creswell 2015:259). In this study, to confirm dependability, the researcher conducted a pre-test as mentioned before to modify the final study tool and questions and take care of unforeseen issues to ensure that the data is consistent and stable. During the research process, the researcher repeated the statements of the participants written as field notes to confirm that they were their words. When necessary, a modification was done to ensure that the final results included and presented the truthful representations of what the participants experienced, and the records correctly captured what they actually explained from their personal view or understanding.

3.11.3 Conformability

Conformability refers to the findings and the conclusions supported by the data and that another researcher can reach the same conclusions as the primary researcher (Polit & Beck, 2017:560). Sparkes and Smith (2014:181) state one of the approaches to make sure the conformability of the study is to publicise the information collected, the code generated and

the process of research so judgments are created on the overall quality of research. In this study, to ensure conformability, the researcher was collected all-inclusive data that allowed an independent examiner to come to the same interpretation and conclusion. These data include field notes, transcripts, audio records, a consolidated dataset with detailed themes and subthemes.

3.11.4 Transferability

Polit and Beck (2017: 560) describe the degree to which results are meaningful and can be transferred to another setting is transferability. If a study is transferable, it means that the findings and knowledge gained from the research can be applied in a similar context or setting. The approach of transferring research findings is to provide a bold and detailed description of the research path and findings (Creswell and Creswell 2018:290). In this study, to ensure transferability, the researcher provided detailed and contextualised information to allow readers to make an interpretation about the findings and to transfer these to other settings.

3.11.5 Authenticity

Polit and Beck (2017:560) describe the degree to which researchers equally and faithfully show a range of realities refers to authenticity. In this study, to ensure authenticity, the researcher provided a detailed report that readers know the lives with some feeling, experience, language and context of those lives. The researcher was also able to confirm that the data from participants was as truthful as possible by making sure that the participants meet the inclusion criteria.

3.12 ETHICAL CONSIDERATIOS

As stated by Polit and Beck (2017:727), a system of moral values that is defined by the degree to which a research procedure follows professional, legal and social obligations to the study participant is Ethics. As described by Newman (2014:69), a tool for balancing the pursuit of knowledge on the researchers, respecting the dignity and dignity of research participants, and ensuring privacy and democratic freedom is research ethics.

3.12.1 Permission to conduct a study

Ethical clearance was obtained from the UNISA Department of Health Studies Higher Degrees Committee (see Annexure 14), Oromia Health Bureau Research Ethics Review Committee (see annexures 15) and AHRI/ALERT Ethics Review Committee (see Annexure 16). The Oromia Health Bureau wrote a support letter to East Hararge Zonal Health Bureau and Deder district asking them for their cooperation in the process of data collection. The district allowed the collection of the data taking the ethical clearances obtained from the regional health bureau (see Annexure 17).

3.12.2 Informed consent

Informed consent means that participants have adequate information about the study and understand the information, and are free to choose whether they wish to participate or opt-out voluntarily (Polit & Beck 2018:139). As described by Resnik (2018:115), informed consent entails the researcher giving information about the research and the participants realising the information and participating in the study based on their willingness.

In this study, written informed consent and permission were obtained from all study participants to record their voices and take notes of the in-depth interviews. In the data collection process, the researcher first explained the purpose, procedures, risks, and benefits of the research to each participant. All selected healthcare providers and healthcare users were asked for their written consent before starting data collection. The information sheet and consent form were translated into Afan Oromo and back translated to English to assure accuracy (see Annexures 18, 19, 20 and 21). The researcher signed indicating that they have read the consent to the participant and signed again to verify that the participants provided their consent. All signed documents were stored in a locked file cabinet.

3.12.3 Confidentiality

As stated by Polit and Beck (2017:723), a key standard for ethical practice, which means keeping and protecting information gained from the study in other settings, is confidentiality. In this study, the participants were coded to protect their personal identity and all information (electronic) was secured by protecting the computer system using a password and raw data, field notes and signed consent forms were put in a locked cabinet to ensure confidentiality.

3.13 CONCLUSION

This chapter described research design and procedures, research methods, study populations and sampling procedure for different phases of the study. Data collection and analysis methods were presented in detail. The trustworthiness of the research and the ethical issues considered in the research process and the theoretical foundation of the study were also discussed in detail. In the next chapter, the discussion of findings and literature control for the study are presented.

CHAPTER FOUR

PRESENTATION, DESCRIPTION AND ANALYSIS OF RESEARCH FINDINGS

4.1 INTRODUCTION

Chapter Three presented and discussed the research design, methodology and theoretical framework of the study in detail. This chapter presents the research findings on the focus group interview and in-depth interviews conducted with health care users and health care providers on the current scabies management approach at the primary health care level in the Deder district. The biographical profile of health care users and health care providers are presented, and then the emergent themes and sub-themes are presented consequently.

4.2 DATA MANAGEMENT, ANALYSIS AND LITERATURE CONTROL

This study used thematic data analysis approach to describe and explore the current scabies management approach in primary health care with health care users and health care providers. Data analysis included a total of nine focus group discussions with health care users who have lived in the area for more than three months. Furthermore, have experience in the management of scabies in the specific facility and 18 in-depth interviews conducted with health care providers working in the outpatient department (OPD) for more than three months and also involved in scabies management.

All the focus group discussions and in-depth interviews conducted in Afan Oromo were transcribed by an experienced translator and reviewed by the researcher and experienced public health expert while listening to the original audio content. All the transcripts was also compared to the field notes collected. The data analysis process followed Tesch's approach (1990) as cited by Creswell (2014:248). The steps of data analysis started with reading and understanding the transcripts, writing down the emerging ideas, creating codes, categories and themes. Therefore, the researcher read and re-read both Afan Oromo and English transcripts and listed the emerging ideas from both. Then the researcher created codes, categories and themes from the listed ideas.

Themes and sub-themes were generated from the above-listed categories, and the discussion of each theme and sub-themes were done and supported with appropriate literature. The themes and sub-themes identified from both focus group discussions and in-depth interviews are presented below (see Table 4.3).

4.3 BIOGRAPHICAL DETAILS OF THE PARTICIPANTS

The profile of health care users and health care providers who participated in the focus group discussions and in-depth interviews are described below respectively.

4.3.1 Characteristics of health care users participated in the study

A total of 58 health care users participated in the study. The participant's characteristics were described in terms of age, gender, marital status and educational status and are depicted below (see table 4.1). Most of the study participants were in the age range of 18-25. Most of the study participants were female, married and had no formal education.

Table 4.1. Socio-demographic characteristics of health care users who participated in the study, Dederdistrict in 2021.

Characteristics	Frequency
Age 18-25	
26-34	22 (38%)
>35	20 (34%)
	16 (28%)
Sex	
Male	17 (29%)
Female	41 (71%)
Marital status	
Married	
Unmarried	56 (97%)
	2 (3%)
Educational status	
No formal education	
Grade 1-4	
Grade 5-8	35 (60%)
Grade 9-10	10 (17%)
	8 (14%)
	5 (9%)

All health care users who participated in this study had lived in the area for more than three months, which helped the researcher to avoid any recall bias on their experience and knowledge of the management of scabies at primary health care facilities. The age of the study participants was also distributed across different age categories which assisted in the description and exploration of experience and knowledge of the health care users. Also, this study included both no formal education and literate health care users, which also catered for the different educational backgrounds.

4.3.1 Biographical characteristics of health care providers who participated in the study

The biographical characteristics of the health care providers who participated in the study are described below. A total of 18 health care providers were interviewed from nine different primary health care facilities. The in-depth individual interviews captured the participant's profile such as age, gender, profession, and years of service. As shown below (see Table 4.2), the majority of the study participants had 3 to 5 years' experience with a range of less than 1 year and 15 years. The participants' age ranged between 26-34 years.

Table 4.2. Characteristics of health care providers who participated in the study, Deder district in 2021.

Characteristics	Frequency (%)
Age	
18-25	03 (17%)
26-34	14 (78%)
>35	01 (5%)
Sex	
Male	11 (61%)
Female	07 (39%)
Profession	
Nurse	
Health Officer	13 (72%)
B.Sc. Nurse	03 (17%)
	02 (11%)
Experience	
<3 Years	02 (11%)
3-5 Years	07 (39%)
6-9 Years	05 (28%)
≥10 years	04 (22%)

In this study, recognising the age and experience of health care providers assisted in gathering different perspectives and experiences. The professional mix helped the researcher to gather details from a specific professional point of view on scabies management at the primary health care facility.

4.4 ANALYSIS OF DATA FROM STUDY PARTICIPANTS

The analysis of data was done independently phase by phase. A total of thirteen themes and thirty sub-themes were identified from the focus group interview with healthcare users and in-depth individual interviews with healthcare providers. Table 4.3 and 4.4 below depict the themes and sub-themes emerging from data analysis in phases one and two of the study.

Table 4.3. Schematic presentation of themes and sub-themes developed in phase one of the study with health care users, Deder district in 2021.

Phase one	Themes	Sub-themes
Health care users	1. Knowledge regarding the scabies	1.1. Understanding of scabies symptoms
		1.2. Assumptions regarding the cause of scabies
		1.3. Understanding regarding the transmission of scabies
	2. Knowledge regarding the management of scabies	2.1. Importance of personal hygiene
		2.2. Understanding regarding the treatment of scabies
		2.3. The use of traditional medicine in treating scabies
	3. Knowledge regarding the prevention of scabies	3.1. Seeking assistance at early stage of symptoms of scabies
		3.2. Health education received regarding prevention of scabies
	4. Perceptions regarding received treatment for scabies	4.1. Recurrence of the disease after treatment
		4.2. Social isolation due to the disease
	5. Recommendations regarding availability of materials and medication for scabies	5.1. Recommendations on material support to stem the tide of scabies
		5.2. Recommendations on medication

Table 4.4. Schematic presentation of themes and sub-themes developed in phase two of the study with health care providers, Deder district in 2021.

Phase two	Themes	Sub-themes
Health care providers	1. Experience regarding scabies management	1.1. Treatment of scabies
		1.2. Issues of referral
		1.3. Delays in health-seeking behaviour
		1.4. Lack of urgent attention given to the disease
		1.5. Water shortage
	2. Medicine supply and accessibility for scabies management	2.1. Shortage of medicine for scabies management
		2.2. Support from NGOs
	3. Unavailability of scabies management guidelines	3.1. Needs for in-service training for scabies management.
		3.2. Need for scabies management guidelines
	4. Scabies data monitoring	4.1. Registration and reporting system
		4.2. Surveillance system for scabies
	5. Suggestion regarding better management	5.1. Recommendation regarding drug supply
		5.2. Recommendation regarding capacity building
	6. Linkage and communication at different level	6.1. Communication between the health system
		6.2. Communication with different health sector
	7. Facilitators to scabies management	7.1. Existence of health system
		7.2. Availability of health work force
	8. Health education regarding scabies	8.1. Personal and environmental hygiene
		8.2. Lack of awareness

4.4.1 Phase one: Themes identified from the focus group of interviews with health care users.

This section discusses the themes developed concerning current knowledge and experiences of health care users with regard to the management of scabies at the primary health care level. The themes include knowledge regarding the scabies, knowledge

regarding the management of scabies, knowledge regarding the prevention of scabies, perception regarding received treatment for scabies and recommendations regarding availability of materials and medication for scabies (see Table 4.5, 4.6, 4.7, 4.8 and 4.9).

4.4.1.1 Theme 1: Knowledge regarding the scabies.

Table 4.5. Theme 1: Knowledge regarding the scabies

Phase	Theme	Sub-theme
Phase 1: Health care users	1. Knowledge regarding the scabies	1.1. Understanding of scabies symptoms 1.2. Assumptions regarding the cause of scabies 1.3. Understanding regarding the transmission

These sub-themes were discussed below.

4.4.1.1.1 Sub-theme 1.1: Understanding of scabies symptoms.

Most of the study participants described their understanding of scabies symptoms in different ways. The symptoms caused by scabies poses a high burden on individuals, often due to an intense intolerable itching. The symptoms continue as long as scabies has not been treated and these generally become quite chronic due to the persistence of itching.

“Uhuuu…… it is a very dangerous disease. It is not comparable. It makes you hungry, what you eat is not helpful to you. A very dangerous problem! It makes you itch day and night, morning and evening. No rest at all. I was suffering from the disease” (FGI 6, P1).

“Scabies started between fingers most of the time, then expanded to another part of the body. My child had it, scabies is very bad, cause severe itching, and it eats the body. Some people even develop severe damage to their skin. Sometimes it seems dry on some part and then started on another part of the body” (FGI 2, P3).

“Scabies be severe during the night. You cannot sleep if you have scabies ……….Itching is very severe. It is a very dangerous disease” (FGI 6, P2).

The symptom of itching was so intense that individuals scratched their skin unconsciously until it caused a wound in the affected area, and various approaches were applied to get relief of the itching, even for a short period.

“Burning sensation is common. Hunger burning, restlessness, these are common. You will be sweating during the itching time. You cannot see any person around you: even you will be unconsciously responding to the sensation of itching. Abdominal burning and hooting is common during the itching response. I rinse the body with water to get relief” (FGI 6, P3).

“If you have scabies, you do not know what to do. It has an itching sensation and burning sensations. You unconsciously itch your body, and it makes you hungry so that you cannot satisfy even what you eat” (FGI 1, P6).

“Starting from myself, I had been itching in my leg, then my first son got a wound on his leg, hand and feet. My second child also wound on a different part of his body, including under his neck” (FGI 2, P1).

Some of the participants explained scabies symptoms as initial severe itching which causes skin damage and leaves a scar on the body of the affected individuals.

“Previously, scabies was very common both among adults and children. Usually, it seems very easy when started, but through time, since it causes severe itching, it causes damage” (FGI 2, P6).

“Scabies means it is a very severe disease. It itches all over the body. You cannot feed your child breast because of discomfort from its itching and burning sensation. Look at my body, what I experienced from scabies. It causes behavioural changes in children” (FGI 8, P1).

“I experienced the problems. It has itching sensation, wounds on the location, and left scars on the body” (FGI 8, P2).

Another participant said:

“Scabies were severed during the night. You cannot sleep if you have scabies. I washed with Ajax soap then I got relief for short times. But it returned to me soon” (FGI 5, P4).

Nair, Vora, Jivani and Gandhi (2016: 2) found that almost all scabies patients presented with itching, which aggravates during the night and leads to moderate to severe sleep disturbance. This symptom has a destructive impact on the quality of life for infected individuals, resulting in stigmatisation and isolation from social activities. The study conducted by Bernigaud, Fischer and Chosidow (2020:226) found a similar result, confirming that scabies causes severe itching that worsens at night.

The health care users’ approach resolve the itching in their individual understanding and self-experience. These approaches worked to a limited degree but reflected the level of devastation experienced in trying to get relief from the itch. The study conducted by Rawat and Thakur (2020: 596) found a similar result, suggesting that bathing and attention to work relieved the itching symptom in the majority of the participants.

4.4,1.1.2 Sub-theme 1.2: Assumptions regarding the cause of scabies

Most of the study participants didn’t report mites as the cause of scabies, assumed the cause of the scabies disease was mere exposure to an environment rather than any predisposing factors.

“Scabies caused by internal body weakness. Malnutrition, failing to get a balanced diet is one reason for scabies causes” (FGI 6, P2).

“The primary cause of scabies is the lack of enough food...So the main cause of scabies is poor personal hygiene and lack of getting enough food” (FGI 2, P4).

“I have a similar idea with her (P4). Scabies is caused by poor economic status or lack of enough food to eat” (FGI 2, P5).

Another participant said:

“Itching problems which are caused because of malnutrition. I once experienced it

one time and received medication for it. It is caused by the lack of hygiene and enough food” (FGI 7, P2).

Some of the study participants explained that scabies was caused by the lack of personal hygiene, and when it occurs once, its curability is difficult.

“..... It is caused by malnutrition, lack of personal hygiene” (FGI 7, P3). “Scabies comes to us due to poverty” (FGI 5, P1).

“It is caused by malnutrition. Once it appears, it is not cured easily. That is what I heard from elders” (FGI 8, P3).

Another participant said:

“Later, what I understand is that medicine cannot cure; rather, it makes it hidden in the body for some time. Because of this, it recurred in him, especially around September when children eat “Ashet” which initiates the disease already hidden under the skin” (FGI 4, P3).

This finding is supported by the study conducted in Fiji, which found that no participant described scabies as caused by mites; instead, they were convinced with the incidence of scabies, environmental factors, personal hygiene practice and close contact (Mitchell, Bell, Thean, Sahukhan, Kama, Koroivueti, Kaldor, Steer & Romani 2020:15). This shows that participants in this and the antecedent study had incorrect assumptions regarding the cause of scabies.

4.4.1.1.3. Sub-theme 1.3: Understanding regarding scabies transmission

Most of the study participants recognised scabies, which can be transmitted from person to person.

“It is transmitted from person to person. Avoiding body contact, clothing exchanges, within the family ...among the family is not good. Any sitting area and other materials should be cleaned. Personal hygiene and washing before reuse is very important” (FGI 7, P3).

“It is transmitted from one another, but we cannot separate especially children” (FGI 9, P1).

“It is highly contagious, for example, if one hot charcoal is shared with a person who has scabies, it will transmit to the healthy individual immediately, if a scabies patient eats hot food while sitting with a healthy individual, it is also transmitted. Because of these, a person who has scabies is sitting alone by separating from a healthy person. It is also transmitted when children play together” (FGI 3, P6).

Another participant said:

“Lack of personal and environmental hygiene, the main reason for the transmission of scabies. So cleaning all the wearing materials, keeping children’s hygiene, are ways of protection from scabies. It is a communicable disease, if one person develops scabies from one house, it can easily address all people in the home” (FGI 1, P3).

One of the study participants explains the way of protecting their child from scabies transmission as below:

“What I am doing now is protecting the child not to have contact with healthy children. He sleeps separately from other children. The cloth and materials on which they sleep is also different from other children” (FGI 4, P1).

In one study conducted by Mitchell et al. (2020: 16) a similar result which indicated that the participants described scabies transmission by skin-to-skin contact while no participants identified breastfeeding or sexual contact. Accordingly, only a few participants identified avoiding contact with an infected person as a preventive measure and focused on transmission between children. This is similar to our findings.

4.4.1.2 Theme 2: Knowledge regarding the management of scabies.

This section discusses the themes that emerged concerning health care users’ knowledge regarding the management of scabies. Under this theme, there are sub-themes as indicated below (see Table 4.6).

Table 4.6. Theme 2: Knowledge regarding the management of scabies.

Phase	Theme	Sub-theme
Phase 1: Health careusers	2. Knowledge regarding the management of scabies	2.1. Importance of personal hygiene
		2.2. Understanding regarding the treatment of scabies
		2.3. The use of traditional medicine

These sub-themes were discussed below.

4.4.1.2.1 Sub-theme 2.1: Importance of personal hygiene.

Most of the study participants mentioned that keeping personal and environmental hygiene was the best method to get relief from the problems.

“Previously, most of my body had a wound, but now it started to dry after I frequently wash it with ‘Ajax’ and also applied a white medicine I obtained from someone who got from this health center in the previous time” (FGI 5, P1).

“We also have special soaps for keeping personal hygiene from the health centre, and then I used all this, I got relief from the problems” (FGI 6, P1).

“Keeping personal hygiene, environmental hygiene, education the community about hygiene is what we have to do” (FGI 7, P1).

One of the participants explained that keeping personal hygiene and giving a nutritious diet to the affected individual was what they practise to cure from scabies.

“..... Now, I wash his body frequently and also try to give a variety of food” (FGI 4, P1).

This finding is supported by a study conducted by Trasia (2021:35). The study states that the primary prevention of scabies was maintaining physical and environmental hygiene, using clean clothes, and maintaining awareness of the community. The study conducted by Seetan, Rashdan, Alsharei, Al Bashir et al. (2021:6) found that taking care of personal hygiene and daily body washing helps clear scabies and this concurs with our findings.

4.4.1.2.2 Sub-theme 2.2: Understanding regarding the treatment of scabies

Some of the study participants did not have information about the availability of treatment for scabies in the health facility before a health extension worker advised their community.

“People didn’t have awareness about the availability of medicine for scabies, but recently after Health Extension Workers taught us many people understand the availability of the medicine for scabies and need to get it” (FGI 2, P1).

“Health Extension Workers go through the community and advise the community to come to the health post and get the necessary medicine. Then, we got the ointment, and they educated us on how to apply it, especially how to protect our hygiene. Then many people are cured, but still many people have the disease” (FGI 2, P6).

Another participant explained:

“At that time the school gave medicine for those who had scabies like her. So that we applied the medicine the school gave her and washed her body with Ajax at night before we applied it and in the morning before she went to school, and she got some improvement after that medicine” (FGI 5, P4).

The study findings showed that the health extension workers in the study area facilitate health education to the community during outreach activity and home to home visit on different health outlines. This helps the community to improve their understanding regarding the treatment of scabies and improve service utilisation. According to the study conducted by Assefa, Gelaw, Hill, Taye and Van Damme (2019:4) found that, if we use the health extension workers appropriately, the health service utilisation would increase; improved knowledge and health care seeking; enhanced reporting of outbreaks; and, high level of community satisfaction, all of which is consistent with our findings.

4.4.1.2.3 Sub-theme 2.3: The use of traditional medicine.

This study verified that traditional medicine practices such as using Keka and butter help relieve scabies and these are actively practised by the community.

“I also used traditional medications like “Keka” and swallowing of butter. We also have special soaps for keeping personal hygiene from the health centre, and then I used all this, I got relief from the problems” (FGI 6, P1).

“Long ago there was a traditional medication. It is an herbal type. But I do not know the name” (FGI 1, P5).

“I don’t know about it in detail, but I heard some people apply the medicine obtained from a tree. I hear some people apply traditional medicine, but I never see when they do it” (FGI 9, P2).

One of the participants explained the use of camel meat as nutritional management for scabies.

“Camel meat is also good for scabies treatments. But it is used as nutritional management” (FGI 1, P2).

Mitchell et al. (2020: 9) also found that their research participants used traditional medicine to manage scabies in children and adults. This traditional medicine includes leaves of the medicinal plant (herbs) in combination with coconut oil which was applied onto the affected area and allowed to dry, this helps to dry the wound and stop itching for 2-4 days. The study conducted by Sambo et al. (2012:28) found a similar result which indicated that most of the participants who had a scabies infestation used traditional medicine in the form of local herbs and cream. Some of it is consistent with our finding. The difference was due to their cultural and environmental variation in the community. Another study conducted by Gashaw (2020: 10), found that more than 80% of the population uses traditional medicine due to cultural acceptability, easy availability and the low cost compared to the difficult access to modern health care for different reasons. Some of the reasons were related to our findings.

4.4.1.3 Theme 3: Knowledge regarding the prevention of scabies.

This section discusses the themes that emerged concerning health care users’ knowledge regarding the prevention of scabies. Under this theme, there are sub-themes as indicated below (see Table 4.7).

Table 4.7. Theme 3: Knowledge regarding the prevention of scabies.

Phase	Theme	Sub-theme
Phase 1: Healthcare users	3. Knowledge regarding the prevention of scabies	3.1. Seeking assistance at early stage
		3.2. Health education received regarding prevention of scabies

These sub-themes were discussed below.

4.4.1.3.1 Sub-theme 3.1: Seeking assistance at early stage.

Some of the study participants described the need for seeking help at the start of the symptoms and also advised their neighbours and relatives to go to the health facility early before they developed complications.

“We have to advise people with the disease to seek health care early before they reach the stage of feeling shame to contract people” (FGD 6, P5).

“We also have to advise our neighbors and relatives to take health care if their children develop the disease. The education is very good, but currently, it is not as before, they reduce it, but it should be continued. We have to seek care if anyone develops the disease” (FGI 3, P3).

“The community has to come to the health center early if they get the disease and ask for treatment. Our people should come to a health facility when they see scabies on themselves or on their children” (FGD 6, P4).

4.4.1.3.2 Sub-theme 3.2: Health education received regarding prevention of scabies.

The majority of the study participants described the importance of health education preferred by health care providers on the appropriate use of the medication and the ways of prevention of scabies.

“For example, in my neighbour, some children haven't been mothered. All of them were badly affected by scabies. Our health extension workers brought a fluid white medicine and told them to apply it on their body and told all of them to wash their clothes in boiled water before wearing them again. She also gave them soap and

ajar for fetching water” (FGI 3, P5).

“I have been severely affected by scabies previously. All my body parts were wounded, and I came to this health centre. Then, health care providers gave me the medicine, soap and also educated me on how to wash my body and apply the drug, the importance of washing my clothes with boiled water before I re-use it. Following their advice, after I started to apply the drug daily on my body, and changing washed clothes after I have applied it for a certain time duration, and at last I got cured. Currently one of my children has scabies. I brought her to this health centre, and health care providers gave her the medicine which was applied to the skin. Currently, I am applying the medicine and changing her clothes every day as usual after washing with boiled water. Now, the wounded skin started to dry, and the itching is also improving” (FGI 4, P4).

Another participant said:

“If we face such a problem, we should tell the health professional, and they should stand with us by giving us the necessary medicine. The health center should strengthen and continue to teach the community both urban and rural. Also, we have to protect our hygiene according to their advice” (FGI 3, P5).

Some of the study participants mentioned that keeping personal hygiene, environmental hygiene, and following the advice of the health care providers was important in preventing scabies from wreaking havoc in the community.

“Visiting health facilities and practicing what they tell you is important to treat scabies. Keeping personal hygiene, washing clothes and hands are important to prevent scabies” (FGI 8, P5).

“Keeping your personal and environmental hygiene is the first thing to be done. Using medications as prescribed by health professionals is also good. If we get it again, we have to report to health professionals and follow their advice for the future” (FGI 6, P1).

“House utensils should be cleaned to prevent the transmission of scabies. Practicing

the health education provided by health professionals. They also provide information” (FGI 7, P2).

This finding is supported by a study conducted by Trasia (2020:35). The study states that the primary prevention of scabies was maintaining physical and environmental hygiene, clean clothes, avoiding sharing clothes with others and maintaining awareness of the community. Lopes, da Silva, Ca, Gonçalves, Rodrigues et al. (2019:9) also found that informed communities improve early health seeking and decrease scabies stigmatisation in the community, which is consistent with our findings.

4.4.1.4 Theme 4: Perceptions regarding received treatment for scabies

This section discusses the themes that emerged concerning health care users’ perception regarding receiving treatment for scabies. Under this theme, there are two sub-themes which include recurrence of the disease after treatment and social isolation due to the disease were discussed (see table 4.8).

Table 4.8. Theme 4: Perceptions regarding received treatment for scabies.

Phase	Theme	Sub-theme
Phase 1: Healthcare users	4. Perceptions regarding received treatment for scabies.	4.1. Recurrence of the disease after treatment
		4.2. Social isolation due to the disease

These sub-themes were discussed below.

4.4.1.4.1 Sub-theme 4.1: Recurrence of the disease after treatment failure.

Most participants described that the recurrence of the disease after getting the treatment was very high in the area.

“If once treated, it reappears again. When we apply the medication, it may relieve for short periods, but the chance of scabies reoccurring was high” (FGI 2, P4).

“We can get medication, but it was relapsed after sometime” (FGI 2, P6).

“We will get the medication as we need. But the clothes and sleeping matters should change after once used. Otherwise, the chance of reoccurring the problem is high”

(FGI 7, P4).

“The reappearing of the scabies is very high. After you use medication, it will reappear. Whether you used herbals or not, you may get a return” (FGI 6, P3).

This finding is supported by the study conducted in Saudi Arabia, which states that the recurrence rate of scabies among the participants who received scabies diagnoses in the health facility was high (Ahmed, Jradi, AlBuraikan, Al Muqbil, Albaijan, Al-Shehri, & Al-Jahdali, 2019: 3).

Sanei-Dehkordi, Soleimani-Ahmadi, Zare and Jaberhashemi (2021:8) states that individuals who had shared beds on the floor develop more severe scabies infections and become re-infected more frequently. It was recognised that to use shared beds which facilitates skin-to-skin contact and the transmission of scabies from infested individuals to the healthy one. Similar findings were reported by Wochebo et al. (2019:4). In the crowded conditions, the use of shared clothes, bed and other materials may transmit the scabies infestation and one of the factors for the recurrence of scabies infestation.

4.4.1.4.2 Sub-theme 4.2: Social isolation due to the disease.

The participants described that having scabies was an embarrassment and compelled self-imposed isolation. Many also reported that the community associated the disease with poverty. Most of the participants described they begin to feel socially handicapped and start to avoid a certain situation. When an individual suffers from scabies, they experience stress and avoid social activities.

“A person with scabies is discriminated against others because it is seen as shame. Distant because others fear you” (FGI 7, P1).

“It was shame to talk about scabies. It was a sign of poverty so that people do not talk about it. They tried to hide their symptoms until it was infected and more visible. But hiding was not the solution” (FGI 6, P6).

“The social influence of the disease was very high, it is a communicable disease, and people distance you, discriminate against you. You also feel shame and stressed to greet the person. It was shameful” (FGI 6, P1).

Some of the participants described hiding the visible signs of scabies due to the stigma and fear of rejection by those in their circle.

“People who had scabies were ashamed to scratch their skin when itching, ashamed to attend people’s gathering, ashamed to eat with people, and even it disturbs a person who looks from outside” (FGI 3, P6).

“Scabies were seen as an insulting word” (FGI 6, P3).

“You were discriminated against if you have scabies. No one approaches you” (FGI 6, P2).

According to Nair (2016: 4), a person with scabies infection had their quality of life hurt, resulting in significant stigmatisation and isolation from social gatherings. As a result, this may lead to anxiety, depression, anger and shame. The results of this study is consistent with our findings. Engelman, Cantey, Marks et al. (2019: 5), found a similar result which indicates that scabies was the main cause of stigma, shame and reduced health-seeking behaviour which lead to reduced quality of life.

The study conducted by Cox, Fuller, Engelman, Steer and Hay (2020: 4), found that physical manifestations of the disease cause a significant burden of stigma, discrimination and pain, and this can have effects on quality of life. Most of the patients were suffering from social isolation and exclusion from engaging in community activities due to scabies.

4.4.1.5 Theme 5: Recommendations regarding availability of materials and medication for scabies

This section discusses the themes that emerged concerning health care users’ recommendations regarding availability of materials and medication for scabies. Under this theme, there are sub-themes as indicated below (see table 4.9).

Table 4.9. Theme 5: Recommendations regarding availability of materials and medication for scabies.

Phase	Theme	Sub-theme
Phase 1: Healthcare users	5. Recommendations regarding availability of materials and medication for scabies.	5.1. Recommendations on material support
		5.2. Recommendations on medication

These sub-themes were discussed below.

4.4.1.5.1 Sub-theme 5.1: Recommendations on material support

As for most of the study participants mentioned there before, there was a material support given to the community freely for those who developed a symptom of scabies by health care providers and health extension workers. So, the participants recommended that the health facility continue the support given to the community to solve the problem.

“We need support from the health centre. Soaps, medication, and other support should be provided for us” (FGI 7, P1).

“Materials and medicines should be provided to clients” (FGI 1, P5).

“Supporting the client with nutritional support, providing a balanced diet are among the traditional ways of treating clients from scabies” (FGI 1, P3).

In the study area, there was an NGO called GOAL which was working with the Woreda health office in the scabies prevention and control for one year. This NGO supports the communities with different types of material free of charge to prevent scabies. After these NGOs stopped working in the area, all supports ceased, and the community complains about the discontinued support which was given to them before and recommendation for the continuation of the support.

4.4.1.5.2 Sub-theme 5.2: Recommendations on medication

In this study, most participants experienced the absence of medication during their visit and some of them experienced getting the drug a long time ago but currently not available in

primary health care during their visit. In the face of such shortages and unavailability, the participants recommend that the government avail enough medication to scabies management at primary health care levels to get appropriate service in their area.

“We couldn’t get the medicine in this health center sometimes, so we need the medicine to be sent to us. I say the government should give us enough medicine” (FGI 4, P3).

“We need to get the necessary medicine in this health center because we don’t want to go outside to find the medicine” (FGI 4, P2).

“Previously, I brought this child to this health center 2 times, but they told me that the medicine was not found in the health center. I also brought him before yesterday for immunization and told also to give him medicine, but the medicine was not available” (FGI 5, P2).

Some of the participants recommended that in addition to availing the medicine, keeping personal hygiene was the other way of preventing scabies.

“Thank you for talking to us, but we need medicine for scabies as the scabies is finishing us. What we need is health of our child” (FGI 5, P4).

“Medication provision is needed. Personal hygiene and a balanced diet are also needed” (FGI 6, P3).

“Availability of medication is highly recommended. Hygiene, diet, cleanness is very important. This is important to me” (FGI 6, P1).

4.4.2 Phase two: Themes identified from individual in-depth interviews with health care providers

This section discusses the themes concerning the current management of scabies, the enablers and barriers to scabies management and needs to improve the management of scabies at the primary health care level. The themes include experience regarding scabies management, medicine supply and accessibility for scabies management, unavailability of scabies management guideline, scabies data monitoring, suggestion regarding better management, linkage and communication at different levels, facilitators to scabies

management and health education regarding scabies (see Table 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16 and 4.17).

4.4.2.1 Theme 1: Experience regarding scabies management

Experience regarding scabies management emerges as a theme regarding the management of scabies at primary health care. As indicated in Table 4.10. Below the sub-themes that emerged were as follows.

Table 4.10. Theme 1: Experience regarding scabies management.

Phase	Theme	Sub-theme
Phase 2: Healthcare providers	1. Experience regarding scabies management.	1.1. Treatment of scabies
		1.2. Issues of referral
		1.3. Delay in health seeking behavior
		1.4. Lack of urgent attention given to the disease
		1.5. Water shortage

These sub-themes were discussed below.

4.4.2.1.1 Sub-theme 1.1: Treatment of scabies

Some health care providers diagnosed and treated scabies using the history and physical signs and symptoms of the patient. At the same time, these officials provided health education on how to prevent and use the medication.

“Regarding the treatments, first, we assess them clinically by asking about the signs and symptoms, the location, the severity and duration of the symptoms. All the itching cannot be scabies. So that we need to differentiate the time of itching because most of the time ecto-parasites are active at night and in the location. After we differentiate all these clinical features, we decide the treatments. Before and after giving the medication, we educate the client on how to use the medication, how to prevent the problems, how to keep personal hygiene by using water and soap, and using boiled water to clean clothes before reusing once wearing” (HCP 6).

“We manage it by giving them supportive medication and giving health education. We educate them on how to apply the medication, personal hygiene, clothing exchange, body contact preventions” (HCP 9).

Another participant explained that treating scabies patients with Permethrin and BBL during daily routine. But during the epidemic, mass drug administration was distributed to the communities, and some patients experienced drug adverse effects by that time.

“Regarding the treatments, a person with the case of scabies should keep his/her hygiene and use the prescribed medication properly. There are permethrin ointments which should stay for 8 hrs. On the body after applying to be effective. We have BBL which needs personal cleanness before and after use. Last year there is an epidemic and distributed a drug called Ivermectin, and some patients face drug adverse effect” (HCP 10).

Some of the health care providers were treating a patient from their medical experience and discussing amongst themselves as practitioners.

“We work by discussing with each other. By sharing experiences from each other. I didn’t see a guideline regarding scabies management. We treat it by experiences” (HCP 7).

The study conducted by Vasanwala, Ong, Aw and How (2019:281), found a similar result which indicates that scabies was diagnosed by visual inspection, observing the characteristics of pruritic lesions and their distribution, together with the contact history of the patient. In another study, the diagnosis was usually based on clinical features only (Hardy, Engelman & Steer 2017: 265), which validates our findings in the current study.

This finding contradicts the study conducted by Duff, Desrosiers, Brodell and Helms (2019:3) which indicates that the diagnosis of scabies is confirmed by asking the history and clinical symptoms with absolute confirmation of the diagnosis requiring the identification of the elusive yet pathognomonic burrow. The classic method of diagnosis includes skin scraping, the burrow ink test, epidermal shave biopsy, the adhesive tape test, and dermoscopy.

The study conducted by Thadchanamoorthy and Dayasiri (2020: 385) found a similar result

which indicated that the management of scabies depends on the practice of health care providers, availability of drugs and cost-benefit ratio. The main treatment prescribed for scabies was a topically active substance such as permethrin, sulphur compounds and benzyl benzoate.

Hardy, Engelman and Steer (2017:266) also found that the treatment of scabies depends on the topical agent. From this, the first-line treatment was topical permethrin 5% cream, which should be applied to the whole body, excluding the head and neck of the patient and washed off after eight hours. Benzyl benzoate 25% was the second line topical agent for scabies treatment and Ivermectin was a currently available oral agent which was effective against scabies and addressed as one of the world's greatest public health interventions for scabies (Hardy et al. 2017:266).

4.4.2.1.2 Sub-theme 1.2: Issues of referral

Some health care providers referred scabies patients to the nearby hospital for better management and getting the drugs because there was a shortage in their facility.

“Currently we do not have medication to treat a patient. All medications were stock out because of that, and we refer the patient to the hospital. In the private facility or pharmacy, the price of BBL is very expensive. We have a shortage of medication in this facility. I can say that the service given here is not satisfactory and almost null” (HCP 9).

“When I was in the Zoqa zone, the scabies treatment came, and we distributed the drug at that time. After that, we couldn't get the drug to treat the scabies patient, and we refer to the hospital when a patient comes to us after giving them necessary health education on how to prevent, specifically on how to protect using personal hygiene. We request for treatment drug much time by identifying and sending a list of people with scabies in our area with Health extension workers. But we couldn't get the drug till today. This is a rural area, even there is no private pharmacy to buy the drug. So, the only option we have is referring the patient to Deder” (HCP 13).

According to the WHO (2020:1), the highest rate of infestation of scabies and secondary complication occurs especially in overcrowded communities and poverty coexist, and where

there is limited access to treatment. In this study, there was limited access to appropriate medication and the patient was referred to other facilities for treatment and better management. This approach was very difficult to prevent transmission and control the development of the disease, and it needs attention.

4.4.2.1.3 *Sub-theme 1.3: Delay in health seeking behaviour.*

The majority of the study participants described scabies affected individuals who do not come to the health facility until it becomes severe due to fear of the social impact, and they assumed that scabies was a self-limited disease. Some of them utilise traditional medicine, and when they get re-infected, only then do they come to the health facility.

“The symptoms are very embarrassing. It has itching and a wound on the site. So that people are not approaching them. They delay seeking treatments because of fears” (HCP 6).

“They do not give attention to get help. It is believed that scabies is a self-limited disease. The problems are very high, but do not come to the health centers. Traditional treatments are also used here. They seek help after the problems become very severe and complicated. There is discrimination by the community because of scabies. We have referred the patient to the hospital” (HCP 9).

Another participant said:

“Scabies patients don’t come to the health facility early. Previous time when I was working the polio campaign, I got one child whose skin was fully damaged, and we couldn’t get the intact skin to apply marker, which shows you how many children are suffering from scabies in our area” (HCP 12).

Some of the participants described the delay in seeking health care of infected individuals as being due to fear of social avoidance and the absence of scabies medication in the facility. They came to the facility when the wound became infected and complicated.

“The other thing is clients do not come for treatments until the case becomes severe and complicated. There is also social discrimination and stigma about scabies that may delay the treatment of seeking behaviors” (HCP 17).

“In this area, the patient comes to the health facility when they are infected and develop complications. This occurs because if they come early, there is no drug to treat, and there is also an assumption that scabies is self-limited, and they hide from the community to fear social avoidance or discrimination” (HCP 18).

This finding is supported by the study conducted in Fiji, showing that participants use traditional medicine as the first remedy and go to the health facility when the scabies case is prolonged. In such cases, the patients develop secondary infections and only a few of the participants seek medical care when scabies first appears (Mitchell et al. 2020:10). In the study conducted by Lopes, Da Silva, Ca et al. (2019:14), they indicate scabies infected individuals have lately visited health facilities lately due to different determinants such as cost and the distance of the health facility. On the other hand, they go to traditional healers because they are related to beliefs regarding stigma and a fear of unaffordable cost of the treatment, which also gels with our findings.

4.4.2.1.4 Sub-theme 1.4: Lack of urgent attention given to the disease

The majority of the health care providers describe the attention given to scabies management by the official as less than satisfactory. Everyone works blindly without any training on the necessary techniques of diagnosing and treating like other diseases. There was no focal person in the facility to follow the cases and report to the responsible body.

“Regarding scabies, it should have the owner. No one pays attention to it, we diagnose when they come with a severe form of the disease at the nutrition room, MCH or OPD. It needs a focal person like other diseases. The drug should also be free. Attention should also be given to protecting personal hygiene since both urban and rural has health extension workers, which needs to strengthen education on personal hygiene” (HCP 1).

“For the example, if you report 2 or 3 people who had diarrhea, everybody starts to rash out starting from Woreda to the region. But, when you report repeatedly many mothers and children suffering from scabies, no one gives you any response. Scabies is also a very bad disease, so necessary attention should be given regarding the necessary technique to diagnose and necessary treatment strategies like other diseases” (HCP 12).

Another participant said:

“Challenges are lack of awareness about the scabies disease, there is no attention from governments on scabies like another disease. We need guidelines to differentiate from other dermal diseases. The economic status of the community also challenges regarding scabies. The system is also ignoring the problems with scabies problems, it should get attention. We report about the cases, but from up to bottom there is less attention” (HCP 17).

4.4.2.1.5 Sub-theme 1.5: Water shortage

The study identified that there was a water shortage in the area, due to that it was difficult for the health care providers and health extension workers to advise the community on personal hygiene. Health care providers describe the issue as below.

“.....On top of that, there is no water at all in this area. People use by collecting the rainfall in the land. There is no water at all. Now the season is very good to move in the community to provide necessary health education since there is no mad. The bad thing is that the lack of water makes it difficult to advise people to wash while it is known that there is no water at all” (HCP 14).

“The main cause of scabies is the lack of personal hygiene. In our catchment area, it is more prevalent in the area where scarcity of water is high. Because of this, we focus on providing health education and, in addition, giving the drug” (HCP 5).

This finding is supported by the study conducted by Nair et al. The study states that around 60.78% of the rural area patients were experiencing a water shortage. This water shortage leads to poor personal hygiene and thus increases the risk of transmission of scabies within the community (Nair et al. 2016:3). In our study area, the dry season and absence of water in the area were some of the factors for the shortage of water.

4.4.2.2 Theme 2: Medicine supply and accessibility for scabies management.

Medicine supply and accessibility for scabies management emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.11. Below the emerged sub-themes were as follows.

Table 4.11. Medicine supply and accessibility for scabies management.

Phase	Theme	Sub-theme
Phase 2: Health care providers	2. Medicine supply and accessibility for scabies management.	2.1. Shortage of medicine for scabies management
		2.2. Support from NGO

These sub-themes were discussed below.

4.4.2.2.1 Sub-theme 2.1: Shortage of medicine for scabies management.

This study revealed that health care providers treat the patient with the drug supported by the NGO previously. After the NGO support was stopped, the health centre management discussed and purchased the drug from the PFSA to manage scabies, but they didn't get an adequate supply. Due to the shortage of medicine in the facility, the patient returned home without any medication. The health care providers mentioned the following statement.

"We don't have a drug to manage. Previously, an NGO was providing the drug, but currently, it is interrupted. After the NGO's support stopped, we have decided by the management and started to ask PFSA (Pharmaceutical Fund and Supply Agency), and we had sulphur and BBL until recent time, but we finished it currently" (HCP 3).

"What I think as a barrier is repeated interruption of scabies drug. The drugs are not found here. Many times we return the patient without giving any treatment due to the lack of the drug. We send patients home only by giving health education due to the lack of drugs, as I have said" (HCP 4).

"Our barriers to treating scabies are a shortage of medications. If we give them prescriptions, clients cannot get the medication in this town" (HCP 6).

Some of the health care providers also mentioned the following;

"For all case managements there is a scarcity of medications. When I come to scabies, there is no medication supply. It is the forgotten area. Nobody considers it as a problem" (HCP 7).

“There is no medication supply for the treatments of scabies. The problem is very high. But almost all the clients do not get medication. Because there is no medication supply for health centres. We haven't seen any medication for the last 2 years. Clients do not want to come to our health facilities because they didn't get medication from our health facility. They want a private clinic where the medication is available. But all cannot buy the medication because of economic problems” (HCP 8).

Other participants describe;

“A shortage of medication is the one. There is medication supply here for scabies treatments during epidemics but not continuously available for clients to treat every day in this facility. If cases come to this facility, they are referred to Deder Hospital or other private clinics. And there is also a gap in treating a patient because no training was given as in the other program, and there is no guideline to treat the patient accordingly” (HCP 10).

“The main challenge in the facility is the lack of drugs to treat the patient. Also, the community does not apply what we advise to follow them often. The community is very resistant to follow instruction on the standard in prevention as well as in applying the drug as they advised. They are not like educated people” (HCP 13).

Some health care providers were explained about the shortage of medication at the health centres, and if the facility purchased medicine, it was expensive, and the patient can't afford it due to their economic status.

“The big challenge is a scarcity of drugs. We get intermittently permethrin, but currently, we have no drug. But the disease is common in the community. If you travel to rural Kebele, it is common for everyone. Another big challenge in scabies management is the lack of water” (HCP 15).

“Drug supply may be a problem sometimes. Like another drug, the scabies drug may not be available sometimes. There is no scabies guideline, and having a guideline is very essential. The drug found in the health centre was provided with a cost which may be difficult for some people to afford. Thus, it would be good if support for the drug could be obtained so that those who have the need could get it for free” (HCP

16).

“As a barrier, the first one is a shortage of a drug, it is the main one. Secondly, this scabies program has not been integrated with other NTD service, and it is neglected from region to district level. Previously, the surveillance unit reports the case weekly during the epidemic last year, but currently, no one asks for the report” (HCP 18).

This finding is supported by the study conducted in central and western Nepal. The study states that due to lack of medication and other supply in the health centre, the patient refers to another facility without getting appropriate service (Marahatta, Yadav, Giri, Lama, Rijal, Mishra, Shrestha, Bhattra, Mahato & Adhikari 2020:7).

4.4.2.2.2 Sub-theme 2.2: Support from NGO.

The majority of the study participants described that the support given to the community helped in decreasing the incidence of scabies and treating each case with appropriate treatment without any charge.

“There was an NGO called GOAL which supported us with soap and a jar. We gave them the soap as well as a jar after we educated and showed them how to wash their hands. After we educated them, gave the drug GOAL provided us, then we continued the education at that time and gave the drug for those who developed the disease” (HCP 1).

“Previously, an NGO gave us drugs such as permethrin and soap. But there is no drug in our health centre now, so we prescribe it to outside if they could get it. We provide education on the communicability of the disease and how to prevent the transmission from the person who has the disease, especially on how to protect their family’s hygiene and the importance of seeking health care if another family member develops a similar disease” (HCP 2).

“Sometimes some NGO supports the program during the epidemic: GOAL support as. If they do not help us, it is difficult to get the medications for treatments” (HCP 9).

Other participants describe;

“For me, scabies is a very bad disease which mostly affects growing children and affects their body. It is also a disease which is transmitted from person to person by an easy way of transmission. Previously, medications and soap were sent to provide for the community to treat scabies and also use the soap to protect their hygiene. This is very good, many people cured of the disease by using the drug and soap at that time” (HCP 4).

The NGO support given to the community was important in the prevention and control of scabies and in treating it. During the support, the medication was given to the infected individual free of charge in addition to the support of cleaning materials. This plays a great role in decreasing the incidence of scabies by that time. Currently, the NGO support was discontinued and needs attention by the government side by providing support in different ways.

For example, some public health services were provided to all citizens freely regardless of income as an exempted service (Hailu 2012:4). This occurs because they need to promote the use of certain health care services like tuberculosis, ART service and maternal service. If these services were more standardised in a public health facility and included scabies as one of the exempted services, the community would get free service and medication. This improves the health-seeking behaviours of the community, and it decreases the incidence of scabies.

4.4.2.3 Theme 3: Unavailability of scabies management guideline.

Unavailability of scabies management guideline emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.12. Below the emerged sub-themes were as follows.

Table 4.12. Unavailability of scabies management guideline.

Phase	Theme	Sub-theme
Phase 2: Health care providers	3. Unavailability of scabies management guideline.	3.1. Needs for in-service training for scabies management.
		3.2. Needs for scabies management guidelines.

These sub-themes were discussed below.

4.4.2.3.1 Sub-theme 3.1: Needs for in-service training for scabies management.

This study has identified that the health care providers working in the primary health care facility provided treatment for scabies patients with the knowledge acquired from professional education. There was no training or orientation for professional to develop their skill in the area, and it needs attention from higher officials.

“First, it is a must to update professionals regarding the management of scabies at health centers through training and other motivations” (HCP 9).

“Second, human resource development and motivation by training, capacity building regarding scabies management is very important. The staff should be motivated. Training should be given to at least one person per year. The top managers of the health system should also know and discuss the solution” (HCP 6).

“Awareness was given for HEW during the epidemic, and they used to treat it very well at that time. The staff is treated by the knowledge and skill they get from professional education. Otherwise, no other training specific to scabies” (HCP 4).

Other participants explained;

“Regarding the management of scabies, it is not treated well at these health centres. No one is trained to treat scabies accordingly, and no guideline is there to refer to” (HCP 11).

“I think it is very good if you give the necessary training and orientation so that we can go down in the community and serve our community.....For example, it is not as difficult to get, for example, training for malnutrition, so it should be like that for

scabies. Necessary materials for scabies should also be available too. The guideline is also very essential. In general, the attention given to scabies by the government is very low compared to other communicable diseases” (HCP 13).

Another participant also explained that there is an orientation once for health care providers and health professionals, but it needs training specific to the management of scabies.

“Enough orientation should also be given both for health care providers and HEWs (health extension workers). Training is also needed” (HCP 15).

The study conducted by Busetto, Luijckx, Calciolari, Ortiz and Vrijhoef (2018:5) found a similar result which indicated that lack of training or knowledge on how to perform the intervention, develops fears around competencies, fear of change, and fear of making mistakes. These were most of the barriers to a health professional while doing their day-to-day activity. According to the study conducted by Cowie, Nicoll, Dimova, Campbell and Duncan (2020:15), the most commonly reported barriers in health professionals was the absence of training on intervention and capacity building. Which is consistent with our findings.

The study conducted by Al-Zahrani, Nahar, Al-Zahrani, and Al-Zahrni (2017:107), found a similar result which indicated that lack of training, guidelines, and other learning materials were reported as barriers for professionals to diagnose and manage dermatological disorder including scabies. This could be explained by the health care providers in our study that the management of scabies was difficult and done with their experience when compared to other diseases treated in the primary health care facility.

4.4.2.3.2 Sub-theme 3.2: Needs for scabies management guidelines.

The majority of the health care providers indicated that there was no management guideline for treating scabies like other diseases. They treat scabies by their experience and by the knowledge acquired from professional educations.

“The different guideline should be available. For example, a guideline is needed for HEWs on how to diagnose and refer or treat scabies patients. The guideline is also needed for us on how to manage and provide health education” (HCP 3).

“There are some posters which are downloaded from Google to help the

professionals. There is also some training for half a day during epidemics even if I am not participating in it. But there are no management guidelines on scabies. But I do not know whether the guideline is present or absent. I know that some staffs are trained regarding scabies management” (HCP 10).

“Health professionals could treat the patient appropriately only based on the guideline, so that guideline is very important” (HCP 12).

Other participants explained:

“Availability of guideline is also very good. For example, if I have a guideline, I will read and can manage the disease more appropriately. It also helps us to develop our skills and also to provide quality services for the community” (HCP 14).

“We have no guidelines for the management. We work with other diseases, otherwise there is no separate guideline for scabies treatments. I do not know the reason why it can't have guidelines. There is no training for scabies management. We diagnose the disease by looking at its signs and symptoms” (HCP 17).

Budimu, Emidi, Mkumbaye and Charles Kajeguka (2020:4), found that the reduction of infectious disease burden would not meet if health professionals do not have access to and use national diagnosis and treatment guidelines. In addition to availability and use, regular training among health providers would be important in decreasing the cases. Lack of access and use of national diagnosis and treatment guidelines may have contributed to inattention to the guideline. This compromises the process of diagnosis and treatment of the disease, which is consistent with our findings.

4.4.2.4 Theme 4: Scabies data monitoring.

Scabies data management emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.13. Below the emerged sub-themes were as follows.

Table 4.13. Scabies data management.

Phase	Theme	Sub-theme
Phase 2: Health care providers	4. Scabies data monitoring.	4.1. Registration and reporting system.
		4.2. Surveillance system.

These sub-themes were discussed below.

4.4.2.4.1 Sub-theme 4.1: Registration and reporting system.

The finding indicated that there was a need for a registering and reporting system in most health care facilities. They did not give attention and give space for the registration and reporting of the case in the monthly and weekly reporting format. The health care providers share their concerns as detailed below.

“It shouldn’t only be when it became an epidemic, both the Woreda health office as well as the Regional health bureau (RHB) don’t raise the issue when there is no epidemic, they through the agenda after the epidemic is controlled. This is a highly communicable disease, so it should be considered that, and we have to run it with other communicable diseases. The RHB speak about it when NGO talk about it. It shouldn’t be this way. RHB didn’t give necessary attention even during the epidemic and forgot it totally after the NGO stopped to work on it. When we see its effect, it deserves the attention given to nutrition as it is also highly connected. Disease such as malaria has a weekly report format. Scabies should also be entered in daily, weekly and monthly report format. Currently, it has no reporting format. We send the report simply by writing it on paper. Doing unreported activity doesn’t give you a moral to do. It should have a detail reporting system, including who affected, how many family members affected and the like starting from the health post” (HCP 1).

This finding is contradicted by the study conducted by Siyam, Ir, and York et al. (2021:7) which reports that the most common practice across facilities was that all patients' data were entered daily in different registers and tally sheets, and were then summarised in the last 2-3 days of the month to prepare the monthly reporting forms. The extent to which a significant number of recording and reporting forms are justifiable depends on what the data is used for.

Some of the data is used at the facility level for patient management and monitoring, district supervisory purposes or logistics such as ordering medicine and commodities. But most of the data are collected to feed into the routine health information system and produce statistics for program monitoring.

4.4.2.4.2 *Sub-theme 4.2: Surveillance system.*

Some of the study participants mentioned that to improve the management of scabies, strengthening the surveillance system and improving the reporting mechanism was mandatory.

“The surveillance should be strengthened. Currently, I am working on the surveillance, I am reporting it by filling it in by pen on the form since scabies doesn’t include on the surveillance reporting format. The format has all the list of diseases under surveillance but has no scabies. So that most of the time health extension workers missed to report. I have asked them to tell me on the phone and then add on the booklet by hand and send it to the Woreda” (HCP 15).

“Currently, they have sent both weekly and monthly report filling on scabies since they stopped diagnosing the disease and couldn’t do anything about it. So health extension workers should be re-organized and work on entering the community on such issues as malnutrition and other communicable diseases” (HCP 2).

“Strengthening of surveillance system and improving reporting mechanism is also good for getting attention from zonal to district levels” (HCP 16).

This finding is supported by the study conducted by Alemu, Gutema, and Legesse et al. (2019: 3). According to the study, 83.3% of stakeholders involved in the surveillance system agreed that the current weekly reporting format could be used for new health events that are not included in the nationally reportable diseases. This is because the report format includes an empty column labelled “Other” which means other events must be included. This assists management in the early detection of the case and directs the response to related factors from a public perspective, which supports our findings.

The study conducted in Northwest Ethiopia showed that the feedback system was found to be weak due to the absence of epidemiologically analysed and interpreted data to send to health facilities. In addition, the district's annual performance review meeting did not address all activities related to surveillance and outbreak investigation and responses. This shows that the emphasis given to disease/event surveillance was low in the study area (Alemu et al 2019:4). Therefore, strengthening an effective surveillance system with timely reporting, analysing, and interpreting data was mandatory for a well-functioning surveillance system.

4.4.2.5 Theme 5: Suggestion regarding better management.

Suggestion regarding better management emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.14. Below the emerged sub-themes were as follows.

Table 4.14. Suggestion regarding better management.

Phase	Theme	Sub-theme
Phase 2: Health care providers	5. Suggestion regarding better management.	5.3. Recommendation regarding drug supply.
		5.4. Recommendation regarding capacity building.

These sub-themes were discussed below.

4.4.2.5.1 Sub-theme 5.1: Recommendation regarding drug supply.

Some of the health care providers give some recommendation regarding drug supply to improve the system and provide appropriate medication for the client by improving the scabies management of a primary health care facility.

“As a strategy, medication supply should continue for health centres. The problem is high in the community. Most clients are far from the health facilities, and it is difficult to come and get treatments. If all are trained and ready to treat the patients, it is good. The ministry of health should think about the treatments and drug supply. Mass awareness and treatment is a good strategy. There is no focal person for scabies. All other problems have a focal person but not for scabies. The reporting system is just by collecting information from each health post. If we face severe

cases, we refer them to Deder Hospital. The main problem here is the lack of medication and water supply” (HCP 11).

“The government should give attention to the problems. The guideline is needed for the management. Drugs should also be supplied for health facilities. Training should be given to health professionals and the focal person must be assigned for the case management. The community must follow health extension workers' health education about the prevention and treatment of scabies. The health development army should be strengthened in the community to facilitate treatment modalities” (HCP 17).

Mengesha, Hailu, Ahmed and Yimer (2020:8) found that an integrated pharmaceutical logistics system (IPLS) was currently implemented in Ethiopia to improve the drug supply chain and make the system functional. All public health facilities begin to implement a system for reporting and distribution of the drug. If the system properly implemented at the health facility level, it would strengthened the linkage between supply planning, forecasting, and resource mobilisation for the improvement of the supply, which is consistent with our findings.

Alemu, Jemal, Gashe, Suleman, Fekadu and Sudhakar (2020:10) found that after implementing IPLS, the order fill rate for the program drug supply was high compared to the previous system. On average, 78% of the facilities received the quantity they ordered, from this 83% were received by Hospitals. The reason mentioned for not having the ordered amount was no adequate supply, stock out and ordered amount changed at the resupply point. This shows that if the implemented IPLS system was functioning fairly well and monitored timeously, the supply system at the facility level was improved and the community got the treatment at their facility.

4.4.2.5.1 Sub-theme 5.2: Recommendation regarding capacity building.

The finding of this study shows that health care providers recommend improving their capacity through training and other capacity-building schemes. The participant mentioned the following:

“All health professionals should be trained properly and participate in the management of scabies as explained before. Training is important to create

awareness. There is no focal person here. To me, awareness is created, and training should be given accordingly” (HCP 10).

“Health care professionals should get training regarding the updated managements of scabies” (HCP 9).

“Training should provide for the health professional. All should have similar understanding of scabies managements” (HCP 11).

Other participants explained in the following vignettes:

“I never saw any health care provider who received training regarding scabies, so I believe the lack of training is also one possible barrier for scabies management. Since it is believed as the disease of the poor, many people also don’t want to expose their disease before it becomes severe. So giving training for health professionals is one of the methods to solve the problems” (HCP 13).

“Different reading material and manuals to read is also important. If the training was given to a professional, it was also good” (HCP 16).

The study conducted by Makaula, Chateau, Hift, Dlova and Mosam (2021: 4) found that skin disorders are common in the community and frequently encountered by primary care practitioners, but the experience of the practitioners has not led to adequate proficiency in diagnosis and management of common skin condition as a pre-intervention test. This is likely to require a multifaceted approach including pre-service dermatological training in colleges, in-service training, repeated exposure to continuing professional development, and improved communication and collaboration between primary care practitioners and specialist dermatologists. Which is consistence with our findings.

4.4.2.6 Theme 6: Linkage and communication at different levels.

Linkage and communication at different levels emerges as a theme regarding the management of scabies at primary health care. As indicated in Table 4.15. Below the sub-themes that emerged were as follows.

Table 4.15. Linkage and communication at different levels.

Phase	Theme	Sub-theme
Phase 2: Health care providers	6. Linkage and communication at different levels.	6.1. Communication between the health systems.
		6.2. Communication with different sectors.

These sub-themes were discussed below.

4.4.2.6.1 *Sub-theme 6.1: Communication between the health systems.*

This study identified that communication within the health system about the service provided to the community was strengthened. If the communication between the system strengthened and well-functioning, the problem of the community is solved. Some health care providers described the issue as below.

“In-collaboration with health extension workers, we have registered many people with the disease and also sent their list for office much time. But nothing has been done till now. Even to provide health education, needs to provide treatment for those who have the disease. So availing the necessary treatment is crucial” (HCP 12).

“The relationship between the health centre and Woreda as well as the zone should also be strengthened. There should be good communication on the issues both on the phone as well as physically” (HCP 15).

This study identified that there was a need for communication within the system concerning the case of scabies, treatment modality and reporting mechanism. Also, the communication between the district health office, health centre and health post was not adequate. Desta, Shifa, Dagoye, Carr, Roosmalen, Stekelenburg, Nedi, Kols and Kim (2017:4) also found that the support was given to the health care providers and health extension workers more focused on reviewing records and reporting of the case rather than giving an orientation on how to identify and treat cases and support. This showed the massive gap in communication between the health care providers, the health extension workers and the district health office.

4.4.2.6.2 *Sub-theme 6.2: Communication with different sectors.*

This study has identified that communication with different sectors like education and agricultural sectors was mandatory to teach the community on the way of scabies prevention and control. Also, it helps to identify the case early and reach the community in different directions.

“There should be strategies which link the community agricultural extension workers to educate also on nutrition and teachers to provide education on scabies. The teachers could educate as they easily access children and teach them if they got the necessary training on the issues. In this way, we can easily prevent the disease. The regional health bureau should also give attention to scabies and strict follow-up like other diseases and even more. The drug should also be available like other basic drugs” HCP 4:

“For me, it needs working on health extension workers. Because they are the one in the community most of the time. If they have to get the necessary training so that they can go through the community and provide health education. Close follow-up is also important to identify what they are doing. Training and involving DA’s and teachers is also very good to control scabies. A strong link is also important between the health centre, Woreda health office and the Zonal health department. Scabies should be one point of discussion when they come together. Necessary support should also be given to us from the higher offices” (HCP 14).

Scabies prevention needs an integrated and multi-level intervention, which comprises social mobilisation, and behavioural change communication at different levels and capacity with different sectors. To achieve this, engaging different sectors that work in the community in coordination, educating and monitoring of prevention intervention was mandatory.

4.4.2.7 **Theme 7: Facilitators to scabies management.**

Facilitators to scabies management emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.16. Below the emerged sub-themes were as follows.

Table 4.16. Facilitators to scabies management.

Phase	Theme	Sub-theme
Phase 2: Healthcare providers	7. Facilitators to scabies management.	7.1. Existence of health system
		7.2. Availability of health workforce

These sub-themes were discussed below.

4.4.2.7.1 Sub-theme 7.1: Existence of health system

The study participants mentioned that the existing health system starting from the federal level to the community was one of the enabling factors to resolve all health-related issues including scabies if we use it properly.

“The structure is available starting from the ministry to the community. If we use the system appropriately, I think we can easily serve the community as needed” (HCP 10).

“In my opinion, the enables are the system which gives service starting from the region to the community. This means this health facility has five health posts under it and gives service to the nearby community. Each health post has two health extension workers to give this scabies management and health education on how to prevent and control the disease by using women development army in a team of five households. This team discusses each issue every week and identifies the case and sends it to a health extension worker, but currently, there is a shortage of the drug in the health post, and she referred them to health centers after giving health education” (HCP 18).

Another participant explained it in the following words:

“Under this health center there is a satellite health post which serves the community. This is one of the enabling factors to give health education to the community” (HCP 8).

4.4.2.7.2 Sub-theme 7.2: Availability of health workforce.

Some study participants mentioned that the availability of a health workforce in the primary health facility was one of the enabling factors to give service to the community.

“The enablers for me are the presence of a health work force like health extension workers. We trained them on the problem, and they provided health education for the community, and this helped us a lot to improve the prevalence of the disease” (HCP 3).

“If we used professionals, it would be enough to give the service to the community, but the gap was the absence of training in scabies like other diseases” (HCP 11).

The presence of the health system to the community was one of the enabling factors for the management of scabies. This finding was supported by the study conducted by Croke et al (2020). The study states that the expansion of primary health care service in Ethiopia over the past 15 years has been addressed as a model in sub-Saharan Africa. Starting from 2004, more than 2800 health centres and over 15000 village-level health posts were constructed and available to the community to give essential service. The large-scale health facility construction in the country increases health service utilisation in a different area of health care (Croke et al., 2020:1319). The study conducted by Croke, Telaye, O’Connell and Tefere (2020:8), found that the health facility construction campaign was a part of a national commitment to expand health access and improve care, with a high level of political commitment to increase service utilization. Availability of health work force in health system remains the backbone if they have to ensure adequate and appropriate skills and mix by profession at all levels. This was the priority in the health system for the last twenty years of the health sector development plan (HSDP) which was currently in its final year.

During this time, the introduction of community health flagship platform called health extension programme, expansion of health posts and health centre, and the massive production of lower and mid-level health workers (FMOH 2015b:4). The health extension workers were the cornerstone for the health program which was a community-based to deliver health promotion, disease prevention and selective curative health services at the community level.

It was a tool to provide health service equitably to all segments of the population (EFMOH 2015b:3). Currently, in Health sector transformation plan II (HSTP II), the health system works on increasing access to compassionate, respectful, and caring health workforces as one of the transformation agendas. The existing health work force in the system was one of the enabling factors to improve scabies management at the primary health care level.

4.4.2.8 Theme 8: Health education regarding scabies.

Health education regarding scabies emerges as a theme regarding the management of scabies at primary health care. As indicated in table 4.17. Below is a presentation of the sub-themes that emerged.

Table 4.17. Health education regarding scabies.

Phase	Theme	Sub-theme
Phase 2: Healthcare providers	8. Health education regarding scabies.	8.1. Personal and environmental hygiene.
		8.2. Lack of awareness.

These sub-themes were discussed below.

4.4.2.8.1 Sub-theme 8.1: Personal and environmental hygiene

The majority of health care providers were good at offering health education to the community on personal and environmental hygiene during their day-to-day activity and outreach programme.

“In our case, we work on primarily personal hygiene rather than treatment, we work more on educating them on protecting their hygiene. Besides, there is a religious school called ‘Madrasa’ in this town. Children come from various areas and learn together there. If one of them gets the disease, it reaches everyone easily. So, we went from mosque to mosque and thought them by showing them how they protect their hygiene practically” (HCP 1).

“The problem is related to personal hygiene. Scabies is a disease which is determined by personal hygiene and cleanliness. How you wash your clothes and hands can determine scabies. So when we manage scabies, we discuss all

prevention and then we provide medication for them. Then we give them medication that we have in our facility” (HCP 7).

Other participants reiterated:

“...we teach them the importance of protecting personal and environmental hygiene. Also, we educate on the importance of separating the sleeping place of a diseased child from those who are healthy and washing clothes within boiled water before re-using after applying the drug” (HCP 4).

“Community awareness is very important to prevent scabies. So health education may be one strategy to treat and prevent the disease. Latrine usage, personal hygiene, and other household utensils should be used in hygiene manners. We provide health education every morning in the health center” (HCP 6).

Some of the health care providers explain the importance of keeping personal and environmental hygiene as reflected in the following vignettes:

“First, hygiene is the best management for scabies. Keeping personal hygiene is one measure. Second, a balanced diet is important. Scabies may be high when the immunity of the individual decreased. In this area the community is poor, and they have not got enough balanced diet. Most of the children had malnutrition” (HCP 10).

“Lack of personal hygiene is one of the causes of scabies. Environmental sanitation is also a factor. Even though it is not present at the moment, there is BBL which is provided by GOAL (NGO). The case was disappeared for some time from the community, but now it is there. During 2009E.C there is an epidemic and the treatment was provided and the case decreased, and in 2012/13E.C the cases come again. Now we observed that the problem is distributed in the community” (HCP 11).

Some of the health care providers described that educating the patients regarding the practice of personal and environmental hygiene, ways of medication use and separating the sleeping area of the infected individual from other family members was mandatory to stop the transmission spreading from one to the other.

“Concerning the management, the society can prevent and manage scabies by washing their body with the soap they could get, washing and changing the affected children’s clothes and feeding balanced nutrition. As the health centre, we are working on infection prevention. We educate the community when they come to the health centre on how to protect their environmental hygiene, separating the cattle from home, washing their children’s hands before eating, cleaning the dish on which the child eats, protecting children’s hygiene in general and also how to protect their hygiene too” (HCP 12).

“The majority of the communities in our zone are poor. So that I believe poor economic status is one barrier to scabies management. The low practice of protecting personal hygiene is also other barriers. The community’s way of life is also another problem. Our societies live together in one room in most cases, so they tend to contact each other or cannot maintain their distance while one person has the disease” (HCP 13).

“Scabies is a contagious disease, so that we provide necessary health education to prevent transmission, and also we advise them to change their child’s clothes after they apply the drug or at least wash the cloth in boiled water before wearing it again to their child if they can’t change the new clothes. We advise them to take the drug following the recommendation and avoiding contact with a health person in the family. There is regular outreach health education every month. Scabies is among the list of diseases on which we provide education when we conduct outreach, especially to increase awareness on protecting personal hygiene. The topic for education is mainly selected from the disease listed on the registration book in that week. Accordingly, there is a high chance of selecting scabies for health education” (HCP 16).

Other participants stressed the following:

“We educate the clients on how to use the drugs and keep personal, environmental hygiene with the combinations of drug prescription. We focus both on drug management and personal hygiene” (HCP 17).

“I told them to wash with soap and also advised them to change their clothes. I advise them to apply the drug and sit in the sun, and wash their body after the drug is dry on their body and wear new clothes or after washing with boiled water. I advise them to repeat this at least for three days” (HCP 15).

Most health care providers describe that the scabies program was not integrated with other NTDs and WASH programs. They described their views as below:

“Integrate the disease with COVID 19 and WASH program to keep personal and environmental hygiene” (HCP 13).

“Integration of the program with other NTDs and provide mass drug administration to the community, in addition to keeping personal and environmental hygiene to solve the prevalence of the disease if possible” (HCP 18).

The study conducted by Lopes et al. (2019:9) found that keeping personal hygiene and avoidance of contact with an infected individual and their personal items was the principal method of preventing scabies. Additionally, early treatment for those infected and giving focused health education was the main strategy for preventing the spread of the contagion, which emerges also in this current study findings.

Integration of neglected tropical diseases has been a priority in the global public health agenda for the last decade. According to the study done by Standley, Boyce, Klineberg, Essix, and Katz (2018:5), it indicated that integration of the NTDs programs can be classified into three groups which are full integration of NTDs programs, integration of selected NTD programs with other NTDs programs, and integration of selected NTDs programs with other public health programs. Currently, the approach used to integrate NTDs programs was by combining multiple NTDs, integrating NTDS with other communicable diseases, and integrating NTDs with WASH (Water, Sanitation and Hygiene) programs (Standley et al.

2018:6). The study participant indicates that there was poor integration of scabies management and control with other NTDs and WASH program, and this may affect the community in different ways. Cox, Fuller, Engelman, Steer and Hay(2020:241), also found that program integration for multiple neglected tropical diseases could lead to significant economic and service implications for the patient and the health care system. This may have an impact on the scabies disease burden.

4.4.2.8.2 Sub-theme 8.2: Lack of awareness

This study identified that most of the infected individuals did not come to the health facility early due to the lack of awareness, specifically assuming that scabies was caused by the lack of nutrition.

“Most of the people don’t go to come to the health facility early due to the lack of enough awareness about the disease. They bring children after the whole body part wounded and sometimes infected and the disease transmitted to all family members. In the rural area everyone sleeps in one place, even people sleep with cattle in some cases” (HCP 4).

“Most of the people don’t go to come to the health facility early due to the lack of enough awareness about the disease. People just believe it as it is caused by the lack of things to eat or lack of nutrition while the reality is due to poor personal hygiene because of the lack of water in some cases while other do not protect their hygiene even if they have water..... ” (HCP 5).

The study conducted by Rawat and Thakur (2020: 597) found a similar result which indicated that lack of awareness and knowledge among individuals infected by scabies occurs in various manifestations. Increasing awareness and knowledge of the community through appropriate health education and psychological support that focuses on the special consideration for the most affected population lessens the burden of the disease. Based on the evidence here, the next chapter presents a proposed strategy for enhancing the management of scabies at primary health care facility.

4.5 CONCLUSION

In this chapter, the main findings from phase one and phase two were presented and discussed. All the emerged themes from both phases were analysed and confirmed with the existing literature. The next chapter will present the strategy for enhancing the management of scabies at a primary health care facility.

CHAPTER FIVE

STRATEGY FOR ENHANCING THE MANAGEMENT OF SCABIES AT PRIMARY HEALTH CARE FACILITY

5.1. INTRODUCTION

The previous chapter discussed the research findings of the study in light of the literature and different guidelines from the federal ministries of health. This chapter presents the strategy generated by the researcher, based on the key findings from both phases of the study, literature and Federal Ministry of Health policies that were consulted in order to enhance the management of scabies at the primary level in Ethiopia.

5.2. DEVELOPMENT OF DRAFT STRATEGY

According to Fuertes et al (2020:1), a strategy is defined as a demonstration of target, approaches, purposes, objectives, and plans to realise them in such a way that they characterise the Organisation as it would be. As described by Nickols (2016:2), a strategy refers to a complex web of thoughts, ideas, observations, experiences, goals, skills, memories, beliefs, and aspirations that provide general guidance for specific actions for specific purposes.

In this study, the strategy for enhancing the management of scabies at the primary health care was developed based on the key findings of the current study, reviewing different literature and guidelines. The framework was used to plot the main findings of the study that set out to explore and describe factors associated with the structure and process of scabies management at the primary health care level in Ethiopia. Key findings were identified in relation to structure and process for the enhancement of the scabies management. The figure below illustrates the Donabidian model along with the key findings that developed from this study.

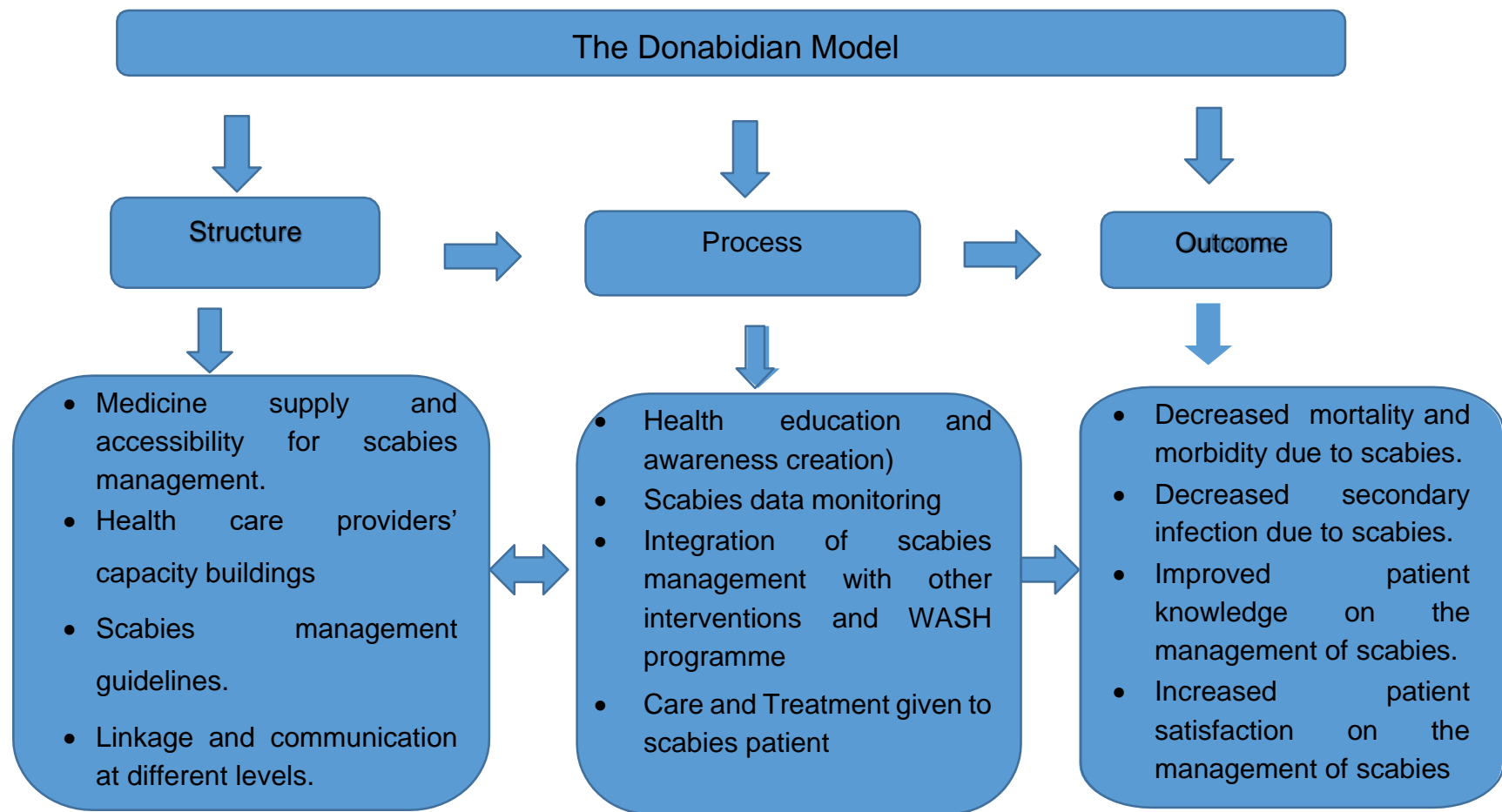


Figure 5.1. Key findings identified under the components of Donabidian Model

5.3. SCOPE OF THE STRATEGY

These strategies are to be used to enhance the management of scabies at primary health care facilities in Ethiopia. It was intended to be used as an input for policy makers, health service planners, health service managers, and health care providers to properly plan, enhance and implement scabies management at primary health care for the community. Hence, the strategy can be utilised by policy makers, programme managers, and health care providers at the health system.

5.4. RATIONALE OF DEVELOPING THE STRATEGY

The purpose of this strategy is to provide evidence-based direction to policy makers, programme managers, and health care providers to enhance the management of scabies rendered at the primary health care levels. It is predicted that the use of this strategy should help to plan better and improve the management of scabies at primary health care levels.

5.5. INTERIM STRATEGY

This section presents strategies aimed at enhancing the management of scabies at primary health care. The strategies were developed for enhancing the management of scabies at the primary health care level by addressing the key findings from the themes and sub-themes identified in the current study.

The key findings identified in this study are:

1. Knowledge of the community regarding scabies.
2. Medicine supply and accessibility for scabies management.
3. Scabies data monitoring.
4. Scabies management guidelines.
5. Health care provider's capacity building.
6. Linkage and communication at different levels.
7. Integration of scabies management with other interventions and WASH programme

5.5.1 Strategy for key finding 1: Knowledge of the community regarding scabies

Knowledge is a fact that is learned by study or experience (*Merriam Webster Dictionary* 2021). In this study, knowledge is understood as the awareness of the community about scabies gained by experience of a fact or situation. A community is a group of people who live in the same area, and who usually define that relationship as important to their identity and practices. This includes a group of healthy and ill individuals linked to each other and receiving health education on scabies management and scabies prevention and control at primary health care.

Community knowledge is the knowledge that people in a given community have developed over time and continue to develop. It is based on experience and practice. The community knowledge about scabies may shape the knowledge of each individual and ease the required effort to make the community knowledgeable about scabies during health education given at the primary health care facility and at the community level through different modalities.

As presented in Chapter Four of this study, there is a gap in knowledge in this community regarding scabies, its management, prevention and control. To narrow this gap, consistent and programmed health education was provided to the community through different modalities by using the existing health system to increase awareness regarding scabies. This existing system was used as a community-based network for culturally acceptable knowledge dissemination schemes (FMOH 2017:15). Once the community awareness was enacted, each community member was positioned to prevent and control scabies.

Community participation and engagement was identified as crucial for implementing strategies in health promotion, disease prevention and control (Haldane, Chuah, Srivastava, Singh, Koh, Seng & Legio-Quigley 2019: 2). As described by Assefa, Gelaw, Hill, Taye and Damme (2019: 24), the service provided in primary health care, especially at health posts through health extension programme packages, plays a central role in promoting community health and disease prevention in an inclusive way. Additionally, effective community engagement provides the link regarding knowledge and lived experiences, which is important for planning and implementing health activities. This helps the health care providers and health extension workers in exploring options and generating solutions and reducing the impact of the disease.

As described by Alsheikh & Iqbal (2020:216), effective communication with the health care providers and health care users is the key instrument for safe and quality health care. It is also responsible for ensuring the desired outcomes in the health interventions. The following approaches are proposed to improve the knowledge of the community regarding the issues identified in this study:

5.5.1.1 *Expected outcome 1:*

- Improved awareness of the community regarding scabies.

Key activity:

- Use the available health systems and health professionals for improving awareness on scabies management, prevention and control.
- Developing and distributing information education and communication (IEC) materials to the health care providers and health extension workers (HEWs) in the local language to use for community awareness.

Building up or refreshing awareness for health care providers, health extension workers and the community.

5.5.1.2 *Expected outcome 2:*

- Strengthened community engagement in scabies prevention and control.

Key activity:

- Exchanging information and ideas about scabies with all local decision makers in the community, especially religious leaders, health development army leaders and elders in the community.
- Building capacity of the community for participation in the awareness of scabies management, ways of prevention and control.
- Making available printing educational materials as a means of teaching aids in the local language.
- Developing quarterly reward and recognition events in the community through health extension workers.

5.5.1.3 ***Expected outcome 3:***

- Improved communication skills of health care providers and health extension workers.

Key activity:

- Build communication skill and capacity of health care providers and health extension workers by integrating scabies with other programmes.
- Develop a standard scabies communication training guidelines for health care providers and health extension workers.
- Orientation of the health care providers and health extension workers on the developed guidelines.
- Making available all relevant learning materials regarding scabies.
- Strengthen training of scabies management, ways of prevention and control.
- Improve ways of supportive supervision and monitoring system.

5.5.1.4 ***Expected outcome 4:***

- Improved stakeholder's involvement in scabies management

Key activity:

- Identify key stakeholders to support the programme and prepare terms of reference (TOR) which has a clear role and responsibility of the identified stakeholders.
- Build up guidance and technical support for health care providers and health extension workers on scabies programme knowledge sharing scheme.
- Support and sustain the health education given to the community regarding prevention and control.
- Get school teachers aware of scabies and confirm that the key message on scabies will be disseminated via school mini media.

5.5.2 **Strategy for key finding 2: Medicine supply and accessibility for scabies management.**

One of the findings in this study points to the reality that there is a shortage in medicine supply and accessibility for scabies management. Access to essential medicine in the primary health care facility is vital in improving the health outcome and reduce the disease burden in the community.

Lack of access to medicine may result in increased preventable morbidity and mortality and increased poverty in the community (Tharumia Jagadeesan & Wirtz 2021: 1).

As described in Vledder, Friedman, Sjöblom, Brown, and Yadav (2019:159), the medicine availability in public health facilities was low across WHO regions. In respect of this low level of medicine availability, the health consequences on the community are noticeable. Accessibility to medicine depends upon well-functioning supply chain systems. The following approaches are proposed to improve medicine supply and accessibility for scabies management on the issues identified in this study:

5.5.2.1 *Expected outcome 1:*

- Provided appropriate drug supply for scabies case management.

Key activity:

- Establish good partnerships with the pharmaceutical fund and supply agency (PFSA) and other medicine suppliers.
- Improve joint planning of scabies medicine with health partners.
- Facilitate scabies medicine supply pipeline.
- Improve the ways of early planning and reporting system for scabies medicine supply.
- Build the capacity of the health care providers for ordering and monitoring of scabies medicine.

5.5.2.2 *Expected outcome 2:*

- Ensured good scabies medicine management system at primary health care facility level.

Key activity:

- Facilitating the training for health care providers to utilise integrated pharmaceutical logistics system (IPLS) for supply planning, forecasting, and resource mobilization.
- Improve efficient medicine management system at primary health care facility.

5.5.3 Strategy for key finding 3: Scabies data monitoring.

One of the study findings shows that scabies data monitoring starting from recording, collecting, reporting and interpreting data is not consistent. The health system would function well if the programme implementation in the system was well monitored and produced reliable data. The data is achieved when the generated data are based on the standard procedures and format which does not vary at all levels and is systematically captured in the same manner irrespective of who is using them and irrespective of the number during data collection. Data are reliable when they are measured and collected regularly (FMOH 2018: 12).

The study conducted by Mekonnen and Gebeyehu (2021:2) described that the use of routine health data as vital for the day-to-day patient management, disease prioritisation, health education, allocation of resource and decision making as well as for the planning and monitoring of health services. This helps to get the right information at the right time into the right hands, which supports programme managers and health care providers to make decisions based on evidence. The following approaches are proposed to improve the scabies data monitoring in the primary health care facility on the issues identified in this study:

5.5.3.1 Expected outcome 1:

- Develop registration and reporting system of the scabies programme.

Key activity:

- Establish computer based registration and reporting system for better data management and minimise multiple registers at the primary health care level.
- Revise the HMIS register and surveillance-reporting format to include scabies as one component.
- Train health care providers on the protocol for routine data recording, reporting, data analysis and utilization at point of care.
- Print and distribute recording and reporting tool for scabies cases. Conduct regular monitoring and supportive supervision of the scabies programme by the district health office.
- Establish a mentorship platform for an effective scabies programme implementation.

5.5.3.2 Expected outcome 2:

- Establish strong scabies surveillance system.

Key activity:

- Provide guidance on the surveillance system for active data collection, analysis and interpretation.
- Avail registration, reporting and other formats for scabies programme.
- Develop rumour registration, verification and outbreak investigation.
- Establish weekly information sharing and use data for action for continues improvement of the programme.

5.5.4 Strategy for key finding 4: Scabies management guidelines.

Evidence-based practical guidelines are a way of reducing the gap between policy, best practice, local contexts and patient choice. Guidelines have been supported as an essential part of quality clinical practice for several periods. The Institute of Medicine (IOM) define clinical practice guideline as” a systematically developed statement to assist health care providers and patient decisions about appropriate health care for specific clinical conditions”(Kredo, Bernhardsson, Machingaidze, Young, Louw, Ochodo, & Grimmer 2016: 1).

The guidelines are a suitable way of packaging evidence and offering recommendations to health care decision makers intended to improve effectiveness and quality of care (Kredo 2016: 2). This is important to narrow any differences in clinical practice among health care providers and decrease the cost and other preventable mistakes and adverse effects. So, the development of the guidelines was mandatory to give appropriate scabies management for the community at the primary health care level. The following approaches are proposed to improve the clinical practice of the health care providers in the primary health care facility on the issues identified in this study:

5.5.4.1 Expected outcome 1:

- Scabies management guidelines developed.

Key activity:

- Avail all supporting documents and WHO scabies guidelines to develop scabies management guidelines.
- Conduct expert consultation when developing the guidelines.
- Print and disseminate the guidelines.
- Distribute the guidelines widely so that at least each primary health care facility gets enough copies.
- Provide orientation for health care providers on the developed guidelines.
- Evaluate the use of the guideline and consider revision whenever necessary.

5.5.5 Strategy for key finding 5: Health care provider's capacity building

The presence of trained and skillful health care providers is vital for the delivery of quality health service in the community. The skills and competencies of the health care providers can be built through in-service training as well as pre-service education at universities or colleges before getting to work. a (Nicol, Turawa & Bonsu 2019: 2).

The scabies management service in the primary health care facility seems not to have been given attention at all levels of the health system. Hence, offering in-service training is vital to refresh the scabies management service provision at the primary health care levels. The following approaches are proposed to improve the capacity of the health care providers in the primary health care facility:

5.5.5.1 Expected outcome 1:

- Capacity of health care providers improved.

Key activity:

- Provide training for health care providers on scabies case management to improve the services quality.
- Prepare training guidelines and curriculum for in-service training.
- Prepare mentoring systems and on-job training. Set standards and norms on scabies management training of health care providers.
- Avail printing and IEC materials like job aids and manuals for health care providers.

5.5.5.2 Expected outcome 2:

- Initiate a joint learning system with another health programme.

Key activity:

- Strengthen capacity of health care providers through a joint learning system.
- Organise on-job training with the support of other funded programmes in the area.
- Link networks, professional associations, and universities or other educational institutes using national and regional health systems to enhance health care provider's knowledge and skills in the management of scabies.
- Arrange a continuous capacity building programme.

5.5.6 Strategy for key finding 6: Linkage and communication at different levels.

One of the findings of this study showed that there is a gap in linkage and communication within the health system between the district health office, health centre and health posts. As Landry (2019:1) indicates, effective communication is vital to align efforts with the interests of the objective and to inspire positive change. When communication is missing or not strong, important information can be misinterpreted and this creates barriers that hinder programme success.

Promoting a strong communication and linkage with the health system is recommended in the health sector transformation plan of the country. This would help in the sustainability of the programme implementation in the health system (FMOH 2017: 35). For getting strong communication, there must be total involvement of people, technology and the organisational structures that define and limit the conversations that are allowed to occur. Therefore, the following approaches are proposed to develop a strong linkage and communication with the health system:

5.5.6.1 Expected outcome 1:

- Communication and linkage within the health system improved.

Key activity:

- Establish ways of communication between the district health office, health centre and health posts to exchange information about the status of scabies in the community.

- Identify a focal person among health care providers for early communication about scabies.
- Make regular supportive supervision to make sure the problem of health care providers is addressed.
- Conduct quarterly meetings between the district health office, health center staff and health extension workers on scabies implementation.
- Create a feedback mechanism on the gap identified to improve the scabies management.

5.5.7 Strategy for key findings 7: Improved integration of scabies management with other interventions and WASH programme.

Integration of scabies programme with WASH programme improves the health and wellbeing of the community by reducing disease transmission and enabling safe hygiene practices in homes, schools, health care facilities and the community. Strengthening of the WASH programme plays a crucial part in the prevention and control of scabies. Scabies is repeatedly referred to as 'disease of poverty.' These diseases tend to affect the poorest populations, those that also lack adequate water and sanitation in the area. Improving the integration of both programmes is likely to have a more sustainable impact on the community health outcome and have a more cost-effective approach to improve the service.

Integration of scabies programme with other NTDs improves the service accessibility to the affected community. For example, multiple NTDs programmes have carried out joint mass drug administration (MDA) for different types of NTDs and delivered community sensitisation and advocacy message in an endemic area. This helps the programme to be more cost-effective to access the community and improve country ownership, resilience and sustainability. Therefore, the information below was made to make integration of scabies management with other interventions and WASH programme with the health system.

5.5.7.1 Expected outcome 1:

- Establish integrated community-based interventions with other neglected tropical disease programmes for scabies management, prevention and control.

Key activity:

- Develop a sustained health promotion and disease surveillance system with other NTDs.
- Enhance community-wide approach influence behaviour of the community on scabies prevention and control.
- Integrate the management of scabies with other neglected tropical diseases in the area of endemic.
- Coordinate scabies with other neglected tropical diseases in the time of mass drug administration in the area affected by its endemic.

5.5.7.2 *Expected outcome 2:*

- Make WASH and scabies a viable and integrated programme in the promotion of community health.

Key activity:

- Identify and coordinate partners with WASH and scabies for integration of the prevention and control service.
- Prepare terms of reference (TOR) which has a clear role and responsibility for the identified partner.
- Build up guidance for the community on scabies prevention and control.

5.5.7.3 *Expected outcome 3:*

- Strengthen WASH intervention for scabies.

Key activity:

- Ensure the availability of adequate water supply to the area.
- Provide hygiene and sanitation materials to the affected community (Soap, detergent, and clothes etc.)
- Provide awareness across the community on ways of prevention and control of scabies.
- Monitor WASH related undertakings.

Table 5.1: Summary of the developed strategies based on the key findings.

Strategy	Expected outcome
1. Knowledge of the community regarding scabies.	<ol style="list-style-type: none"> 1. Improved awareness of the community regarding scabies. 2. Strengthened community engagement in scabies prevention and control. 3. Improved communication skill of health care providers and health extension workers. 4. Improved stakeholder's involvement in scabies prevention and control.
2. Medicine supply and accessibility for scabies management.	<ol style="list-style-type: none"> 1. Provided appropriate drug supply for scabies case management. 2. Ensured good scabies medicine management system at primary health care facility level.
3. Scabies data monitoring.	<ol style="list-style-type: none"> 1. Developed registration and reporting system of the scabies program. 2. Established strong scabies surveillance system.
4. Scabies management guidelines.	<ol style="list-style-type: none"> 1. Scabies management guidelines developed.
5. Health care provider's capacity buildings.	<ol style="list-style-type: none"> 1. Capacity of health care providers improved 2. Initiate a joint learning system with another health program
6. Linkage and communication at different levels.	<ol style="list-style-type: none"> 1. Communication and linkage within the health system improved.
7. Integration of scabies management with other interventions and WASH program improved.	<ol style="list-style-type: none"> 1. Establish integrated community-based interventions with other neglected tropical disease programs for scabies management, prevention and control. 2. Make WASH and scabies a viable and integrated program in the promotion of community health. 3. Strengthened WASH intervention for scabies.

5.6. VALIDATION OF THE STRATEGY

5.6.1 Population participated in the validation of strategy

The programme managers working in the different health systems participated to validate the strategic document using validation tools. The programme managers were selected based on their programmatic and practical experience in the area of scabies management, prevention and control.

5.6.2 Process of validation

The researcher invited all selected programme managers working at the ministry of health, regional health office, zonal health office, district health office, and neglected tropical disease experts for the validation session and gave each participant the information letter (see Annexure 13). The researcher planned and communicated the exact date of the validation session, time and venue two weeks before the intended validation session. The initial date for the validation session was 22 July 2021. The confirmation and the availability of the programme managers were followed by email and telephone. On the day of validation, all ten invited programme managers attended the validation session.

5.6.2 Venue of the validation

The researcher arranged the meeting room in the Armauer Hansen Research Institute in the new building on the first floor as the venue of preference. The room had enough space to accommodate all ten invited programme managers in order to prevent infection, and the temperature was also comfortable. The researcher confirmed that every seating place had a pen, a copy of the draft strategy document, the instrument for validation, argument paper, a bottle of water, sanitizer and it keeps social distancing as per the WHO recommendations. All participants were checked for the temperature before the start of the session and the wore masks. A flip chart and markers were available in the room. The setting arrangement was in a U-shape pattern to confirm that all the participants would see the flip chart, one another, and the researcher, and there were enough spaces for free movement among participants. Biographic presentation of the programme managers

A total of ten programme managers were selected from different health institutions. Two programme managers each from the ministry of health, regional health office, zonal health office and district health office, neglected tropical disease experts who were currently involved in the scabies programme were participating.

Table 5.2. Illustrates the biographic information of program managers involved in the validation process.

S. No	Qualification	Occupation	Work experience
1	MPH in epidemiology	Scabies program experts at MOH	More than 10 Years
2	MD	NTD program team leaders at MOH	More than 10 Years
3	MPH	Scabies program expert at RHB	8 Years
4	MD+ MPH	NTD program team leaders at RHB	9 Years
5	BSc in nursing +MPH	NTD program team leaders at ZHD	More than 10 Years
6	BSc in public health	Scabies program expert at ZHD	7 Years
7	BSc in public health	Head of the district health office	6 Years
8	BSc in Nursing	Scabies program expert of the district	More than 10 Years
9	PHD in	Senior NTD program advisor at Partners org.	More than 10 Years
10	MSc in health monitoring and evaluation	Senior NTD program M&E advisors at Partners org.	More than 10 Years

5.6.3 Criteria for validating the developed strategies

The programme managers validated the draft strategy based on the following criteria such as clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainable and achievable by using Likert scale, and put their comments, ideas, suggestions or any amendment of each strategy in the spaces provided. The Likert scale indicated each strategy based on the criteria using strongly disagree (1), disagree (2), agree (3), and strongly agree (4) (Table 5.3). The programme managers were requested to go through the draft strategic document in silence and individually score and write any comments, suggestions or any amendments in the spaces provided for each strategy separately and then discuss with the team on the comments and suggestions given. The programme managers were requested to score each draft strategy from 32 point and the researcher to consider the strategy to an acceptable level if the mean score was 24 (75%) point and above. In the meantime, the comments and suggestions provided by the programme managers were incorporated into the final strategy after reaching consensus.

Table 5.3. Criteria for validating the strategy

Strategy:						
S.No	Criteria	Strongly disagree (1)	Disagree(2)	Agree(3)	Strongly agree (4)	Comment and suggestion
1	Clarity					
2	Acceptability					
3	Applicability					
4	Relevance					
5	Effectiveness					
6	Feasibility					
7	Sustainability					
8	Achievable					
	Total score					

Table 5.4. Score of programme managers on each strategy.

Strategy	Program managers score on each strategy										
	PM1	PM2	PM3	PM4	PM5	PM6	PM7	PM8	PM9	PM10	Average score
Strategy 1	30	30	32	30	32	30	30	30	30	30	30
Strategy 2	28	28	29	26	29	28	28	28	28	32	28
Strategy 3	28	26	28	28	28	26	26	28	26	28	27
Strategy 4	31	30	32	30	32	30	32	30	32	30	31
Strategy 5	30	29	30	29	32	30	30	32	30	32	30
Strategy 6	32	30	32	30	30	30	28	30	30	32	30
Strategy 7	30	32	30	28	30	28	32	30	30	30	30

5.6.4 Programme managers comment on low rated strategies.

It was found that strategies regarding medicine supply and accessibility for scabies management and scabies data monitoring were low rated strategies by the programme managers in relation to sustainability. The programme managers claims that there is a financial problem in the health system due to the COVID-19 epidemic, and most of the programmes were supported by donors. Therefore, it was difficult to sustain the above mentioned strategy unless this problem was solved.

The researcher thoroughly revised the strategies based on the programme manager's comments and suggestions and sent it by email to programme managers to review and arrange a Zoom meeting. Final consensus was reached on the final strategy document.

5.7. FINAL STRATEGY

The final strategies are based on the consensus from programme managers working at different levels in the health system. By having this validation, the researcher approves the following final strategies and expected outcomes:

Strategy 1: Improve knowledge of the community regarding scabies.

Expected outcome 1: Improved awareness of the community regarding scabies.

Expected outcome 2: Strengthened community engagement in scabies prevention and control.

Expected outcome 3: Improved communication skill of health care providers and health extension workers.

Expected outcome 4: Improved stakeholder's involvement in scabies prevention and control.

Strategy 2: Improve medicine supply and accessibility for scabies management.

Expected outcome 1: Provide appropriate medicine supply for scabies case management.

Expected outcome 2: Ensure good scabies medicine management system at primary health care facility level.

Strategy 3: Improve scabies data monitoring.

Expected outcome 1: Developed registration and reporting system of the scabies program.

Expected outcome 2: Established strong scabies surveillance system.

Strategy 4: Develop scabies management guidelines.

Expected outcome 1: Scabies management guidelines developed.

Strategy 5: Improve the capacity of health care providers.

Expected outcome 1: Capacity of health care providers improved.

Expected outcome 2: Initiate a joint learning system with another health program.

Strategy 6: Improve linkage and communication at different levels.

Expected outcome 1: Communication and linkage within the health system improved.

Strategy 7: Improve Integration of scabies management with other interventions and WASH program.

Expected outcome 1: Establish integrated community-based interventions with other neglected tropical disease programs for scabies management, prevention and control.

Expected outcome 2: Make WASH and scabies a viable and integrated program in the promotion of community health.

Expected outcome 3: Strengthen WASH intervention for scabies prevention.

5.8. CONCLUSION

A strategy that enhances the scabies management approach was developed based on the Donabidian framework. The strategies have seven strategic key areas. The reason for considering the identified key strategic areas was discussed and the expected outcome and key activity which enables the achievement of the desired changes are listed and defended. The key activity listed were applicable to the local context and focus on the primary health care facility in Ethiopia. The next chapter focalises the conclusions, recommendations, and limitations of the study.

CHAPTER SIX

CONCLUSIONS, RECOMMENDATIONS, AND LIMITATION OF THE STUDY

6.1. INTRODUCTION

Scabies is an ectoparasitic, highly contagious skin disease caused by an infestation of the skin by the human itch mite, and the major cause of morbidity and disease burden in developing countries. This disease affects both sexes, all ages and ethnic groups and socioeconomic levels but the most affected age groups are small children, and the aged in resource-poor societies who are exposed to scabies as well as to the secondary complications of the infestation (WHO 2015:1). The problem of scabies infestation and its complication complicates and raises the main cost of the health care system (WHO 2019a:1).

Scabies was included in the WHO's list of neglected tropical diseases (NTDs) recently, in recognition of the burden that the disease caused by the mite *Sarcoptes scabiei*. Scabies exerts a significant economic burden on individuals, families, communities, and health systems. The intense discomfort caused by the disease, the life-threatening complications from secondary bacterial infection, along the challenges and costs of correct diagnosis and proper treatment makes it a public health problem.

In the previous chapter, the researcher discussed a strategy designed to enhance the scabies management and control at the primary health care level and validated the strategy through the programme managers and finalised it. This chapter presents the study conclusions, recommendations and limitations based on the findings that build upon the purpose and objectives of the study.

Table 6.1. Summary of phases, research objectives, research questions and methods of data collection

Phases	Research objectives	Research questions	Data collection methods	Study participant
Phase one	To explore the current knowledge and experiences of healthcare users with regard to the management of scabies at primary health care level.	What is the level of knowledge and current experiences of health care users regarding the management of scabies at the primary health care level in the Deder district?	Focus group interview	Health care users
Phase two	To evaluate current management of scabies at selected primary health care facilities in Deder district.	What are the enablers and barriers to scabies management at primary health care levels in the Deder district as perceived by health care professionals?	In-depth interview (face to face)	Health care providers
	To describe the enablers and barriers to scabies management at primary health care level.	What measures are required to enhance scabies management at primary health care in the Deder district?	In-depth interview (face-to-face)	Health care providers
	To explore and describe the needs with regard to improving the management of scabies at primary health care level.		In-depth interview (face to face)	Health care providers
Phase three	To develop strategies for the enhancement of management and control of scabies.	What strategies can be developed in order to enhance the current management of scabies at primary health care in the Deder district?	Analysed data from phase one and two of the study	Researcher
Phase four	To validate strategies for the enhancement of management and control of scabies.		Validation tool	Program managers

6.3. THE PURPOSE OF THE STUDY

The purpose of this study was to evaluate the current management approach of scabies at the primary health care in the Deder district to develop strategies that could enhance the management of scabies at the primary health care. This purpose was achieved as the researcher evaluated the current management approach of scabies from health care users and health care providers at the primary health care level and developed a strategy based on the findings of the study to enhance the current management of scabies at the primary healthcare level.

6.4. RESEARCH SUMMARY

A multiphase qualitative research method was followed to evaluate the current management of scabies given at the primary health care level. In the process of collecting and analysing the data, findings informed the development of a strategy dedicated to enhancing the management of scabies at the primary health care level. This study was divided in four phases to answer the research question and objectives of the study.

In phase one of the study, the researcher sought to understand the current knowledge and experience of health care users by using focus group interview until data saturation was reached. In this phase, the researcher had a sample of 58 health care users from nine selected primary health care facilities. Five themes emerged after data analysis. These were

- (1) Knowledge regarding scabies;
- (2) Knowledge regarding the management of scabies;
- (3) Knowledge regarding the prevention of scabies;
- (4) Perceptions regarding receiving treatment of scabies; and
- (5) Recommendations regarding availability of materials and medication.

In phase two of the study, the researcher conducted in-depth face-to-face interviews with health care providers. The researcher had a sample of 18 health care providers from selected primary health care facilities. The health care providers explained the current practices in the management of scabies, the enablers and barriers to scabies management, the needs with regard to improving the management of scabies and their experiences with regard to the management of scabies. Eight themes emerged after data analysis.

These were

- (1) Experience regarding scabies management;
- (2) Medicine supply and accessibility for scabies management;
- (3) Unavailability of scabies management guidelines;
- (4) Scabies data monitoring;
- (5) Suggestions regarding improved management;
- (6) Linkages and communication at different levels;
- (7) Facilitator of scabies management; and
- (8) Health education regarding scabies.

In phase three of the study, the interim strategies were developed for the enhancement of the management of scabies at the primary health care, which is considered to be the main contribution of this study. This was based on the key findings from phase one and phase two of the study, the literature control, WHO guidelines and the Federal Ministry of Health policies currently in vogue in Ethiopia. During the development of the strategy, the researcher followed the conceptual model adapted from the Donabidian model to guide the development of the strategy document. Also, key findings of the study were identified in relation to the structure and process component of the Donabidian model. The developed strategy was discussed with programme managers working at different levels in the health system to reach consensus on the document, to add their comments and suggestions on the validation tools during the validation process.

Finally, seven strategies were developing with respect to their expected outcomes and key activities.

The aforementioned strategies include

- (1) Improving knowledge of the community regarding scabies;
- (2) Improving medicine supply and accessibility for scabies management;
- (3) Improving scabies data monitoring;
- (4) Developing scabies management guidelines;
- (5) Improving the capacity of health care providers;
- (6) Improving linkage and communication at different levels;
- (7) Improving integration of scabies management with other interventions and WASH program.

In phase four of the study, the developed strategies were validated by programme managers working at different levels in the health system by using validation tools. The programme managers were selected based on their programmatic and practical experience in the area of scabies management, prevention and control through a convenient sampling method. During the validation process, the researcher explained the purpose, the process of validation and the steps that followed in the process of the validation of the strategic document to the programme manager. The programme manager validate the document based on the pre-set criteria by using a validation tool and put their comments, ideas, suggestion or any amendment of each strategy on the space provided. Finally, the researcher revised the strategy based on the comments and suggestions and reached consensus on the final strategy document with the program managers.

6.5. RESEARCH OBJECTIVES

The conclusions are presented based on the following research objectives.

6.5.1 Objective 1: To explore the current knowledge and experiences of healthcare users with regard to the management of scabies at primary health care level.

This objective was achieved through a focus group discussions conducted with health care users by using an interview guide (Annexure 10) to explore the current knowledge and experiences of health care users regarding scabies management at selected primary health care in the Deder district.

6.5.1.1 Summary

The findings showed that the knowledge of health care users that participated in the study on scabies, its management, prevention and control was limited. Health care users experience different challenges regarding scabies and the management thereof. These challenges contribute to low quality of health service with the undesirable health outcomes. Health care users also explained their perceptions regarding receiving treatment for scabies management at the primary health care. They explained their perceptions regarding recurrence of the disease after treatment and the social isolation experienced during being infected by the disease. Finally, they gave some recommendations on the availability of medicine and material for the prevention of scabies at the primary health care level.

6.5.2 Objective 2: To evaluate current management of scabies at selected primary health care facilities in Deder district.

This objective was achieved through in-depth face-to-face individual interviews conducted with health care providers through an interview guide (Annexures 11) designed to evaluate the current management of scabies carried out at the primary health care.

6.5.2.1 Summary

In the health system, one of the imperatives is delivering appropriate health care management to those in need. This study verified that there are different difficulties to diagnosing and managing scabies at the primary health care facility, and these entailed (1) absence of training for health care providers, (2) unavailability of scabies management guidelines, (3) absence of other learning materials.

In this study, the absence of training for health care providers on scabies management was the biggest difficulty while doing their day-to-day activity, and they develop fears around competencies, fear of changes and fear of making mistakes. Currently, the service rendered to the community is based on the knowledge acquired from professional education. Still, the health care providers have difficulty in the management of scabies and make do with their experience when compared to other communicable diseases, and most of the time the health care providers only give health education and refer the patients to other facilities for diverse reasons.

The other difficulty in the management of scabies was the unavailability of scabies management guidelines. The absence of management guidelines essentially means that there is no constant and proper management of scabies in primary health care, and the disease cycle continues and affects the efforts directed at reducing the disease burden in the area.

6.5.3 Objective 3: To describe the enablers and barriers to scabies management at primary health care level.

This objective was achieved through in-depth face-to-face individual interviews conducted with health care providers through an interview guide (Annexures 11) designed to describe the enablers and barriers to scabies management at the primary health care.

6.5.3.1 Summary

This study identified enabling factors and barriers to the management of scabies at primary health care. The enabling factors for proper implementation of scabies management were the existence of the health system and availability of human health workforce in the system. This shows that the existence of the health system in the community improves the health access, improves care and service utilisation if it is properly functional. Also, the human health workforce is the backbone of the health system if they have to ensure adequate and appropriate skills to render quality service at all levels.

The barriers to the proper implementation and improved practice of scabies management were identified through different themes as mentioned below; (1) unavailability of scabies management guidelines; (2) absence of trained workforce; (3) shortage of medicine and accessibility to scabies management; (4) poor linkage and communication within different levels, and (5) low integration of scabies management with other neglected tropical diseases and the WASH programme.

6.5.4 Objective 4: To explore and describe the needs with regard to improving the management of scabies at primary health care level

This objective was achieved through in-depth face-to-face individual interviews conducted with health care providers by use of an interview guide (Annexures 11) to explore and describe the needs with regard to improving the management of scabies at the primary health care level.

6.5.4.1 Summary

Efforts to enhance the standard and efficiency of health care delivery have usually targeted the way services are organised and delivered. To provide appropriate and organised service to the health care users and to improve the management of scabies in the primary health care, this study identified different challenges that need serious redress with regard to improving the management of scabies in the primary health care.

The issues that need improvement were (1) absence of trained human health workforce on scabies management; (2) unavailability of scabies management guidelines; (3) shortage of medicine and accessibility to scabies management; (4) poor scabies data monitoring; (5) poor linkage and communication; (6) poor integration of scabies with other neglected tropical disease

and WASH programme and (7) lack of attention to the disease for improving the management of scabies at primary health care level.

6.5.5 Objective 5: To develop and validate strategies for the enhancement of management and control of scabies.

This objective was achieved based on the findings of the above-mentioned objectives of the study. The researcher developed the strategies and validated them based on the pre-set criteria and validation tools by the programme managers to enhance the management of scabies rendered at the primary health care levels.

6.5.5.1 Summary

There are different studies that have been conducted regarding scabies, but this current study remains contributes to the country regarding management of scabies at the primary health care levels. Also, the burdens affect the communities where the existing health facilities are compromised in many respects. The consequences may have lifelong effects on health outcomes when experienced in early life. The purpose of the developed strategy was to recommend ways to enhance the management of scabies provided at the primary health care levels.

The strategy for enhancing the management of scabies at the primary health care was developed based on the Donabidian model framework and on the key findings of the study designed to explore and describe factors associated with the structure and process of scabies management at the primary health care level. Key findings were identified in relation to structure and process to develop a strategy for the enhancement of the scabies management at the primary health care level.

Finally, seven strategies were designed with respect to their expected outcomes and key activities. The aforementioned strategies include (1) Improving knowledge of the community regarding scabies; (2) Improving medicine supply and accessibility for scabies management; (3) Improving scabies data monitoring; (4) Developing scabies management guidelines; (5) Improving the capacity of health care providers; (6) Improving linkage and communication at different levels; (7) Improving the integration of scabies management with other interventions and WASH programme.

The expected outcome was addressed in the key findings listed and key activities which enable attaining the desired changes listed. The identified key activity was considered in the local context of the study and focus on the primary health care facility.

The developed strategies were validated based on the pre-set criteria and the validation tool by using programme managers working at different levels in the health system. The programme managers who participated in the validation of the study were selected based on their programmatic and practical experience in the area of scabies. During the validation process, the researcher explained the purpose, the process of validation and the steps followed in the process the validation of the interim strategic document to the programme managers. The programme managers validate the document based on the validation tool and put their comments, ideas, suggestion or any amendment on the space provided. Finally, the researcher revised the strategy based on the comments and suggestions and reached consensus on the final strategy document with the programme managers.

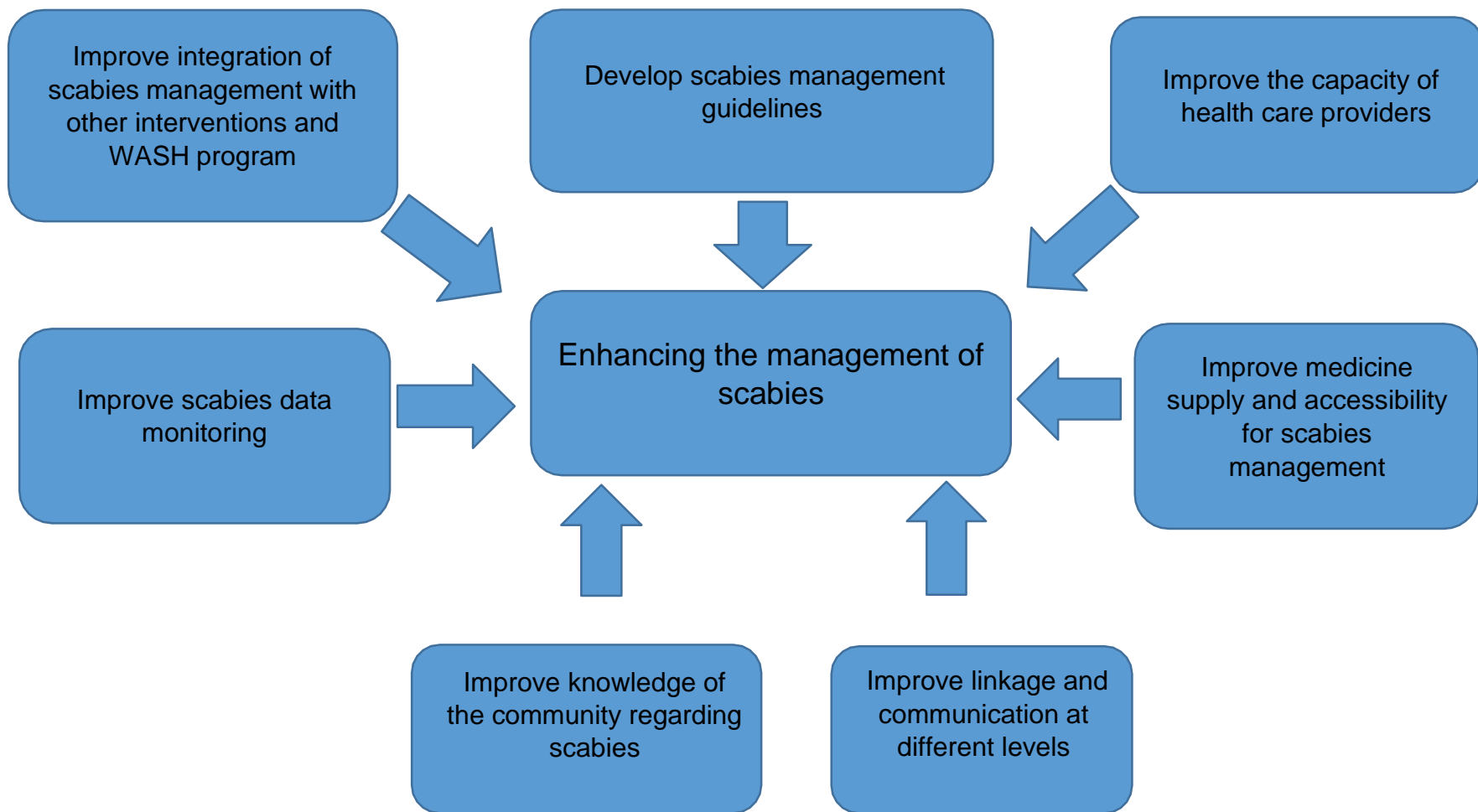


Figure 6.1. Pictorial presentation of the developed strategy for enhancing the management of scabies

6.6 RECOMMENDATIONS BASED ON THE FINDINGS

The following recommendations are made based on the study findings:

6.6.1 Recommendation directed to Ministry of Health and Regional Health Bureau.

- Developing guidelines, pocket manuals or other supporting documents for the management of scabies regularly and timeously.
- Developing an awareness scheme for the health care providers, programme implementers, and community.
- Develop information education and communication (IEC) materials on scabies management, prevention and control mechanisms.
- Establish integrated pharmaceutical logistics systems to improve scabies medicine supply.
- Developing an effective communication mechanism between the Ministry of Health and regional health bureau, among stakeholders working in neglected tropical diseases. This should help the programme for better harmony and understanding to help the community affected by scabies.
- Standardise all registration and reporting format which includes HMIS tools and surveillance reporting format by including scabies as a reportable disease.
- Include scabies on weekly, monthly and quarterly reporting format for monitoring the programme performance.
- Federal Ministry of Health/Regional health bureau/ should integrate the scabies programme with other neglected tropical diseases and WASH program.
- Develop a strong supportive supervision and mentoring mechanism which should produce an effect in the improvement of the management of scabies at primary health care levels.

6.6.2 Recommendations directed to Zonal Health Office and District health office

- The identified factors for improving scabies management must be addressed to enhance the management of scabies at the primary health care level.
- Train the health care providers on the developed scabies management guidelines.
- Develop information, education and communication (IEC) materials on scabies management, prevention and control mechanisms using local language of the

community.

- Develop and disseminate health messages on scabies management, prevention and control using local media.
- Provide supportive supervision and mentoring of scabies programme at each primary health care.
- Use the standard registration and reporting format for the scabies programme.
- Prepare weekly, monthly and quarterly report of scabies for monitoring of the case and for providing appropriate care early.
- Ensure that the medicine and material supply chain are functional at each primary care level.
- Ensure that the developed awareness scheme is functional at all primary care level.
- Strengthen the linkage and communication among district health office and primary care to make sure that every scabies affected individuals received proper management and health education on prevention and control mechanism.
- Integrate scabies with other neglected tropical diseases and WASH programme in the area.

6.6.3 Recommendation for primary health care facility

- Make sure that all health care providers working in the outpatient department receive training on the developed scabies management guidelines.
- Ensure that the availability of medicine for the management of scabies is regular.
- Ensure that health education given at the primary care facility in the morning includes scabies.
- Strengthen the linkage and communication between the primary care facility and health post to make sure that all scabies affected individuals received appropriate care.

6.6.4 Prepare weekly, monthly and quarterly reports on scabies for monitoring of the case and for providing appropriate care early. Recommendation for clinical practice

- All healthcare professionals involved in treating scabies should follow the guidelines that have been developed for treating scabies when treating scabies.
- Healthcare professionals have to have the required training on the management of scabies.

- Assign a health professional who is responsible and accountable for scabies and scabies-related activities as a focal person.
- Ensure that each patient has adequate understanding of scabies, ways of transmission, prevention and control methods and its treatment while they come for treatment.
- Health professionals ought to work towards improved scabies treatment service quality and proper programme monitoring.
- Health professionals ought to make sure that all activity done regarding scabies must be recorded appropriately, and there should be complete information and data on the register.
- The assigned scabies focal person must prepare weekly, monthly and quarterly scabies reports.

6.6.5 Recommendations for community health education

- Prepare IEC materials in a local language and in pictorial form that is easily understood by the local community.
- Involve existing community structures like health development army and health extension workers as agents to offer health education about scabies to the community.
- Build the capacity of the health development army and health extension workers on scabies in the participation of community health education.
- Provide community health education through the utilisation of the developed IEC materials.
- Provide home-to-home health education to the community regarding scabies by health extension workers and health development army during their visit.
- Ensure that scabies is included in the school health programme.
- Provide school health education for students to easily understand scabies symptoms, ways of transmission, and ways of prevention and control.

6.6.6 Recommendation for future research

- Further studies could be undertaken on the scabies management approach at all health care levels to deepen the understanding of the gap and provide a solution.
- There is a need to evaluate the impact of using the developed strategy on the management of scabies.

- An investigation regarding the role of the health development army and community leaders in relation to scabies prevention and control is recommended in future research
- It is recommended to assess the impact of integration of scabies intervention with other NTDs intervention.
- An evaluation of the scabies medicine supply system of the primary health care is long overdue.

6.7 CONTRIBUTION OF THE STUDY

The study contributes to the development of a strategy to enhance the scabies management approach at the primary health care level. This was made possible by the participation of health care users, health care providers and programme managers to reach the objectives. The objectives were reached over four phases as outlined in Chapter Three of this study. The developed strategy was presented to the programme managers to review, validate and finalise based on the pre-set criteria.

The outcome of the validated strategy suggests a way for enhancing the management of scabies at the primary care level through the implementation of the strategy. This should help the health system managers, programme implementers and health care providers to easily understand the gap and implement the proposed solutions for the improvement of scabies management at each primary care level.

Finally, the study shall be presented to the Ministry of Health, regional health bureau, zonal health bureau and district health offices in Ethiopia; health care providers working in primary care and partners working on other neglected tropical diseases in the form of workshops. The final study shall be disseminated to all relevant stakeholders through the Federal Ministry of Health and regional health bureau.

6.8 LIMITATIONS OF THE STUDY

The following points are limitations in this study:

- The study used a multiphase qualitative study design and involved health care users and health care providers who participated voluntarily. The knowledge and experience of health care users and health care providers who did not participate in this study could

offer different views.

- Although adequate and detailed information was collected through a focus group interviewing from health care users regarding knowledge and experience of scabies management at the primary health care, the researcher cannot exclude the existence of recall bias. But, to minimise the existence of recall bias, the researcher used participants who had lived in the area for more than three months and those who had short-time experience related to scabies.
- This study was purely qualitative and challenging to select and include measurable indicators and targets at the outcome level on the strategic document.

6.9 CONCLUSION

This chapter presented the conclusion of the study, the recommendations made to the Federal Ministry of Health, regional health bureau, and different levels of the health system. Future recommended research areas, the contributions, and the limitations of the study were also presented.

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ANNEXURES

Annexure 1: Information sheet for health professionals

Project title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA

Principal investigator: Sagni Challi Jira, (PhD student) Phone number(s): +251 911 380 142

Introduction:

My name is Sagni Challi; I would like to invite you to take part in this study. Before you decide, you need to understand why the research is being done. I will go through this information sheet with you and answer any questions you may have.

Purpose:

You are being asked to participate in a research study of “Management of scabies at primary health care in Deder district, Ethiopia.” The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

Procedures and duration:

If you decide to participate, you will be required to participate in an in-depth interview which will take approximately 45 minutes to one hour on the management of scabies at primary health care level in Ethiopia. The discussion will be recorded using a tape recorder and this is to ensure that the researcher captures what you say accurately. Because your name is not required, what you say will not be linked to you. All the information will be kept in a safe cupboard and will only be used for research.

Risks /Discomforts/:

There is no /Low/ risk associated with this research study only your time to participate is needed, this may cause minor discomfort or inconvenience, and the data collection process will be carried out at your work place.

Benefits:

Your view will be used to inform the policy makers for the purpose of formulating strategies to improve the management of scabies at primary health care levels in Ethiopia. You will not be compensated for participating in this research study.

Confidentiality:

If you indicate your willingness to participate in this study by signing this document, any information that is obtained in connection with this study will be coded to protect their personal identity and all information (electronic) will be secured by protecting the computer system using password and raw data, field notes and signed consent forms will be put in a locked cabinet to ensure confidentiality.

Voluntary participation:

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relation and will respect, if you decided to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

Offer to answer questions:

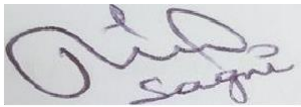
Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. If you have questions after completing the session or any time, you can contact a researcher or a supervisor by the following address.

Kind regards, Principal researcher

Sagni Challi Jira

Cell phone: +251911380142, E-mail: sagni_challi@yahoo.com

Signature: _____



Supervisor: Professor DD Mphuthi Phone: +27 12 429 2058, E-mail: mphutdd@unisa.ac.za

Co-supervisor: Dr KL Matlhaba Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

HSREC Chairperson: Prof JM Mathibe-Neke email: mathijm@unisa.ac.za.

Annexure 2: Study Participant Consent Form

**Project title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT
PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA**

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and stop taking part at any time without penalty. I understand the benefits associated with this study and I was given an opportunity to ask questions. I therefore freely consent to take part in this research project.

Signature of participant _____ Date ___/___/___

Signature of a researcher _____ Date ___/___/___

Annexure 3: Information sheet for health care users

Project title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA.

Principal investigator: Sagni Challi Jira, (Ph.D. student) Phone number(s): +251 911 380 142

Introduction:

My name is Sagni Challi; I would like to invite you to take part in this study. Before you decide, you need to understand why the research is being done. I will go through this information sheet with you and answer any questions you may have.

Purpose:

You are being asked to participate in a research study of “Management of scabies at primary health care in Deder district, Ethiopia.” The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care. You were selected as a possible participant in this study because you are a health care user in this facility and your areas are selected for this research study.

Procedures and duration:

If you decide to participate, you will be required to participate in a focus group discussion which will take approximately 45 minutes on the management of scabies at primary healthcare level in Ethiopia. The discussion will be recorded using a tape recorder and this is to ensure that the researcher captures what you say accurately. Because your name is not required, what you say will not be linked to you. All the information will be kept in a safe cupboard and will only be used for research.

Risks /Discomforts/:

There is no/Low/ risk associated with this research study only your time to participate is needed, this may cause minor discomfort or inconvenience, and the data collection process will be carried out at the compound of this health facility.

Benefits:

Your view will be used to inform the policy makers for the purpose of formulating strategies to improve the management of scabies at primary health care levels in Ethiopia. You will not be compensated for participating in this research study.

Confidentiality:

If you indicate your willingness to participate in this study by signing this document, any information that is obtained in connection with this study will be coded to protect their personal identity and all information (electronic) will be secured by protecting the computer system using password and raw data, field notes and signed consent forms will be put in a locked cabinet to ensure confidentiality.

Voluntary participation:

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relation and will respect, if you decided to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

Offer to answer questions:

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. If you have questions after completing the session or any time, you can contact a researcher or a supervisor by the following address.

Kind regards

Signature:



Principal researcher:

Sagni Challi Jira

Cell phone: +251911380142, E-mail: sagni_challi@yahoo.com

Supervisor: Professor DD Mphuthi

Cell phone: +27 12 429 2058, E-mail:

mphutdd@unisa.ac.za

Co-supervisor: Dr KL Matlhaba

Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

HSREC Chairperson: Professor JM Mathibe-Neke

email: mathijm@unisa.ac.za

Annexure 4: Study Participant Consent Form

Project title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and stop taking part at any time without penalty. I understand the benefits associated with this study and I was given an opportunity to ask questions. I therefore freely consent to take part in this research project.

Signature/thumb print of participant: _____ Date ____/____/____

Signature of a researcher: _____ Date ____/____/____

Annexure 5: Request for permission to conduct a study

Date

TO: FEDERAL MINISTRY OF HEALTH
Address: Sudan Road (Goma Kuteba) Email: moh.gov.et

Addis Ababa, Ethiopia

Request: Permission to conduct a research

Dear Sir/Madam

I am a registered Ph.D. in public health student with the University of South Africa. As a requirement for this qualification I am expected to conduct a research study. I am therefore writing this letter to request permission to conduct a study in Oromia region, Deder district. The study information is as follows.

Title: **EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA**

The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

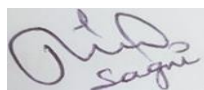
A qualitative approach will be used in this research to address the research objectives and we are intending to conduct focus group discussions and interviews to collect information from health care users and health professionals working in primary health care facilities in Deder district and program managers working at different level in the health system.

The study will be conducted taking in to account the ethical consideration, participant names will not be mentioned in this work. Focus group discussions and individual interviews will be conducted in private environment and participants will be informed that they can withdraw if they do not feel comfortable. The study was be conducted under the supervision of Prof DD Mphuthi, and Dr KL Matlhaba in the department of health studies at the University of South Africa.

For any further information please do not hesitate to contact.

- | | |
|----------------------|--|
| 1. Sagni Challi Jira | Cell phone: +251 911 380 142, email: sagnichalli@yahoo.com |
| 2. Prof DD Mphuthi | Phone: +27 12 429 2058, E-mail: mphutdd@unisa.ac.za |
| 3. Dr KL Matlhaba | Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za |

Sincerely,



Sagni Challi

Annexure 6: Request for permission to conduct a study

Date

TO: OROMIA REGIONAL HEALTH BUREAU

Address: Sarebet to kera road Email: orhb.gov.et

Addis Ababa

Request: Permission to conduct a research

Dear Sir/Madam

I am a registered Ph.D. in public health student with the University of South Africa. As a requirement for this qualification I am expected to conduct a research study. I am therefore writing this letter to request permission to conduct a study in East Hararge zone, Deder district. The study information is as follows.

Title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA

The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

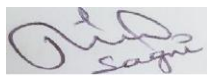
A qualitative approach will be used in this research to address the research objectives and we are intending to conduct focus group discussions and individual interviews to collect information from health care users and health professionals working in primary health care facilities in Deder district and program managers working at different level in the health system.

The study will be conducted taking in to account the ethical consideration, participant names will not be mentioned in this work. Focus group discussions and interviews will be conducted in private environment and participants will be informed that they can withdraw if they do not feel comfortable. The study will be conducted under the supervision of Prof DD Mphuthi, and Dr KL Matlhaba in the department of health studies at the University of South Africa.

For any further information please do not hesitate to contact.

1. Sagni Challi Jira Cell phone: +251 911 380 142, email: sagni_challi@yahoo.com
2. Prof DD Mphuthi Phone: 012 429 2058, E-mail: mphutdd@unisa.ac.za
3. Dr KL Matlhaba Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

Sincerely,



Sagni Challi

Annexure 7: Request for permission to conduct a study

Date

TO: East Hararge zonal Health office
Address: Harare
Oromia region, Ethiopia

Request: Permission to conduct a research

Dear Sir/Madam

I am a registered Ph.D. in public health student with the University of South Africa. As a requirement for this qualification I am expected to conduct a research study. I am therefore writing this letter to request permission to conduct a study in Deder district. The study information is as follows.

Title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA

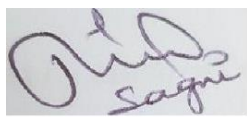
The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

A qualitative approach will be used in this research to address the research objectives and we are intending to conduct focus group discussions and interviews to collect information from health care users and health professionals working in primary health care facilities in Deder district and program managers working at different level in the health system.

The study will be conducted taking in to account the ethical consideration, participant names will not be mentioned in this work. Focus group discussions and individual interviews will be conducted in private environment and participants will be informed that they can withdraw if they do not feel comfortable. The study will be conducted under the supervision of Prof.DD Mphuthi, and Dr KL Matlhaba in the department of health studies at the University of South Africa.

For any further information please do not hesitate to contact.

- | | | |
|----|-------------------|---|
| 1. | Sagni Challi Jira | Cell phone: +251 911 380 142, email: sagni_challi@yahoo.com |
| 2. | Prof DD Mphuthi | Phone: +27 12 429 2058, E-mail: mphutdd@unisa.ac.za |
| 3. | Dr KL Matlhaba | Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za |
- Sincerely,



Sagni Challi

Annexure 8: Request for permission to conduct a study

Date

To: Deder district health office Address: Deder town Oromia region, Ethiopia

Request: Permission to conduct a research

Dear Sir/Madam

I am a registered Ph.D. in public health student with the University of South Africa. As a requirement for this qualification I am expected to conduct a research study. I am therefore writing this letter to request permission to conduct a study in selected primary health care facility in the district. The study information is as follows.

Title: **EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA.**

The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

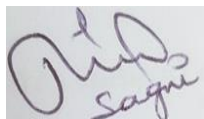
A qualitative approach will be used in this research to address the research objectives and we are intending to conduct focus group discussions and individual interviews to collect information from health care users and health professionals working in primary health care facilities in Deder district and program managers working at different level in the health system.

The study will be conducted taking in to account the ethical consideration, participant names will not be mentioned in this work. Focus group discussions and interviews will be conducted in private environment and participants will be informed that they can withdraw if they do not feel comfortable. The study will be conducted under the supervision of Prof.DD Mphuthi, and Dr KL Matlhaba in the department of health studies at the University of South Africa.

For any further information please do not hesitate to contact.

1. Sagni Challi Jira Cell phone: +251 911 380 142, email: sagni_challi@yahoo.com
2. Prof.DD Mphuthi Phone: 012 429 2058, email: mphutdd@unisa.ac.za
3. Dr KL Matlhaba Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

Sincerely,



Sagni Challi

Annexure 9: Request for permission to conduct a study

Date

TO: Health centre Oromia region, Ethiopia

Request: Permission to conduct a research

Dear Sir/Madam

I am a registered Ph.D. in public health student with the University of South Africa. As a requirement for this qualification I am expected to conduct a research study. I am therefore writing this letter to request permission to conduct a study in health centre. The study information is as follows.

Title: **EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA**

The purpose of this study is to understand the current management of scabies at primary health care in Deder district in order to develop strategies to enhance the management of scabies at primary health care.

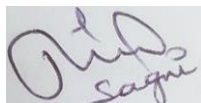
A qualitative approach will be used in this research to address the research objectives and we are intending to conduct focus group discussions and interviews to collect information from health care users and health professionals working in primary health care facilities in Deder district and program managers working at different level in the health system.

The study will be conducted taking in to account the ethical consideration, participant names will not be mentioned in this work. Focus group discussions and individual interviews will be conducted in private environment and participants will be informed that they can withdraw if they do not feel comfortable. The study will be conducted under the supervision of Prof DD Mphuthi, and Dr KL Matlhaba in the department of health studies at the University of South Africa.

For any further information please do not hesitate to contact.

1. Sagni Challi Jira Cell phone: +251 911 380 142, email: sagni_challi@yahoo.com
2. Prof. DD Mphuthi Phone: 012 429 2058, email: mpnutdd@unisa.ac.za
3. Dr KL Matlhaba Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

Sincerely,



Sagni Challi

Annexure 10: Interview guide for health care users.

Thank you for accepting to take part in this research project.

Your participation is highly valuable and I would like to ask you the following questions regarding scabies. Please remember there are no correct and or wrong answers as this is your own opinion. Please remember that the information shared here is not to be shared out of this room. Please try to answer as honestly as you can remember, as that will be valuable for the study.

Main question:

1. What are your experiences and views regarding the scabies management?

Probing questions:

2. What knowledge do you as health care user have regarding management of scabies?
3. What do you think can be done in order to treat scabies better?
4. Any other information you think will be important to enhance this study?

Thank you for your time

Annexure 11: Interview guide for the health care providers.

Thank you for taking your time to attend this interview:

Main question:

1. What are your views regarding the management of scabies?

Probing questions:

2. What do you think are the enablers and barriers to scabies management?
3. Can you tell me the measures you think are required to improve scabies management in primary health care facilities?
4. What strategies can be developed in order to enhance current management of scabies at primary health care facilities?

Annexure 12: Focus Group Non-Disclosure Agreement

Thank you for agreeing to participate in a focus group to discuss your understanding about scabies and best do you think the management can be improved. This is not about who knows more than others do. We all are going to participate.

Your information that you will provide will be treated with high confidentiality and only the people involved in this research will have the access:

I, _____ hereby agree to maintain the confidentiality of information disclosed during focus group or observed live as follows:

- a) To hold in confidence any information about how to enhance management of scabies which is disclosed, during my participation in this discussion.
- b) That any ideas discussed during participating in the Focus Group, shall be the property of the research study in any manner it sees fit.
- c) That you, shall at all times hold in trust, keep confidential and not disclose to any thirdparty or make any use of the Confidential Information beyond those activities that are partof the Focus Group.
- d) All notes, reference materials, memoranda, documentation and records in any way incorporating or reflecting any of the Confidential Information shall belong exclusively to the researcher.
- e) Also included as confidential is any participants Personally Identifiable Information (“PII”). PII shall mean a person’s identity or information that might reasonably allow identification of the person. I shall at all times hold in trust, keep confidential and not disclose to any third party or make any use of the identity or PII of any participant involved in the Focus Group.
- f) That you acknowledge you are not being compensated for your participation in this Focus Group and that all information and opinions you provide are solely your own.
- g) That you, hereby give permission to the researcher of this research study for an audiorecording to be made of this session.
- h) That you understand a transcription of this tape may be used by the researcher of thisstudy for research purposes only.

By submitting this form, you will be entering a Non-Disclosure agreement with:

Participant Signature: _____

Date: _____

Researcher’s assistant: _____

Date:

Researcher: _____

Date: _____

Annexure 13: Invitation letter for program managers

Date _____

To: _____ Addis Ababa Ethiopia

To: _____ Oromia region Ethiopia

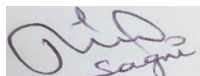
Request: invitation to participate in the validation session.

Title: **“Evaluation of scabies management approach at primary health care in Dederdistrict: Ethiopia.”**

I am Sagni Challi, a registered PhD student at the University of South Africa (UNISA). I intend to conduct a research study on the scabies management approach at primary health care in the Deder district. You are kindly requested to participate in a validation of the developed strategy to enhance the scabies management approach at the primary health care level. The validation session will be carried out at AHRI new building meeting hall and lasts for approximately 2 hours. The validation process will be focused on reviewing the developed strategy and validate based on the set criteria.

Your participation in the study will be voluntary, and you can withdraw from the study when you do not feel comfortable. If you withdraw from the study, you will continue to be treated as usual with respect and a customary way. Your participation will be highly appreciated as your contributions will go a long way in enhancing the scabies management at the primary health care in the Deder district.

Sincerely,



Sagni Challi

Cell phone: +251 911 380 142,

Email: sagni_challi@yahoo.com

Annexure 14: UNISA ethical clearance certificate



UNISA HEALTH STUDIES HIGHER DEGREES ETHICS REVIEW COMMITTEE

Date 5 August 2020

Dear Sagni Challi Jira

NHREC Registration # : REC-012714-039

ERC Reference # : **HSHDC/1016/2020**

Name : Sagni Challi Jira

Student #:67136621

Staff #:

Decision: **Ethics Approval from
5 August 2020 to 5 August 2023**

Researcher(s): Name Sagni Challi Jira

Address

E-mail address sagni_challi@yahoo.com, telephone # +251 911 380 142

Supervisor (s): Name Prof DD Mphuthi

E-mail address mphutdd@unisa.ac.za, telephone # 012 429 2058

Working title of research:

Evaluation of scabies management approach at primary health care in Deder District: Ethiopia

Qualification: PhD

Thank you for the application for research ethics clearance by the Unisa Health Studies Higher Degrees Ethics Review Committee for the above mentioned research. Ethics approval is granted for three (3) years.

*The **medium risk application** was **reviewed** by a Sub-committee of URERC on 4 August 2020 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision was approved on 4 August 2020.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.



2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Health Studies Research Ethics Committee HSREC@unisa.ac.za.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.
8. No field work activities may continue after the expiry date (5 August 2023). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number **HS HDC/1016/2020** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Signatures :



Chair of HSREC : Prof JM Mathibe-Neke

E-mail: mathijm@unisa.ac.za

Tel: (012) 429-6443



Executive Dean : Prof K Masemola

E-mail: masemk@unisa.ac.za

Tel: (012) 429-6825

Annexure 15: Oromia health Bureau ethical clearance certificate.



Lakk/Ref. No. / CEU / AHRI / 11/16/19
Guyyaa / Date 12/12/2012

Wa/Eg/Fa/Gw/Ha/Bahaa tiif

Harar

Dhimmi: **Xalayya Deggersa Haala.**

Akkuma beekamu Biiron Keenya Ogeyyii, dhabbile akkasumas namoota qorannoo geggessuuf propoozaala dhiyeffatan propoozaala isaanii madaaluun akkasumas iddo biratti ilaalchisani fudhatama argatan (approved) dhiyeffatan, propoozaala isaanii ilaaluudhaan waraqaa deggersa ni kenna. Haaluma Kanaan Institiyutiin 'AHRI' qorannoo mata dure " **Evaluation of Scabies Management Approach at Primary Health Care in Deder district: Ethiopia.**" Jedhamu irratti Godina keessan Aanaa Dadar kessatti qorannoo geggessuuf propoozaala isaanii koree "Health Research Ethical Review Commitee" Biiroo keenyatti dhiyeffatani jiru. Haaluma kanaan koreen "Health Research Ethical Review Committee" Biiroo keenyaa piropoozaal kana ilaaluun mirkaneessee qorannoon kun akka hojii irra oolu murteessee jira.

Kanaafuu, hojii qorannoo kana irratti deggersa barbaachisa ta'e akka gootaniif isin gaafachaa qorannoon kun qaaceffamee eerga xumuramee booda firii isaa koppii tokko BEFO tiif akka galii godhan galagalcha xalayaa kanaan isaan beeksifna.

Haaluma kanaan anis " **Addee Sanyii Caalii**" wayitti qorannoon kun qaaceffame xumuramu firii isaa koppii tokko BEFO tiif galii gochuuf mallattoo kootiin nimirkanessa.

Nagaa wajjin!

Maqaa: **Addee Sanyii Caalii**

Mallattoo _____


Bilbila _____

G/G/C

✓ To Armauer Hansen Research Institute

B/J

Annexure 16: AHRI/ALERT ethical clearance certificate.

	AHRI/ALERT Ethics Review Committee	Date: September 24, 2020
		No: _____

ANNEX 4
Form AF-10-015

AAERC approval letter

Protocol number PO/30/20

Investigators: **Sagni Challi**

Protocol Title: **'Evaluation of Scabies Management Approach at Primary Health Care in Deder district, Ethiopia'**

Study Site(s): **"Deder District"**

Application Type: Initial Amendment Renewal

Review Procedure: Full Board Expedited Secretariat

Review Date: **September 03, 2020** Review Decision: **Approved**

Final Decision: Approved Approval Date: **September 24, 2020**

Approval period: **September 24, 2020 to September 23, 2021**

I. Elements approved- 1. Protocol and ICF Version number: 02 2. Version date: September, 2020

II. Obligations of the Principal Investigator-

1. Should comply with standard international & national scientific and ethical guidelines.
2. All amendments and changes made in protocol and consent form need AAERC approval.
3. SAE should be reported to AAERC within 10 days of the event.
4. End of the study, including manuscripts and thesis works should be reported to the AAERC.

III. Does the protocol need to be reviewed by the National ERC (NRERC)? Yes No

Follow up report expected in:

3 Months _____ 6 Months _____ 9 Months _____ One year

Name: **Hailemichael Getachew**

Dr. Getnet Yimer

Abebe Genetu Bayih (PhD)

Signature: 





Date: 24/09/20

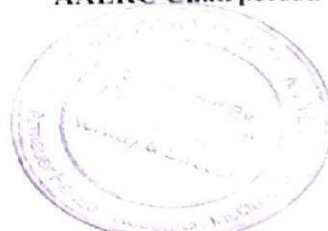
24/09/20

28/09/2020

AAERC Secretary

AAERC Chairperson

AHRI Director General



Annexure 17: Zonal health office allowance to collect data



Lakk EF 25/14128/2013
Guyyaa 29/3/2013

Wajj/E/F/Aanaa Dadariif

Harar

Dhimmii :- Degrsaa akkaa Gotaan isiin beeksisuu Ta'a

Akkuma olittii ibsamettii xalayaa lakk BEFon/AHBTFH/-16/410; gafaa guyyaa 12/12/2012 barreween Qorannoo dhabbile fayyaa Aanaa kessaan kessattii argamuu "Evaluation of scabies management approach At primary health care in Deder district " jedhanuu haalaa ulaagaa barbachisu hundaa geuteen akka gaggefamuu murtee BEFOtin nuu dhaqqabe jira.

Haalumaa kanaan isinis qaamaa qorannoo kanaa gaggessu Addee Sanyii caalii yeroo qorannoof gamaa kessaan dhufaan degarsaa akka gotaniif isiin beeksifna.



Nagayaa wajjin
[Signature]
Abdulla...
1st Deputy Director General
Egumsa Fayyaa G/Harargee Bahaa

Anneeksi 18: Woraqaa Odeeffanno Hirmanaa hojjatoota fayyaa.

Mata dur'ee qorannoo: Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etoophyaa.

Maqaa qoatu'u: Sanyii Caalli Jiraa, (Baraatu Ph.D.)Lakk. bilbillaa: +251 911 380 142

Seensa:

Maqaan koo Sanyii Caalli jadhama; qoranno kan irrattii qoodaa akka fudhatuu ni siaferaa. Duraan dursee qoranno kan irrattii hirmachuu fi murtesuu kee duraa, wa'ee qoranichaa hubadhu, malii akka ofii kessa qaabus illalii, wann iffa hintanee yoo jiratee fi gaffii yoo qabatee gafachuu dhendesaa.

Kaayyoo qorannoo kanaa:

Qorannoo kana irrattii akka hiramtuu ni sigafadhaa; mata dur'ee nii issaa "Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etiophyaa." Kaayyoo niqorannoo kanaa yaalii citoo buffatalee kessatti kenamu qorachuun strategy yalii citoo buffatalee tii kenamuu foyessu dha.

Akkata fi yeroo inni fudhatu:

Yoo qorannoo kana irratti hirmaachuuf waliigalte, turtin kee anaa walin ta'a, yeroo kee irra daqiqaa 45 hungaa sa'a tokko fudhachuu danada'a, marii akkata yaalii dhabee citoo buffatalee fayyaa kessattii kenamu walin illala. Mariin kenyaa meshaa segalee warbuun hinwarabama, hicitinnis hinqabama; yeroo warabii kana maqaan kee hinbarbachisu waanatti nutii himituu hundinu si walin wali hinqabatuu.

Miidhaan/rakkoon qorannoo kana;

Hirmaannaa kee miidhaa baay'ee salphaa ykn homaa qabaachuu disu'u danda'a. kunis qoraannon kun yeroo asitii dabrsituu qofaa siraa fudhataa kunis sitii mijahuu dhisuu daandaa, kanasii saalphisufii qorannonn kun bakka hojii keetitii gagefamaa.

Faayidaa qorannoo;

Faayidaa inni qabuu yaadaa atii nu kenituu irrattii hunda'audhan qaamaa immii ilalatutii yalli dhibee citoo buffatalee fayya kessatii kenamuu foyeesu fii strategy qophesuu ta'a. hirmanaa ketii fi kafaltiin kafalamuu hinjiru.

Iccittumaa issa:

Yoo qoranno kana irrattii hirmachufii waligaaltee irrattii mallatessitee, raggaan atti kenituuhundii codii kename fi comutera'a passwordii qabu'u kessa ka'amaa kunis raga funanaeme, yadaa wooreqaan qabatamee fi ragaa ni malletasemee hundaa ofii kessaa qabaa.

Fedhiin hirmachu

Qorannoo kana keessatti hirmachuun fedhii dhan; yoo hirmachu fi fedhii hinqabanee yeroo barbaadetii addabii tokko male addan murun migraa ketii; murteen kee kun dhibaainni garaa fundurattii sirra fidhuu hinjiru.

Cerraa gaffii kennu:

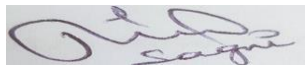
Ituu foormii kana hin maallatesin duraa, qooranno kana illalchise yoo gaafii qaabatee yknkan sifi hingalee yoo jiratee gafachuu dendesaa. Erga'a qoraannon kun xumurame bodaa yoo gaffii qabatee qoa'atu qoranno kana ykn superviisaara ishii qunamuu dendessa.

Gaalata waliin,

Qooatu'u qoranno kana:

Sanyii Caalli Jiraa Lakk. Billibila: +251911380142, E-mail: sagni_challi@yahoo.com

Mallattoo:



Superviisaara: Prof.DD Mphuthi
mail: mphutdd@unisa.ac.za

Lakk. Billibila: +27 12 429 2058, E-

Dr KL Matlhaba

Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

Dura ta'a etiiksii: Prof JM Mathibe-Neke

email: mathijm@unisa.ac.za

Anneeksi 19: Unka Waliigaltee Hirmanaa hojjatoota fayyaa.

Mata dur'ee qorannoo: Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etoophyaa.

Hirmaanan koo fedhii dhan akka ta'e hubedheraa, yeroon baarbadetii qorannoo kana addabii tokkoo male addan muru'u akkan daandau'u nageelera'a. Hirmaanan koo bu'a inin qabusii hubadee kafaaltii tokkoo male hirmaachufi waliigaleraa.

Mallatoo hirmataa _____ Guyyaa ____/____/

Mallatoo qoatu'u _____ Guyyaa ____/____/____

Anneeksi 20: Woraqaa Odeeffanno Hirmanaa fayyadamtoota bufataale fayyaa.

Mata dur'ee qorannoo: Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etoophyaa.

Maqaa qooatu'u: Sanyii Caalli Jiraa, (Baraatu Ph.D.) **Lakk. Bilbi.:** +251 911 380 142

Seensa:

Maqaan koo Sanyii Caalli jadhama; qoranno kan irrattii qodaa akka fudhatuu ni siaferaa. Duraan dursee qoranno kan irrattii hirmachuu fi murtesuu kee duraa, wa'ee qoranichaa hubadhu, malii akka ofii kessa qaabus illalii, wann iffa hintanee yoo jiratee fii gafii yoo qabatee gafachuu dhendesaa.

Kaayyoo qorannoo kanaa:

Qorannoo kana irrattii akka hiramtuu ni sigafadhaa; mata dur'ee nii issaa "Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etiophyaa." Kaayyoo niqorannoo kanaa yaalii citoo buffatalee kessatti kenamu qorachuun strategy yalii citoo buffatalee tii kenamuu foyessu dha. Ati kaan fillatemtee akka fayyadamaa buffata fayyaatate'etu debeletaan nannon kune waan filaatteme fi.

Akkata fi yeroo inni fudhatu:

Yoo qorannoo kana irratti hirmaachuuf waliigalte, turtin kee anaa walin ta'e, fayyadamtoota bufataa fayyaa kan birraa nammotaa jahaa dabalene marii tasifinaa, yeroo kee irra daqiqaa 45 fudhachuu danada'a, marii akkata yaalii dhibee citoo bufatalee fayyaa kennattii kenamu walin illala. Mariin kenyaa meshaa segalee warbuunhinwarabama, hicitinnis hinqabama; yeroo warabii kana maqaan kee hinbarbachisu waanatti nutii himituu hundinu sii walin wali hinqabatuu.

Miidhaan/rakkoon qorannoo kana;

Hirmaannaa kee miidhaa baay'ee salphaa ykn homaa qabaachuu disu'u danda'a. Kunisyeroo qoraannon kun asitii siraa fudhatu, kunis sitii mijahuu dhisuu daandaa, kanasii saalphisufii qorannonn kun moraa buffata fayyaa kessatii gonaa.

Faayidaa qorannoo;

Faayidaa inni qabuu yaadaa atii nu kenituu irratii hunda'audhan qaamaa immii ilalatutii yalli dhibee citoo buffatalee fayya kessatii kenamuu foyeesu fii strategy qophesuu ta'a. hirmanaa ketii fi kafaltiin kafalamuu hinjiru.

Iccittumaa issa:

Yoo qoranno kana irratii hirmachufii waligaaltee irratii mallatessitee, raggaan atti kenituu hundii codii kename fi comutera'a passwordii qabu'u kessa ka'amaa kunis raga funanaame, notii qabatamee fi ragaa malletasemee hundaa ofii kessaa qabaa.

Fedhiin hirmachu

Qorannoo kana keessatti hirmachuun fedhii dhan; yoo hirmachu fi fedhii hinqabane yeroo barbaadetii addabii tokkoo male addan murun migraa ketii; murteen kee kun dhibaa inni garaa funduratii akkasummasii yalii irratii sirra fidhuu hinjiru.

Cerraa gaffii kennu:

Ituu foormii kana hin maallatesiin duraa, qorannoo kana illalchise yoo gaafii qaabatee yknkan sifi hingalee yoo jiratee gafachuu dendesaa. Erga'a qoraannon kun xumurame bodaa yoo gaffii qabatee qooa'atuu qorannoo kana ykn superviisaara ishee qunaamuu dendessa.

Gaalata waliin,

Qooatu'u qorannoo kana: Sanyii Caalli Jiraa Lakk. Billibila : +251911380142, E-mail: sagni_challi@yahoo.com

Mallatoo: 

Superviisaara: Prof.DD Mphuthi
mail: mphutdd@unisa.ac.za

Lakk. Billibila: +27 12 429 2058, E-

Dr KL Matlhaba

Phone: +27 12 429 2073, Email: matlhkl@unisa.ac.za

Dura ta'a etiiksii: Prof JM Mathibe-Neke

email: mathijm@unisa.ac.za

Anneeksi 21: Unka waliigaltee hirmanaa fayyadamttotaa buffata fayyaa.

Mata dur'ee qorannoo: Akkata qorannoo yalii citoo kan buffatalee fayyaa aanaa Daader: Etoophyaa.

Hirmaanan koo fedhii dhan akka ta'e hubedheraa, yeroon baarbadetii qorannoo kana addabii tokkoo male addan muru'u akkan daandau'u nageelera'a. Hirmaanan koo bu'a inin qaabu hubadee kafaaltii tokkoo male fedhiin hirmaachufi waliigaleraa.

Mallatoo/Asharaa hirmataa_____Guyyaa____/____/

Mallatoo qoatu'u_____Guyyaa____/____/_____

Annexure 22: Language editing certificate.



Office: 0183892451

FACULTY OF EDUCATION

Cell: 0729116600

Date: 14th December, 2021

TO WHOM IT MAY CONCERN CERTIFICATE OF EDITING

I, **Muchativugwa Liberty Hove**, confirm and certify that I have read and edited the entire dissertation, **EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA**

submitted by **SAGNI CHALLI JIRA**, in accordance with the requirements for the degree of **DOCTOR OF LITERATURE AND PHILOSOPHY** in the subject **PUBLIC HEALTH** at the **UNIVERSITY OF SOUTH AFRICA**.

SAGNI CHALLI JIRA was supervised by **Professor DAVID D. MPHUTHI** and co-supervised by **Dr. KHOLOFELOMATLHABA**.

I hold a PhD in English Language and Literature in English and am qualified to edit such a dissertation for cohesion and coherence. The views expressed herein, however, remain those of the researcher/s.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Liberty Hove', is written over a horizontal line.

Professor M.L. Hove (PhD, MA, PGDE, PGCE, BA Honours – English)



Annexure 23: Turnitin digital receipt



Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: S C JIRA
Assignment title: Revision 1
Submission title: EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIM...
File name: Jira_revised_1.docx
File size: 549.64K
Page count: 199
Word count: 52,113
Character count: 292,712
Submission date: 23-Jun-2022 02:40PM (UTC+0200)
Submission ID: 1861802631



Annexure 24: Turnitin report

The image shows a Turnitin report interface. On the left, the document title is "EVALUATION OF SCABIES MANAGEMENT APPROACH AT PRIMARY HEALTH CARE IN DEDER DISTRICT: ETHIOPIA." by "SAGNI CHALLI JIRA". The document is for a "DOCTOR OF LITERATURE AND PHILOSOPHY" degree in "PUBLIC HEALTH". A note indicates it was "Submitted in accordance with the requirements for the degree of". The match overview on the right shows a 31% match rate. Below this, a list of matches is shown:

Match Number	Source	Match Percentage
1	uir.unisa.ac.za Internet Source	9%
2	hdl.handle.net Internet Source	2%
3	repository.up.ac.za Internet Source	1%
4	Submitted to Adtalem ... Student Paper	1%
5	tropmedhealth.biomed... Internet Source	<1%
6	Alexander K.C. Leung Settings to activate Windows	<1%

At the bottom of the interface, there are options for "Text-Only Report" and "High Resolution" (set to "On").

Annexure 25: In-depth interview with health care providers

Name of health Facility: Kobo Health centre Date: 09/12/2021

Participant code	Age	Sex	Profession	Position held in the facility	# service year
Kobo 01	30	F	Nurse	OPD	9

I: What are your views regarding the management of scabies?

R: Scabies is very common in this area, especially in children. In previous years it has been very prevalent, and it was associated with malnutrition. For example, a child was born to a malnourished mother mostly affected by scabies than others. Lack of personal and environmental hygiene is also a cause for scabies. As for the management, we are providing health education to the society on how to prevent scabies and give medication when available.

Last year, there was an epidemic in the area, and the NGO called GOAL supported the community by providing health education and showed them how to wash their hands and body and even support the health centre by providing scabies medication. After we gave health education to them, distributed the jar and soap for the affected and gave scabies drug that an NGO provided to us freely for those affected by scabies.

Currently we don't have any scabies drug in our health centre. So when a patient with scabies comes to us, we refer those who have health insurance to a nearby hospital and write a prescription to buy from a private pharmacy for those who don't have insurance. However, most of them couldn't afford the cost to buy from a private pharmacy because the drug is expensive to be bought by most of the community, and they leave it and return home. After some time the patient returned to the health centre after they developed secondary infection, this is a very bad consequence. By the way, if the medication is available, we treat the patient by what we learn in nursing school. There is no treatment guideline to refer to like other diseases, and no one is trained to treat scabies accordingly.

What we can do is giving health education and referring the patient to a hospital or a private facility only.

I: What do you think are the enablers and barriers to scabies management?

R: The majority of the communities in our zone are poor. So that I believe poor economic status is one barrier to scabies management. Low practice of protecting personal hygiene is also other barriers. The community's way of life is also another problem. Our societies live together in one room in most cases, so they have a tendency to contact each other or cannot maintain their distance while one person has a disease. The main challenge in the facility is the lack of drugs to treat patients. Also, the community does not apply what we advise to follow them sometimes. The community is very resistant in following the health education on prevention as they advised. They are not like educated people. Also, I never saw any health care provider who received training regarding scabies management and no guideline to refer to as I mentioned before. So that I believe the lack of training and absence of management guidelines is also another possible barrier for scabies management. Since it is believed as the disease of the poor, many people also don't want to expose their disease before it becomes severe.

I: What do you think are the enablers of scabies management?

R: The support of GOAL was one enabling factor for the scabies management. If they do not help us, it is difficult to get the medications for treating the patient by that critical time. Other enablers are the health system. The health structure is available starting from the ministry to the community. If we use the system appropriately and provide appropriate support, I think we can easily serve the community as needed. Also, if we use health extension workers and health development army in educating the community, these are also other enablers.

I: Can you tell me the measures you think are required to improve scabies management in primary health care facilities?

R: Regarding scabies, first it should have its owner. No one pays attention to it. It needs a focal person like other diseases. The drug should also be free and the supply system should improve. Clients cannot buy medication from private pharmacies. I recommend that they get free medication for scabies treatment. Cleaning materials such as soap should also be provided to clients. Attention should also be given to protecting personal hygiene since both urban and rural

has HEW needs to strengthen education on personal hygiene.

Giving a drug by itself is nothing, our community uses single cloth in most cases and dresses children after washing it before it is dry, so we have to emphasize the importance of washing the cloth with boiled water as well. The health education on COVID19 is becoming an opportunity, and it needs to continue by interrelating them together.

If possible, all professional working in the OPD will be trained on the management protocol of scabies like other programs and treat the patient accordingly. For the community, if a health extension worker is trained and equipped with health education material, it is very important to serve the community.

I: What strategies can be developed in order to enhance current management of scabies at primary health care facilities?

R: It shouldn't only be when it occurs as an epidemic, both the Woreda health office as well as RHB don't raise the issue when there is no epidemic, they through the agenda after the epidemic is controlled. This is a highly communicable disease, so it should be considered that, and we have to run it with other communicable diseases. The RHB speak about it when NGO talk about it. It shouldn't be this way. RHB didn't give necessary attention even during the epidemic and forgot it totally after the NGO stopped to work on it. When we see its effect, it deserves the attention given to nutrition as it is also highly connected.

Community awareness may be one strategy to treat and prevent the disease. Latrine usage, personal hygiene, and other household utensils should be used in hygienic manners. We provide health education every morning in the health centre. In addition, these people are organized and grouped in their local Kebele by five, and we provide the information when we went to "Areda" or Kebele. We can also use health extensions to educate the community. Health extension workers and one of five groups may help more to address the problems. They have regular discussions every week, and they can raise many health issues in their areas. They can also discuss scabies.

I: what else?

R: Reporting the issue timely may be another strategy. Disease such as malaria has a weekly report format. Scabies should also be entered in daily, weekly and monthly report format. Currently, it has no reporting format. We send the report simply by writing it on paper. Doing

unreported activity doesn't give you a moral to do. It should have a detail reporting system, including who affected, how many family members affected and the like starting from the health post.

Establishing a drug supply system may be other strategies. Medication must be supplied as paracetamol is available everywhere. Scabies medication is also available at every health facility in this endemic area.

I: Any other information you want to add?

R: Generally, I don't have anything to add but just looking when families come to this health centre with a child severely affected by scabies is very painful. Most of such families are very poor and sometimes told us that they never got to sleep for many consecutive nights as their child was continuously carried throughout the night due to the itching and pain of scabies, which is painful to see such stories with no help.

Thank you for your time

Annexure 26: Focus group interview with health care users

Name of health facility: Kobo Health Centre Date of interviews: 09/12/2020

Participant code	Age	Sex	Marital status	Educational level
P1	40	F	Married	No formal education
P2	30	F	Married	No formal education
P3	20	F	Married	No formal education
P4	21	F	Married	No formal education
P5	26	F	Married	No formal education
P6	35	F	Married	5

I: What are your experiences and views regarding scabies management?

P1: I have well-experienced about it. I suffered a lot one time by scabies. After I came to the health center and got medications, I got relief from it. Sitting in the sun and eating together can transmit the disease to others. Keeping personal hygiene, and using some traditional medicines like “Keka” and swallowing of butter helps with treating this scabies.

I: what is your view regarding the disease?

P1: Uhuuu....., it is a very dangerous disease. It is not comparable. It makes you hungry, what you eat is not helpful to you. A very dangerous problem! It makes you itch day and night, morning and evening. No rest at all. I was suffering from the disease. Even it is not cured after I get medication. I also used traditional medications like “Keka” and swallowing of butter. We also have special soaps for keeping personal hygiene from the health center, and then I used all this, I got relief from the problems.

P2: Scabies be sever during the night. You cannot sleep if you have scabies. I wash with Ajax soap, then I get relief for short times. But it returns to me soon. Itching is very severe. It is a very dangerous disease.

P3: Burning sensation is common. Hunger burning, rest lessens, these are common. You will be sweating during the itching time. You cannot see any person around you: even you will be unconsciously responding to the sensation of itching. Abdominal burning and hooting is common during the itching response. I rinse the water on my body to get relief. After I get white medication

from the health center and get off it, God will cure me from it. It is also transmitted to my children. We get good services from health centers by that time. They treat us with good manners. Health education is given to us. I do not use traditional medication. Now I am also suffering from it.

P6: Scabies is very common in our community. It is highly prevalent especially on children, there are also people suffering from it even from our neighbors. We are advising them to wash using Ajax soap from my experience. HEWs also took the drug to the rural area sometimes, and they are also advising the community to wash their body or protect their hygiene, how to use drugs, and wash children's clothes in boiled water before re-use. HEW is teaching us to protect our hygiene, nurses also teach us when we come here individually and also by collecting us together. Now our community is improving in protecting personal hygiene.

P5: It is a very bad disease. It ate the human body. When our child is affected by scabies, we bring him to the health centre. Sometimes when it can't be healed, we also go to hospital and cured when they get the appropriate drug.

P4: My current 10-year-old children's body was wounded when she was a child in 2004 E.C. I came here, and the nurse gave me syrup which had a very bad odour. At that time all her body was wounded, including her eye, even she feeds breast by putting her on hard clothes by making powder on it. She completely cured after I applied the drug to her skin according to the nurse's advice, and she is currently 10 years old. Gebayehu (nurse) also advised me on how to wash her body and her clothes. At that time even this health centre was not completed, it was a small clinic there (she was showing me the 2-class old room in front of the room under which we were conducting the discussion). He advised me to wash her body both in the morning and night and give her the drug by dividing it into two. She was completely cured within 1 year and 6 months. After she cured, I also suffered from scabies, and I used the leftover syrup and cured it by that time.

I: What knowledge do you as health care user have regarding management of scabies?

P2: Social impact of the disease is very high, it is a communicable disease, and people distance you, discriminate against you. You also feel shame to greet a person. It is shameful. By the time I suffered from the disease, the health extension workers informed me about our problems and gave medication, soap and a jar to me and gave health education on how to use it. After that, I

get relief.

P6: Previously, scabies was very common both among adults and children. Usually it seems very easy when started, but through time it causes severe itching, and it causes damage. HEWs go through the community and advise the community to come to the health post and get the necessary drug. Then, we got the ointment, and they educated us on how to apply it, especially how to protect our personal hygiene. Then many people are cured, but still many people have the disease, but the ointment is not available as before, and it is difficult to buy from a drug shop because most of us are poor.

P4: Previously, when one comes to a health centre or goes to HEWs, they give drugs and soap. Now you can't get drugs as well as soap as before.

P5: HEWs give us drugs when available, otherwise they educate us to repeatedly wash with soap and wash our clothes. In most cases the community don't seek treatment unless it becomes very severe, but HEWs look at people with scabies when they move home to home and advice to seek treatment from a health facility.

P1: People didn't have awareness about the availability of the drug from scabies, but recently after HEWs taught us many people understand the availability of the drug and need to get it, but when we come here, there is no drug to give for scabies. Only give health education and refer to the hospital.

P2: Some people still don't think scabies need a drug; rather, they perceive scabies cured by itself through time.

I: What do you think can be done in order to treat scabies better?

P2: Scabies caused by internal body weakness. Malnutrition, failing to get a balanced diet is one reason for scabies cases. I drink butter to get relief. Butter is good to treat scabies. Not only medication but also a balanced diet and personal hygiene are very important. There was no medication at this health centre when we came here.

P1: If we face such a problem, we should tell the health professional, and they should stand with us by giving us the necessary drug. The health centre should strengthen and continue to teach the community both urban and rural. Also, we have to protect our hygiene according to their

advice.

P6: HEW should also go down to the rural villages and educate the community on personal hygiene.

P3: We also have to advise our neighbours and relatives to take health care if their children develop the disease. The education is very good, but currently, it is not as before, they reduce it, but it should be continued. We have to get care if anyone develops the disease.

P5: We have to advise people with the disease to seek health care early before they reach the stage of feeling shame to contact people. A person who has scabies is ashamed to itch his skin when feeling it, ashamed to attend people's gathering, ashamed to eat with people, and even it disturbs a person who looks from outside. Scabies is a dangerous disease.

P2: It is highly contagious, for example, if one hot charcoal is shared with a person who has scabies, it will transmit to the health individual immediately. If a scabies patient eat hot food while sitting with a healthy individual, it is also transmitted. Because of these, a person who has scabby is sitting alone by separating from a healthy person. It is also transmitted when children play together.

I: What do you think can be done in order to solve this problem?

P2: What I am doing now is protecting the children from the contact with an infected child. They sleep separately from other children. The cloth and materials on which the sleep is also different from other children. We need to get the necessary drugs and education in this health centre because we don't want to go outside to find a drug.

P4: The community has to come to the health centre early if they get the disease and ask for treatment. Our people should come to a health facility when they see scabies on themselves or on their children.

I: Any other information you think will be important to enhance this study?

P1: We need support from the health center. Soaps, medication, and other support should be provided for us.

P3: Support for children, people in the area are poor. They need "plump net" and other important food items. Soap was also supplied for clients.

P4: We need medication and your help for supporting and treating our problems. This is what we want.

P2: Drug supply should continue. We use the drug as prescribed by health professionals. Support from governments is also important.

P5: Getting help from health professionals is important. Distancing children and avoiding body contact is important. Medication should be available at the health center and provided to clients freely as before.

P6: nothing to add

Thank you for your time

Annexure 27: Criteria for validating the strategy

Strategy:						
S.No	Criteria	Strongly disagree (1)	Disagree (2)	Agree (3)	Strongly agree (4)	Comment and suggestion
1	Clarity					
2	Acceptability					
3	Applicability					
4	Relevance					
5	Effectiveness					
6	Feasibility					
7	Sustainability					
8	Achievable					
	Total score					