

**TEACHERS' HEALTH LITERACY AND ITS INFLUENCE ON PUPILS'  
HEALTH-RELATED KNOWLEDGE IN SELECTED PRIMARY SCHOOLS IN  
MOROGORO MUNICIPALITY, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
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## ABSTRACT

Despite efforts by the government in Tanzania involving numerous stakeholders to improve health literacy (HL), there exists low and problematic HL. The extent to which influential stakeholders in health promotion, socialisation agents, and schools inclusive, have been involved is not empirically known. The schools are considered capable to promote HL and health-related knowledge (HRK) hence healthier lives. It is in this context that the study assessed teachers' HL, and the extent it has influenced HRK on pupils. A cross-sectional research design was adopted, data were collected from 939 respondents through a questionnaire survey, focus group discussions, and key informant interviews. Descriptive and inferential analyses were done using IBM - SPSS (v20). Results show that all teachers had high HL, while 89.1% (95% CI: 86.8 to 91.2) and 10.9% (95% CI: 8.8 to 13.2) of the pupils had low HRK, and moderate HRK respectively. No significant association between pupils' HRK and teachers' HL was observed with a *p*-value of 0.108. Environments and pupils' inspections 50.3% (95% CI: 42 to 108), health education provision (25.9%; 95% CI: 38 to 61); the presence of learning materials 23.8% (95% CI: 34 to 57) were SBEs found. Determinants of HL in schools included: radios, televisions, and newspapers 40% (95% CI: 105 to 165), participation in community health programmes 17% (95% CI: 38 to 75), receiving health-related training 11% (95% CI: 27 to 49), frequency visiting the medical doctors 21% (95% CI: 45 to 86, and discussions with friends on health issues 11% (95% CI: 28 to 50). Inadequate time for health education 38.6% (95% CI: 52 to 94), insufficient health materials 28% (95% CI: 46 to 71), shortage of health seminars 19.0% (95% CI: 26 to 47), and insufficient fund for health promotion 14.4% (95% CI: 16 to 42) were among the challenges facing HL promotion in schools. Enhancing health education can support efforts to influence HRK which is still low in schools. It is recommended that in promoting HL and HRK stakeholders should support SBEs to influence HL in schools.

**DECLARATION**

I, Mshingo David Mathias, do hereby declare to the senate of Sokoine University of Agriculture that, this dissertation is my original work done within the period of registration and that, it has neither been submitted nor being concurrently submitted in any other institution for degree award.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

AIDS	Acquired Immune Deficiency Syndrome
FGD	Focus Group Discussion
HE	Health Education
HHL	High Health Literacy
HHRK	High Health Related Knowledge
HI	Health Information
HIV	Human Immunodeficiency Virus
HL	Health Literacy
HLS-EU-Q47	Health Literacy Survey-European Union-Q47
HPS	Health Promoting School
HPs	Health Professionals
HRK	Health Related Knowledge
IBM-SPSS	Special Package for Social Statistics
LHL	Low Health Literacy
LHRK	Low Health Related Knowledge
MHL	Moderate Health Literacy
MHRK	Moderate Health Related Knowledge
MMC	Morogoro Municipal Council
NSGRP	National Strategy for Growth and Reduction of Poverty
OHA	One Health Approach
SBEs	School-Based Efforts
SCT	Social Based Theory
SDGs	Sustainable Development Goals
SRS	Simple Random Sampling

SUA	Sokoine University of Agriculture
TNS	Transparent Network Substrate
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
URT	United Republic of Tanzania



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background Information

Health literacy (HL) is an important predictor of health outcomes, health-care costs, and utilization (Muhanga and Malungo, 2018). Globally, health literacy poses a challenge to attaining good health; and, when is limited to an individual, it impacts negatively a person's ability to access and use health care, interact with providers, and care for oneself (Ward *et al.*, 2019). The development of a population that is health literate is considered central to the goals of health initiatives globally. Paasche – Orlow, and Wolf (2007) argue that HL is increasingly vital to help people navigate a complex health system (access and utilization) to comprehend providers' messages and manage self-care.

Despite the importance of HL (Paasche – Orlow and Wolf, 2007; Muhanga and Malungo, 2019) and the global efforts to enhance it, it is reported that HL has remained low and problematic due to insufficient health information which affects decision-making on health-related issues (Parker and Gazmararian, 2003; Robbins, 2003). In realization of the global initiatives and the importance of HL towards national development based on its influence on health outcomes, the government of Tanzania has put in place numerous efforts to improve HL (URT, 2007a; 2007b). Some of these efforts are outlined in the Health Policy of 2017 which aims at improving HL in the country. Such efforts include; fund provisions for health education from health financial budgets and reinforcing governing principles, acts, regulations, and guidelines for the promotion of health services. These efforts have aimed at improving health services and educating people to become health literate. For instance, to cultivate the knowledge and skills needed to access, understand and use health information towards healthier lifestyle choices to

achieve positive health outcomes for both humans and animals (URT, 2003a). Despite the efforts made by the government of Tanzania, there has been a notable increase in health-impairing behaviours (URT, 2007a; 2007b) which sometimes resulted in a higher prevalence of infectious diseases (Minja, 2016). Also, varying preferences for Tanzanians in terms of seeking healthcare services ranging from traditional healers, self-treatment, traditional healers, and no treatment instead of going to the hospital (URT, 2003b).

It is worthwhile to note that while there have been these efforts by the government and non – governmental organizations, very little is empirically known about how primary school teachers have been involved in these efforts to ensure that health literacy issues are well addressed in primary schools. Undisputedly, the attainment of critical health literacy in the community can be sustainable when schools are used for transmitting health-related knowledge to the pupils (Paakkari *et al.*, 2019). Schools can promote HL since they can reach nearly all school children over a prolonged time. Schools are the agents of socialisation in the community (St Ledger, 2001). Socialisation as the process by which pupils and teachers attain health-related knowledge, skills, and other orientations through various interactions in primary schools, which in turn form their lifestyles and behaviours in society (Shim *et al.*, 2011). Therefore, socialisation is important because pupils in schools come from different backgrounds and their teachers can play a central role in socialisation in terms of modifying pupils' knowledge. While this remains obvious, it is not known how teachers are health literate since teachers are important in imparting and enhancing health knowledge and skills in schools that modify pupils' behaviours and become health literate in the community (Vamos *et al.*, 2020).

Therefore, understanding and addressing HL issues in school settings can lead to the improvement of HL in community settings as well as highlighting factors impacting its

effectiveness (Kilgour *et al.*, 2015). It is against this argument that this study assessed HL of primary school teachers and its influence on pupils' health-related knowledge (HRK) in selected primary schools in Morogoro Municipality, Tanzania.

## **1.2 Problem Statement**

Despite the growing attention to the concept of HL and efforts to promote it across the world, there is a big challenge connected to it (Sørensen *et al.*, 2015). There are reported incidences of low and problematic HL among the people (Muhanga and Malungo, 2017; 2018; 2019; Schrauben and Wiebe, 2017). The situation is even worse in most of the developing countries, where very little has been researched and documented on HL. In Tanzania, for example, few studies focusing on HL have been conducted and documented (Stone *et al.*, 2011; Muhanga and Malungo, 2018; Kutcher *et al.*, 2016; Kassim and Katunzi-Mollel, 2020). Muhanga and Malungo (2018) researched HL concentrating on the interface of humans, animals, and the environment, whereas Stone *et al.* (2011) focused on humans only. Kutcher *et al.* (2016) embarked on teachers' mental health knowledge, stigma, and help-seeking efficacy while Kassim and Katunzi-Mollel (2020) assessed the health information skills of women in childbearing in rural areas. All these studies have not focused on how important socialisation agents, school inclusive, have played the role in influencing HL.

Scanty empirical information is available on how socialisation agents have been involved in the creation of health-literate societies (Basu *et al.*, 2017; Stamps *et al.*, 2021; Rasmussen *et al.*, 2022). Though their efforts in influencing pupils to become health literate are not well known. Relative less is reported to have been achieved from the efforts made by numerous institutions and actors. It can be noted that less attention has been paid to understanding HL from schools as traditional socialisation agents, through

their actors who are teachers and pupils (Paek *et al.*, 2011; Behrmann, 2021). Teachers have been supporting continuity of thought, morals, values, and other tenets. Saldana (2013) argues that society expects the school system to teach pupils life skills, drug awareness, conflict resolution, and, sex education, among others. Much as this has been observed, still, scanty empirical evidence exists on the extent to which teachers' HL has been influencing pupils' HRK.

Thus, this study investigated how primary school teachers are health literate and to what extent have they used their literacy on health to educate as well as to impart knowledge to school children at large on health-related issues. This study was conducted in selected primary schools in Morogoro Municipality.

### **1.3 Justification for the Study**

This study is in line with the Sustainable Development Goals (SDGs), particularly SDGs No. 3 which emphasizes good health as an essential aspect of sustainable development and the wellbeing of people (UNDP, 2019). In addition, Tanzania's education policy emphasizes the good quality of education for all citizens (URT, 2009) while Tanzania's health policy (URT, 2017) underlines improving health status and access to health services among the population. Both policies emphasize the improvement of HL through health education provision. This study is in line with the National Strategy for Growth and Reduction of Poverty (NSGRP) Cluster II which focuses among others on the need to combat diseases by promoting the health status of the people (URT, 2010). HL creates health awareness that leads to the prevention and treatment of diseases hence population is free from diseases and active in economic activities leading to poverty reduction. HL strives on boosting peoples' access to health information and the capability to use it efficiently (Muhanga and Malungo, 2017). Therefore, HL helps to achieve optimal health

care; reduces barriers to safe and high-quality care which emanates from a misunderstanding of health information between patients against health providers in the community. It is in this context, that it was worthwhile to conduct this study since the study results provide information to health planners and other stakeholders which can contribute to the initiatives to improve HL for the better lifestyle of all people in the community. To academicians and researchers, this study generates baseline health information that can contribute to the formulation of some interventions to improve HL and better the accessibility and social care systems in the community. Likewise, for policymakers, this research provides information and room to create evidence-based policies on HL and makes some robust decisions on how to improve HL and health outcomes in the country reflecting on school-based efforts (SBEs).

## **1.4 Research Objectives**

### **1.4.1 General objective**

To assess the health literacy of primary school teachers and its influence on pupils' health-related knowledge in Morogoro Municipality.

### **1.4.2 Specific objectives**

Specifically, the study:-

- i. Assessed teachers' HL and pupils' HRK.
- ii. Determined the association between teachers' HL and pupils' HRK.
- iii. Identified school-based efforts (SBEs) towards the promotion of HL and HRK in selected primary schools in Morogoro Municipality.
- iv. Assessed determinants of primary school teachers' health literacy in selected primary schools in Morogoro Municipality.
- v. Identified the challenges facing primary school teachers in enhancing their HL.

### **1.4.3 Research questions**

- i. How literate and knowledgeable are teachers and pupils on health matters?
- ii. Is there any association between teachers' HL and pupils' HRK?
- iii. What are the efforts made to promote HL in selected primary schools in Morogoro Municipality?
- iv. What are the determinants of primary school teachers' health literacy in selected primary schools in Morogoro Municipality?
- v. What are the challenges facing primary school teachers in enhancing their HL?

### **1.4.4 Research Hypotheses**

**H<sub>0</sub>:** There is no association between the HL level of a teacher and pupils' HRK.

**H<sub>1</sub>:** There is an association between the HL level of a teacher and pupils' HRK.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Theoretical Literature Review**

#### **2.2 The Concept of Health Literacy**

Health Literacy refers to the degree to which individuals can obtain, process, understand, and communicate basic health information as well as services that are highly needed to make informed and appropriate health decisions (MacLeod *et al.*, 2017). It is also regarded as a situation that enables a person to access, comprehend, judge, and utilize health-related information in healthcare services, disease prevention, and health promotion (Sorensen *et al.*, 2012).

#### **2.3 Origin of Health Literacy**

The concept of HL came into operation in the 1970s; it became a topic of paramount importance among different people including health professionals who struggled to understand problems related to health and manage those problems in a better way. Health Professionals (HPs) were considered to be the gist of HL in the world due to their concerns of the community health-related problems which contributed significantly to disease prevention, health care, and promotion (Muhanga, 2021). Also, in the 1970s various studies were conducted on the problem of human health that prevailed in America which gained importance on the European health agenda and in other societies in the world. The results sourced from those studies supported the commencement of HL (Okan *et al.*, 2019). HL has grown very faster in other parts of the world including the developing world because it empowers people in making decisions in their health management. It is apparent that HL increases the abilities of an individual to meet the needs of health status in the contemporary world and it is formulated within the fields of

health and education to make one benefit from good health all over the life span (Sørensen *et al.*, 2012). Good health of people is likely to trigger sustained development of society. It is undisputed that the attainment of critical HL in society can be sustainable when schools are used for imparting health knowledge to early-age learners.

#### **2.4 School-based Efforts towards Promotion of HL**

Unquestionably, schools as the agents of socialisation are essential in achieving HL. Schools are considered to be the fundamental institutions in building the health of the children and promoting HL in general through various efforts established within school settings (Pearson *et al.*, 2015; Turunen *et al.*, 2017). Undeniably, schools in the community play important role in addressing health-related issues, which on the other hand, influence HL promotion. Generally, efforts in school are made to promote HL and other related issues which help pupils to become health literate (Vahedian *et al.*, 2019). In general, efforts undertaken need to be set in a way that ensures HL is promoted and sustained in school settings (Trezona *et al.*, 2018). The efforts that are implemented to promote HL include; awareness creation of health-related issues, the creation of a safe and healthy school environment that impacts positively pupils' HRK (Kilgour *et al.*, 2015; Toronto and Barbara, 2015). Other efforts include; seminars provision to teachers and pupils on health-related issues which are believed to increase health awareness in schools and reduce problems associated with low HL in schools and the community as well.

#### **2.5 Determinants of HL amongst Primary School Teachers**

Health literacy can be influenced by numerous factors in school settings. The level of education attained by the teachers has a great impact on access to health information and other health-related issues. Thus, the higher the education level the higher the ability of an individual to access and understand health information which results in HL promotion in



schools and the community as well (Rickwood *et al.*, 2005). Attitudes on health information seeking, for example, teachers' health information seeking behaviour is one of the most important needs since people always seek to maintain their health which on the other hand influences HL in schools. Also, skills in health information seeking help teachers access health information and influence others in schools to become health literate. Access to health services as a determinant; also enables one to obtain health information and services that help teachers to improve their health and of others in primary schools and communities as well (Pearson *et al.*, 2015). The education policy of a respective country is a good determinant of HL in schools. Therefore, clearly defined policies help the actions and resources allocation and support the promotion of HL among teachers in primary schools. On the other hand, policies that do not embrace health issues affect negatively the promotion of HL within school settings.

## **2.6 Teachers' HL**

Teachers' HL denotes the capacity of teachers to attain, interpret, and understand basic health information with the competence to use such information in a way that enhances the process of health knowledge acquisition by pupils in schools (MacLeod *et al.*, 2017). Teachers' HL is important in schools and beyond. Health-literate teachers can easily disseminate health information to the pupils and facilitate healthy decision-making on issues related to health (St Leger, 2001). Thereby, teachers' HL should be well addressed to enable teachers to disseminate and promote HL for better health lives of pupils in schools. Despite, teachers' HL in schools being essential for the promotion of HL in schools and the community as well; little attention has been paid to strengthening teachers' HL to promote HL in schools. Globally, scanty studies conducted on teachers' HL show that low health literacy still exists amongst teachers in schools (Reinke *et al.*, 2011; Lamanauskas and Armonienė, 2012; Armstrong *et al.*, 2019). Low HL among

school teachers hampers pupils to get enough health information and how to transform health-related habits. Teachers' HL is the essential factor for influencing pupils to become health literate and improve decision-making on issues related to health (Lamanauskas and Augienė, 2019). In Africa, teachers' HL in schools is still low, studies conducted on teachers' HL found teachers with low literacy on health issues which hamper teachers to deliver health knowledge and other health-related issues to the pupils in schools. A good example, studies conducted in Nigeria and Malawi found teachers with low HL and suggested empowering teachers on HL since teachers are key actors in influencing pupils to become health literate (Idehen and Oshodin, 2008; Kutcher *et al.*, 2015). In Tanzania, the literature is silent about teachers' HL. However, studies conducted and documented in the country on HL, show that low HL is still a problem among the general population in the country (Stone *et al.*, 2011; Muhanga and Malungo, 2018). Enhancing teachers' HL is essential for schools to effectively address HL and HRK of pupils.

## **2.7 Association between Teachers' HL and Pupils' HRK**

Health literacy is an essential aspect of human development (Bröder *et al.*, 2017). The association between teachers' HL and pupils' HRK remains important in improvement initiatives toward the promotion of health in schools. Pupils' HRK is effectively associated with teachers' HL (Humphrey and Symes, 2013). It is apparent that to attain critical health literacy among pupils, teachers should be health literate. In this regard, it is expected that teachers who are health literate can easily influence pupils to acquire HRK through various interactions in schools. Teachers in schools have a great chance to influence their pupils to become health literate through their healthy lifestyle behaviours which influence pupils to learn from them, issues related to health (Haerens *et al.*, 2011). A good example, insisting pupils adhere to body cleaning, wearing clean clothes, and washing their hands before eating as well, have a great association with scaling up HL and

pupils' HRK in schools. Understanding the association between teachers' HL and pupils' HRK is important in promoting HL in schools. The association promotes HL for both teachers and pupils and ensures that pupils in schools can make rational decisions on health issues throughout their lives, and can address their own health needs along with the needs of others in the community.

## **2.8 Challenges on HL Enhancement**

It is apparent that schools throughout the world contribute to the achievement of health promotion in conjunction with their education commitments. Despite numerous efforts which are made in schools towards the enhancement of HL, such efforts encounter challenges that negatively affect school efforts towards HL enhancement. Inadequate health knowledge for teachers is among such challenges. Unquestionably, addressing health knowledge and health-related issues in school settings requires professional knowledge about health-related needs of people with different cultural norms and social beliefs (Ringsberg *et al.*, 2018). In this context, teachers as the enabling group for the promotion of HL in schools should be empowered with health education to improve HRK status of pupils within school settings (Kilgour *et al.*, 2015). Inadequate materials and other active health programs in schools is another challenge on HL enhancement. Materials, programs, and other interventions are important and must be available for teachers and schools to enhance their HE hence addressing HL. Similarly, health programs and other interventions are critical to improve and increasing HRK in pupils. Currently, most schools in the world have very few teaching materials, especially in developing countries, Tanzania inclusive, which disproportionately affects the enhancement of HL (Ringsberg *et al.*, 2018). Time is another challenge that affects HL enhancement in school settings in many countries in the world. Most countries in the world lack specific time designated for health education while health education is very

important for the promotion of HL in schools as the agents of Socialisation. Instead, health education is regarded as a topic that teachers must integrate into other subject areas' teaching time (Simovska *et al.*, 2015). Lack of financial support for health education interventions which are more critical to improving and increasing health-related behaviours among the general population in schools still a big challenge in most developing countries (Hills *et al.*, 2015). These factors can jeopardize the ability of schools to influence pupils to become health literate throughout their life span.

## **2.9 Theoretical Framework**

This study is theoretically guided by Social Cognitive Theory (SCT), which suggests that human behaviour is determined by interactions between a person, behaviour, and the environment (Govindaraju, 2021). This theory applies to HL because it assumes that the interaction between individuals and the environment can influence individuals to be informed to learn and understand health information. Again, the theory indicates the relationships between personal, behavioural, and environmental impacts and depicts how it helps learners to acquire health knowledge in real-life situations. Again, the theory states that individual persons learn through observation, simulation, and duplication of the behaviour of others (Jenkins *et al.*, 2018). From the theory, schools as institutions have the responsibility to change individuals' behaviours and influence them to become health literate through various interactions with others. Therefore, this theory is useful in the study, since it points to the need of analyzing the interactions and their influence on HRK. In the context of this study, a variable on interaction was adapted. The study analyzed how the interactions between teachers, pupils, and the environment can influence individuals to learn about health issues and become health literate in schools and the community as well.

### **2.10 Roles of Schools in Socialisation**

It can be agreed that schools contribute significantly toward addressing social issues. Confidently, schools are the agents of Socialisation in the community through which pupils acquire attitudes and behaviour (Paek *et al.*, 2010). Socialisation in school settings plays a great role in making pupils acquire health-related knowledge and skills. Globally, various studies (St Ledger, 2001; Okan *et al.*, 2019) indicate that developing HL in pupils in schools is vital for a better healthy community. The promotion of HL through health education communicated to pupils escalates health consciousness which in turn results in judicious decisions on issues related to health among the general population (Paakhari and George, 2018). In addition, schools in the community have a great influence through which HL can be addressed and one of the essential goals of schools is to promote literacy. The promotion of HL within school contexts worldwide is important and it can be achieved through the improvement of school environment which is a unique place for HL creation (Cameron *et al.*, 2018). Generally, health promotion efforts if put in place properly, enable teachers to play a great role in imparting HRK and skills such as safety, diet, sexuality, personal affairs, and so on to pupils and the community as a whole (Simovska *et al.*, 2015).

### **2.11 Health Literacy Promotion in Schools**

According to McCallen and Johnson (2019), numerous studies on the promotion of HL have been conducted around the world and found schools being the main podium agents of Socialisation. It is in this context, that schools are considered to have the potential to promote HL by imparting health-related knowledge includes; healthy eating, tobacco use prevention, and HIV/AIDs prevention and safety to pupils and become health literate. Schools are the most influential places and behavioural changing agents in society from which health-related knowledge is provided to pupils from one generation to another.

Therefore, school-based health education around the world has been introduced as one of the efforts established through which pupils' health literacy can be enhanced (McCuaig *et al.*, 2014). According to Paakkari *et al.* (2019) school arena can enhance health literacy since it can reach nearly all school-aged learners over a prolonged. This makes one believe that schools are the core arena for sustainable HL attainment. Currently, many efforts have been made and directed to schools as a setting in which HL can be promoted and influence the population to become health literate through the trickle-down Socialisation effects. Such efforts include fund provisions for HE from health financial budgets and strengthening government principles, acts, and the like to some extent helped to enhance HL in schools. Unquestionably, efforts to provide health education to pupils in their classrooms have been believed to reduce negative effects on an individual's health and well-being through awareness creation on HL (McCallen and Johnson, 2019). Therefore, the provision of adequate HRK to pupils should be made earlier in schools for the improvement of their health and that of society at large.

## **2.12 Empirical Literature Review**

To further understand the status of research on HL, numerous empirical studies related to this were reviewed. The aim was to review the methodological aspects that were employed in these other studies. The study benefited from the review of empirical studies in innumerable ways including adapting/adopting some methodological aspects and the variables used in these other studies.

A study by Sun *et al.* (2013) was conducted to develop and validate an HL model at an individual level that could best explain the determinants of HL, and the associations between HL and health behaviours even health status regarding infectious respiratory diseases. Skill-based HL test and a self-administrated questionnaire survey were

conducted among 3 222 Chinese adult residents. Path analysis was applied to validate the model. The model explained 38.6 percent of variance for HL, 11.7 percent for health behaviour, and 2.3 percent for health status: (GFI=0.9990; RMR=0.0521;  $\chi^2=10.2151$ ,  $P=0.1159$ ). Education has a positive and direct effect on prior knowledge ( $\beta=0.324$ ) and HL ( $\beta=0.346$ ). HL was also affected by prior knowledge ( $\beta=0.245$ ) and age ( $\beta=-0.361$ ). HL was a direct influencing factor of health behaviour ( $\beta=0.101$ ). The most important factor of health status was age ( $\beta=0.107$ ).

The study by Sun *et al.* (2013) informed this study in terms of the variables in the course of formulating the conceptual framework. Variables such as level of education were also incorporated in the study in Morogoro, Tanzania. The study by Kaale and Muhanga (2017) in Morogoro also incorporated other socio-demographic aspects.

The European HL Survey (HLS-EU, 2012:4) was conducted during the summer of 2011 across eight European countries; namely: Austria, Bulgaria, Germany (North Rhine-Westphalia), Greece, Ireland, Netherlands, Poland, and Spain. In each country, a random sample of approximately 1 000 EU citizens, 15 years and older were interviewed yielding a total sample of approximately 8 000 respondents. Transparent Network Substrate (TNS) Opinion on behalf of the HLS-EU consortium collected the data, applying Eurobarometer standards in methodology and sampling procedures. Data were collected face-to-face via a standardized questionnaire. To measure HL, HLS-EU-Q47 was derived from the conceptual model and definition developed by the HLS-EU consortium (Sorensen, 2012). The conceptual model integrated three health-relevant areas (health care, disease prevention, health promotion) and four information processing stages (access, understand, appraise, apply) related to health-relevant decision-making and tasks. These areas and stages combined created a matrix for measuring HL with 12 sub-dimensions, which were operationalized by 47 items. The 47 items were assessed using a 4-point self-reporting

scale (very easy, easy, difficult, and very difficult) to measure the perceived difficulty of selected health-relevant tasks. Therefore, the HLS-EU-Q refers to the self-perceived measure of HL and reflects interactions between individual competencies and situational complexities or demands. The HLS-EU Q47 approach has been modified to suit the context of Tanzania.

A study conducted in Morogoro, Tanzania by Muhanga *et al.* (2020) assessed knowledge of One Health Approach (OHA), in this study the respondents were to indicate their disagreements or agreements to twenty-two (22) statements that described certain aspects of OHA. From the statements, an index score for each respondent was constructed to measure their knowledge of OHA. Using IBM-SPSS (v20) under percentile values, knowledge of OHA scores were cut into 3 equal groups. Percentile values were used to categorise knowledge of OHA into Inadequate OHA Knowledge (IOK), Marginal OHA Knowledge (MOK), and Adequate OHA Knowledge (AOK).

#### **2.12.1 Summary of Major Lessons Learnt from Literature Review**

- Low health literacy still exists among the general population in the world despite efforts made to promote it. To promote HL, governments, and other responsible institutions should consider that HE should be given priority with other instructional subjects in schools for the sake of HL promotion. Taking into account that health is an everyday affair of man.
- Schools as the agents of Socialisation in the community have played an important role in influencing pupils to become health literate for the creation of a healthy society. Although, their contributions are not well recognized.
- Various studies conducted on health literacy in the world did not concentrate on teachers' health literacy except few, while teachers' HL is very important for the promotion of HL among the general population in schools.



- Health education is effective in influencing health literacy; governments in the world should consider health education to be the most important in their education systems to be given priority to other instructional subjects. Knowing that a school is an ideal place used for transmitting and influencing people to become health literate.
- Health literacy in the world is low and problematic due to little attention given to health education in schools.
- Influencing HL in children at an early age in schools is very essential to ensure good quality of health in schools and the community as well.

### 2.12.2 Methodological Aspects adopted/adapted from literature review

**Table 1: Summary of the methodological aspects adopted or adapted from the literature review**

Source	Methodological Aspects	Methodological aspect adopted or adapted
Sorenson (2012)	HLS-EU, Q-47	Health Literacy Measurement
Muhanga and Malungo (2019)	Categorisation of Health Literacy	Categories of Health literacy, (Low, Moderate and High)
Rickwood <i>et al.</i> (2005)	Determinants of HL amongst Teachers	Variables associated with determinants of HL Health literacy, school achievements, health education in schools, and family affluence.
Govindaraju (2021)	Social Cognitive Theory	The role of interaction between teachers and students—and its influence on HRK .
Paek <i>et al.</i> (2010)	The roles of schools in socialisation	Variables adopted on the roles of schools in socialisation
Sun <i>et al.</i> (2013)	The influence of age as a socio-demographic aspect in HL	Adopted variables on socio-demographic aspects
Muhanga <i>et al.</i> (2020)	Measurement of Knowledge	Measurement and categorization of knowledge

### 2.13 Measurement of Health Literacy

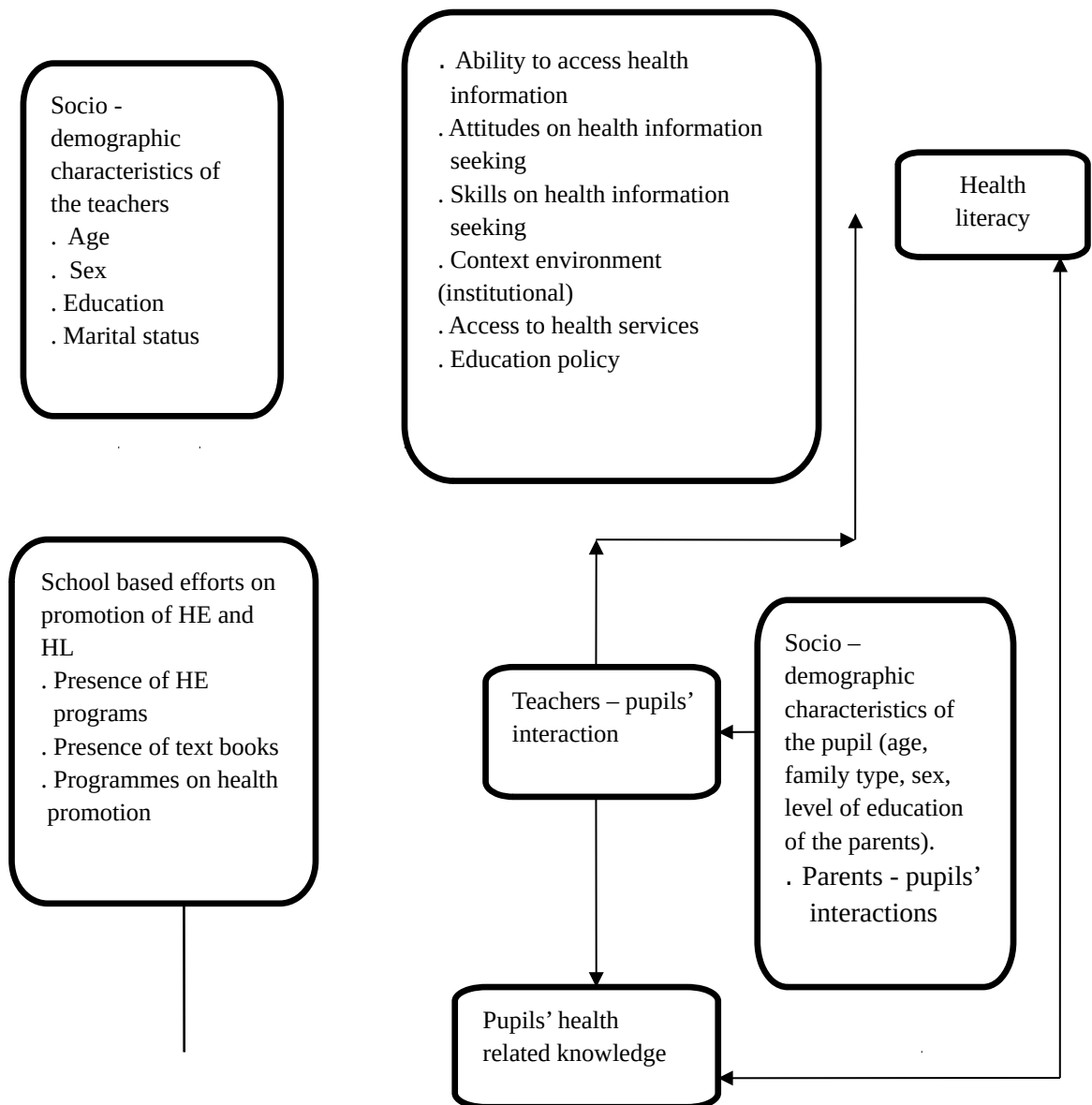
This study used Health Literacy Survey-European Union Q47 as a model with 47 questions established to assess HL among the population in the world (Sorenson, 2012). In assessing HL, methodological aspects from European HL Survey were adapted in this study. Obviously, to measure HL, respondents were asked questions: *on a scale from very easy to very difficult, how easy would you say it is to: i.e. (Find information on treatments of illness that concern you)*. Similarly, the questions asked covered three health pertinent areas (health care, disease prevention, health promotion), and four information processing stages (access, understand, appraise, apply) in connection with decision-making on health and other closely related aspects were assessed. Based on a four-point self-report scale (very easy, fairly easy, fairly difficult, and very difficult) HL was assessed using items related to health areas and information processing stages. To measure HL, an index score was created by allocating four points to every “very easy” response, four points for a “fairly easy” response, three points for a “fairly difficult” response, two points and “very difficult” response, only one point. Scores were computed and categorized into Lower Health Literacy (LHL), Moderate Health Literacy (MHL), and High Health Literacy (HHL). Therefore, under this approach, scores were summated and cut into three equal groups using SPSS functions to represent low health literacy, moderate health literacy, and high health literacy as well.

### 2.14 Conceptual Framework

The conceptual framework which guided this study was developed with a reflection on HL as an important aspect of the improved health status of the people. The conceptual framework demonstrates variables that have been conceived as the main variables to be studied and their correlation. Therefore, the study’s conceptual framework (Figure 1) shows the background variables, independent variables, intermediate variables, and dependent variable. In the study, age, sex, education, and marital status were the

background variables that have a direct or indirect influence on HL in primary school teachers. While independent variables included; the ability to access health information, knowledge of health issues, attitudes on health information seeking, skills on health information seeking, context environment, access to health services, and education policy have a direct influence on HL. Therefore, the study assumes that background and independent variables have a direct influence on HL. For example, education may influence someone to become health literate since the higher the education an individual possesses the higher the ability to access health information and make wise decisions on health issues.

Also, the intermediate variables are school-based efforts to the promotion of HE and HL. Though, the presence of HE, textbooks, and programmes on health promotion have a direct influence on pupils' HRK and improvement of HL in school settings. Likewise, teachers – pupils interactions have a direct influence on pupils' HRK and HL enhancement. Furthermore, parents - pupils interactions may influence health-related knowledge among pupils. For instance, parents with health knowledge have a great chance to influence their children to become health literate through various interactions and orientations than parents with no health knowledge at home.



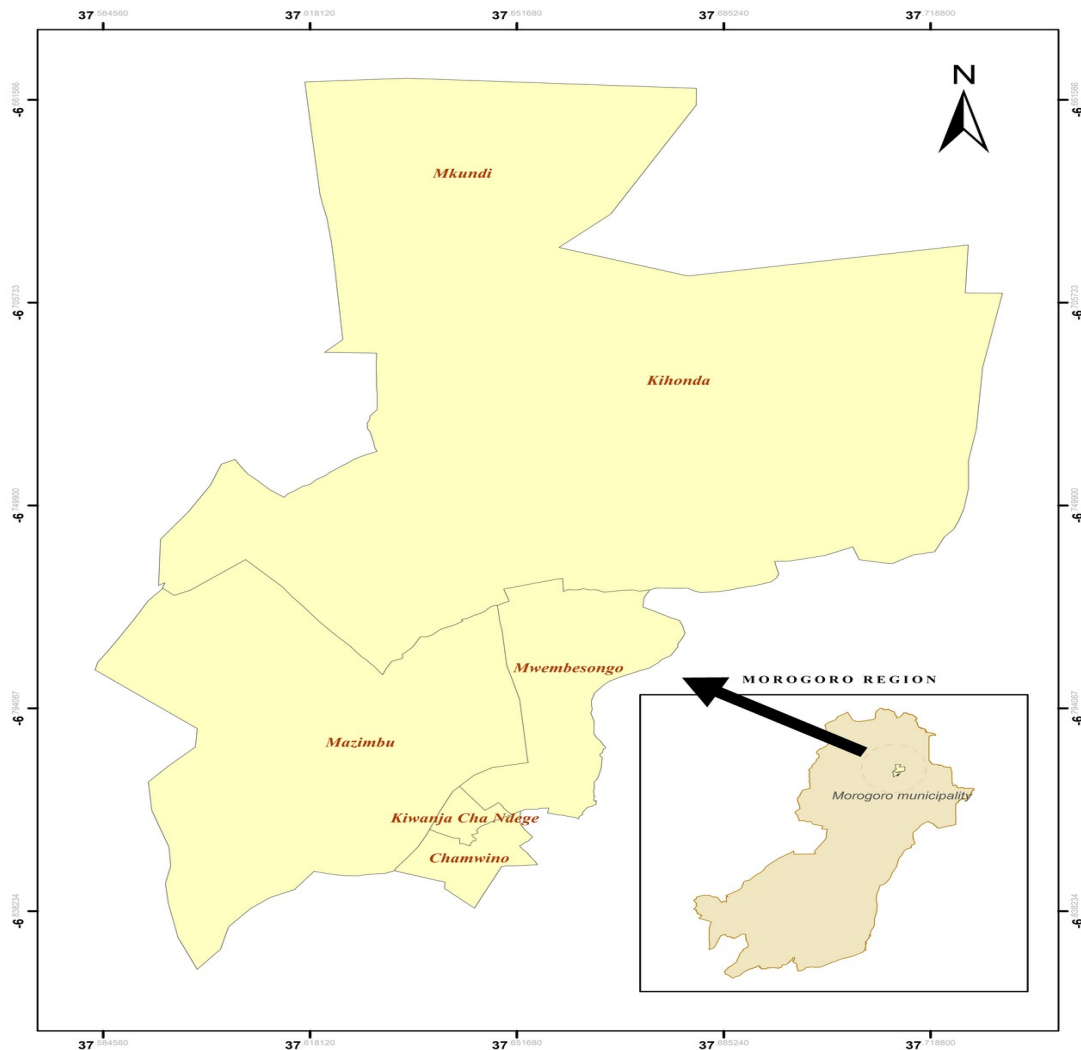
**Figure 1: Conceptual framework for teachers' health literacy and its influence on pupils' HRK in selected primary schools**

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Description and Justification of the Choice of the Study Area**

The study was carried out in Morogoro Municipality in Morogoro Region, Tanzania. The region lies between latitudes 5°58" and 10°0" to the South of the Equator and longitudes 35°25" and 35°30" to the East of the Greenwich Meridian. It has nine districts namely; Morogoro Municipality, Kilosa, Gairo, Malinyi, Morogoro District, Ifakara town, Ulanga, Kilombero, and Mvomero. Morogoro Municipality is located north of the Uluguru hills and has a total area of nearly 531 square kilometers which is 0.4% of the total regional area. The main economic activities that take place in Morogoro Municipality include trade, subsistence farming, livestock keeping (poultry, cattle, goats, sheep pigs), and others. In this regard, trade is the main source of income for the people of the Municipal Council (Morogoro Municipal Council, 2020). Morogoro Municipal Council was chosen as a study area as the area has 1 889 primary school teachers (Morogoro Municipal Council, 2020) who can provide sufficient information to meet the research objectives. A previous study conducted by Muhanga (2018; 2019) found a low level of health literacy in the area among the general population. This study was conducted in Morogoro Municipality specifically to investigate how the situation is amongst educated people who are also socialisation agents (teachers) (Figure 2).



**Figure 2: Map showing Research Areas in Morogoro Municipality, Morogoro Region**

### 3.2 Research Design

A cross-sectional research design was employed in this study. The design is favourable because of various reasons, especially the nature of the study objectives, which needed data to be collected once in the field area. The design is characterized by the quick and effective utilization of limited resources in terms of funds, transport, and time (Rwegoshora, 2006).

### 3.3 Study Population

The study population was primary school teachers working within Morogoro Municipality and pupils in those schools. Morogoro Municipality has 1889 teachers and 65 624 pupils in all its schools (Morogoro Municipal Council, 2020).

### 3.4 Sampling Procedure and Sample Size

This study used a sample size of 189 as the 10% of the 1 889 primary school teachers and a sample size of 750 as the 10% of the 7 500 pupils from selected primary schools to get useful information required on HL in Table 2 and Table 3. According to Gay *et al.* (2012), a sample size of 10% to 20% of the population is recommended for survey research. The study applied purposive and simple random sampling (SRS) techniques. Purposive sampling was used to select the wards covered by this study namely Mwembesongo, Kiwanja cha Ndenge, Chamwino, Kihonda, Mazimbu, and Mkundi. The wards were selected as the wards have 262 primary school teachers and 7 500 pupils. The (SRS) was also used to select six primary schools. That is one school was selected in each of the six selected wards. A sample of 939 respondents (189 teachers and 750 pupils) was selected from the six selected primary schools. Also, the formula of proportionate random sampling (Hansen *et al.*, 1983) was applied to ensure that the number of sampled teachers and pupils in school is in proportion to the total number of teachers and pupils. For instance, Mazimbu (B) primary school in Table 2 had 44 teachers, the proportional sample size of teachers in this school was determined as follows:-

$$a = \frac{n}{N} \times b = \frac{189}{262} \times 44 = 32$$

Where: a = sample size for each school; n = total number of sampled teachers (189); N = targeted number of teachers (262), and b = targeted number of teachers in each school.

**Table 2: Distribution of sampled teachers based on teachers' population in schools**

S/no	Ward	School	Number of teachers	Teachers sampled
01.	Mazimbu	Mazimbu B	44	32
02.	K/Ndenge	Uhuru	39	28
03.	Chamwino	Chamwino B	24	17
04.	Kihonda	Azimio B	50	36
05.	Mwembesongo	Mwembesongo	37	27
06.	Mkundi	Mkundi	68	49
<b>Total</b>			<b>262</b>	<b>189</b>

Also, the same formula above was used to determine the number of sampled pupils. For instance, Mazimbu (B) primary school in Table 3 had 1324 pupils, the number of sampled pupils in this school was determined as follows: -

$$a = \frac{n}{N} \times b = \frac{750}{7500} \times 1324 = 132$$

Where:  $a$  = sample size for each school;  $n$  = total number of sampled pupils (750);  $N$  = targeted number of pupils (7 500), and  $b$  = targeted number of pupils in each school. The number of selected pupils per school is summarized in Table 3.

**Table 3: Distribution of sampled pupils based on pupils' population in schools**

S/no	Ward	School	Number of pupils	Pupils sampled
01.	Mazimbu	Mazimbu B	1 324	132
02.	K/Ndenge	Uhuru	1 234	123
03.	Chamwino	Chamwino B	960	96
04.	Kihonda	Azimio B	1 351	135
05.	Mwembesongo	Mwembesongo	1 018	103
06.	Mkundi	Mkundi	1 613	161
<b>Total</b>			<b>7 500</b>	<b>750</b>

### 3.5 Sources of Data and Collection Methods

Both primary and secondary data were collected in this study. Primary data were collected using a questionnaire survey, focus group discussion (FGD), and key informant interviews. The survey was conducted using a structured questionnaire. The questions were set to capture mainly data about HL. Also, FGD was used as a complementary



technique for the data gathered through a questionnaire survey. A total of 6 FGDs involving teachers were conducted from six schools to get information that was used to enrich the study report. Each FGD consisted between 8 to 10 participants because a group of participants between 8 to 10 people is manageable (Wong, 2008). Table 4 presents the distribution of teachers who participated in FGDs from six selected primary schools.

**Table 4: Distribution of participants (teachers) in FGDs**

S/no	Ward	School	Sex		Total	Time spent (in hours)
			Male	Female		
01.	Mazimbu	Mazimbu B	2	6	8	1.30
02.	K/Ndenge	Uhuru	1	9	10	1.30
03.	Chamwino	Chamwino B	4	4	8	1.30
04.	Kihonda	Azimio B	2	8	10	1.45
05.	Mwembesongo	Mwembesongo	3	5	8	1.40
06.	Mkundi	Mkundi	2	8	10	1.50

Moreover, key informant interviews were conducted from 3 key informants namely; one primary education officer from Morogoro Municipality, and two ward education officers in Table 5. Key informants were chosen to participate in the study believed to have the most primary information required. Information obtained from key informants was used to enrich the research report. On the other hand, secondary data were sourced through reading various journals, articles, books, and other literature on HL from the internet.

**Table 5: Distribution of key informants in interviews**

S/no	Ward	Position	Sex	Time Spent (in hours)
01.	Mazimbu	Ward Education Officer	Male	1.40
02.	Mkundi	Ward Education Officer	Male	1.30
03.	Morogoro Municipality	Morogoro Municipal Academic Officer	Female	1.40

### 3.6 Measurement of HL and Health-Related Knowledge

To measure HL, the study employed Health Literacy European Union survey tool (HLS – EU, 2012). Therefore, to be able to measure HL, respondents were then asked questions on a scale from very easy to very difficult, for example, how easy you would say it is to find information on treatments of illnesses that concern you. The questions asked comprised items that echoed three health-pertinent areas; health care disease prevention, and health promotion together with four information processing stages (access, understand, appraise, apply) in connection with health-relevant decision-making and other health issues. HL assessment tool was developed and employed to assess HL through four point self-reporting scale (very easy, fairly easy, fairly difficult, and very difficult) which simply measured the perceived difficulty of selected relevant tasks. To be able to measure HL, an index score was created with the following distribution of points: “very easy” response (4 points), “fairly easy” response (3 points), “fairly difficult” response (2 points), and “very difficult” response (1 point). Using IBM - SPSS (v20), HL scores were computed to get mean, and percentiles, and cut into 3 equal groups to represent HL categories into Low Health Literacy (LHL), Medium Health Literacy (MHL), and High Health Literacy (HHL) (Table 6). The percentile values were used to categorize HL. Therefore, through this approach, HL was assessed in the community. A similar approach has been applied in a study by Muhanga and Malungo (2018; 2019).

**Table 6: Health Literacy Categories**

<b>S/no</b>	<b>Range</b>	<b>Categories</b>
01.	33.3 - 1	Low Health Literacy (LHL)
02.	33.4 - 66.6	Moderate Health Literacy (MHL)
03.	67 and above	High Health Literacy (HHL)

### 3.7 Health-related Knowledge

In assessing pupils’ HRK, questions based on health, diseases, and environmental practices were asked. The questions asked comprised items that reflected HRK such as

symptoms, causes, and treatments for diseases occurring in their respective areas. Using questions related to HRK, responses scored were rated based on the understanding of the respondents (pupils). To be able to measure pupils' HRK, an index score was used with the distribution of points as follows; correct answer (2 points) and wrong answer (1 point). Using IBM – SPSS v20, pupils' HRK scores were computed and cut into 3 equal groups to represent pupils' HRK categories into High Health-Related Knowledge (HHRK), Moderate-Health Related Knowledge (MHRK), and Low Health-Related Knowledge (LHRK). While percentile values were used to categorize pupils' HRK in schools (Table 7).

**Table 7: Health-Related Knowledge Categories**

<b>S/no</b>	<b>Range</b>	<b>Categories</b>
01.	33.3 -1	Low Health-Related Knowledge (LHRK)
02.	33.4 – 66.6	Moderate Health-Related Knowledge (MHRK)
03.	67 and above	High Health-Related Knowledge (HHRK)

### **3.8 Data Processing and Analysis**

The data collected were edited, sorted, coded, and summarized as well as verified before analysis. The IBM - SPSS computer software Version 20 was used to compute the descriptive and inferential statistics. Descriptive analysis was computed to get means, frequencies, and percentages. Inferential analysis was done to test the research hypotheses. Chi-square test was performed to test the association between teachers' HL and pupils' HRK and dependent variable which is HL was measured.

### **3.9 Ethical Considerations**

Ethical consideration is an important issue in any study, especially when human beings are involved. During data collection, the participants had the right to participate or not participate in the study. Confidentiality was always maintained by making the interviews in safe places. This is also supported by UNICEF (2012), and Bhattacharjee (2012) who

argue that voluntary participation and harmlessness (informed consent), anonymity and privacy, disclosure, and honesty with professional colleagues are important ethical issues to be adhered to by researchers. Therefore, these ethical considerations were mostly observed in this study. Again, Bhattacharjee (2012) argues that respondents in a research project must be aware that their participation in a study is voluntary, that they have free will to withdraw from the study at any time without prior information, penalty and they are not punished as consequence of their participation or non - participation in the study. All these were maintained in this study to ensure adherence to ethical issues.

### **3.10 Limitations of the Study**

Time limit since the study was cross-sectional, the researcher managed to meet three key informants out of seven because of government bureaucracy. This was regarded as a methodological limitation that restricted the possibility of getting more information for the study. This challenge was reduced by collecting data through primary and secondary sources. Data or information collected using primary sources were compared with available data (secondary data) for validation.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSIONS**

This chapter describes the findings of the study. The results of the study are presented and discussed in line with the study objectives and research questions. Section 4.1 describes the basic socio-demographic characteristics of the respondents. Section 4.2 presents teachers' HL and pupils' HRK. Section 4.3 presents the association between teachers' HL and pupils' HRK. Section 4.4 presents school-based efforts (SBEs) toward the promotion of HL and HRK in selected primary schools. Section 4.5 presents the determinants of primary school teachers' health literacy in selected primary schools in Morogoro Municipality. Lastly, section 4.6 challenges facing primary school teachers in enhancing their HL.

#### **4.1 Socio-demographic Characteristics of the Respondents (Teachers)**

The socio-demographic characteristics of the respondents are found to be the most important variables in social studies as they provide important demographic information about the respondents. Information on some socio-demographic characteristics namely age, sex, education level, and marital status was obtained. The results of this study reveal that 80.4% (95% CI: 140 to 162) of teachers interviewed were females, while 19.6% (95% CI: 27 to 49) of the respondents were males. Likewise, the results in Table 8 show that most of the respondents (teachers), 68.9% (95% CI: 117 to 142) in this study were aged between 36 and 45 years, 15.3% (95% CI: 20 to 40) were aged between 46 and 55 years old, while 15.3% (95% CI: 20 to 40) were aged between 26 - 35 years. Also, the lowest age category which formed 0.5% (95% CI: 0 to 5) was 56 years and above. The results in Table 8 indicate that the majority 78.8% (95% CI: 137 to 159) of teachers were married and 19.0% (95% CI: 137 to 159) were single, whereas 1.1% (95% CI: 0 to 6) were

widows and 1.1% (95% CI: 0 to 6) were separated. Furthermore, the results in Table 8 reveal that the majority 54% (95% CI: 89 to 115) of the respondents (teachers) in the study area had attained diploma education, while 29.6% (95% CI: 44 to 69) attained a degree, 15.3% (95% CI: 20 to 40) attained certificate level of education. Table 8 shows that only 1.1% (95% CI: 0 to 6) of the respondents from the study area had attained a master's degree.

**Table 8: Socio-demographic Characteristics of the Respondents (teachers) ( $n_t=189$ )**

Variables	Categories	Frequency	Percent	95% Confidence Interval	
				Lower Bound	Upper Bound
<b>Sex of Respondent</b>	Female	152	80.4	140	162
	Male	37	19.6	27	49
<b>Age categories</b>	26-35	29	15.3	20	40
	36-45	130	68.9	117	142
	46-55	29	15.3	20	40
	56 and above	1	0.5	0	5
<b>Marital status</b>	Married	149	78.8	137	159
	Single	36	19.0	26	47
	Widows	2	1.1	0	6
	Separated	2	1.1	0	6
<b>Level of education</b>	Secondary education	0	0.0		
	Certificate in Education	29	15.3	20	40
	Diploma in Education	102	54.0	89	115
	Degree	56	29.6	44	69
	Master's degree	2	1.1	0	6

**Key:  $n_t$ =number of sampled teachers**

#### 4.2 Socio-demographic Characteristics of the Respondents (Pupils)

The results in Table 9 show that 58.7% (95% CI: 413 to 466) of the respondents (pupils) were females while 41.3% (95% CI: 284 to 337) of the respondents were male pupils. The results in Table 9 indicate that 59.1% (95% CI: 416 to 469) of the respondents were between 13 and 15 years, and 40.9% (95% CI: 281 to 334) of the respondents were aged between 10 and 12 years. Also, the results in Table 9 show that most of the respondents (pupils) in the study area were standard seven 42.9% (95% CI: 296 to 349) while standard six were 32.4% (95% CI: 218 to 269) and standard five were 24.7% (95% CI: 163 to 209).

**Table 9: Demographic Characteristics of Respondents (pupils) ( $n_p=750$ )**

Variables	Categories	Frequency	Percent	95% Confidence Interval	
				Lower Bound	Upper Bound
<b>Sex of pupils</b>	Female	440	58.7	413	466
	Male	310	41.3	284	337
<b>Age categories</b>	10 – 12	307	40.9	281	334
	13 – 15	443	59.1	416	469
<b>Pupil's education level</b>	Standard V	185	24.7	163	209
	Standard VI	243	32.4	218	269
	Standard VII	322	42.9	296	349

**Key:  $n_p$ =number of sampled pupils**

#### 4.3 Teachers' Health Literacy Scores

Results in Table 10 show that the mean score of teachers' health literacy was 99.71 ranging between a confidence interval of (98.64, and 100.81) at 95%. The median score was 101 ranging between the confidence interval of (99.00, and 102.00). Also, the mode score was 104, while the minimum and maximum scores of teachers' HL were ranging from 74 to 132. Moreover, the results in Table 8 reveal that teachers in schools had high health literacy scores of 33.33 and 66.66 (i.e. 97 and 104) of the mid-quartile and upper quartile respectively. This implies that the majority of teachers from the study area had the highest scores on health-related issues. Likewise, participants in all FGDs underscored

that teachers with the highest score can access, understand, and evaluate health information before decision-making on health-related issues. Consequently, this minimizes the occurrence of health-related problems to them. Therefore, teachers with the highest ranked scores are highly needed to influence pupils to become health literate and improve HL in school settings and the community at large.

**Table 10: Teacher's Health Literacy Scores (n<sub>t</sub>=189)**

	Statistic	Bootstrap			
		Bias	Std. Error	95% Confidence Interval	
		s		Lower	Upper
n	189	0	0	189	189
Mean	99.7143	-.0044	.5722	98.64	100.81
Median	101.00	-.4127	.8180	99.00	102.00
Mode	104.00				
Std. Deviation	8.10062	-.11634	.55806	6.92774	9.21780
Minimum	74.00				
Maximum	132.00				
Percentile 33.33	97.0000	-.2346	.8634	95.0000	98.0000
66.66	104.0000	-.3933	.5435	102.6667	104.1554

#### 4.4 Teachers' Health Literacy Level

Findings in Table 11 show that 100% (95% CI: 189 to 189) of the respondents had high health literacy (HHL). Furthermore, findings in Table 9 show that 0% (95% CI: 0 to 0) of the respondents had moderate health literacy (MHL) in schools. Other, findings in Table 11 indicate that 0% (95% CI: 0 to 0) of the interviewed respondents had low health literacy (LHL) levels. This indicates that all teachers in the study area have the ability to access and comprehensively understand health information obtained to make shrewd decisions on all issues linked to health. This also is in line with a study by Denuwara and Gunawarden (2017) who found that health-literate teachers the access and use health



information to promote their health and directly influence pupils' health literacy and form life habits.

In addition, school is the best place for health literacy formation thereby having health-literate teachers is most important for shaping and influencing pupils to become health-literate for a healthy life in the community Basch (2011). A study by Lamanauskas and Armonienė (2012) shows that health-literate teachers can search and understand the conveyed information about health, and use that information to influence others in schools on possible positive changes in health behaviours and its impacts lead to the promotion of HL in schools and community as well. A study by Cheng and Wong (2015) shows that teachers' high health literacy directly influences pupils' understanding of health, and other health-related issues which result in improved HL in school settings. However, FGDs participants further underscored that health-literate teachers in schools can seek health information for their health and influence pupils' behaviour changes on issues related to health through various interactions, and enhance HL in schools. Enhancement of HL within school settings is paramount not only for both teachers and pupils but also for the whole community. Similarly, key informants had the view that HL can be improved in schools through the promotion of health education using teachers with health knowledge and skills. Manafo and Wong (2012) found that people with health literacy knowledge can easily access health information and comprehensively understand the messages and use the knowledge acquired to influence others to become health conscious.

The influence of others on issues related to health using health-literate teachers can result in improved HL. Again, one key informant elaborated that HL can be improved in school settings through the promotion of health education using teachers with health knowledge and skills. On the other hand, this is similar to a study by Lamanauskas and Augienė

(2019), which found that HL education helps to perceive health information that influences HL promotion in schools.

**Table 11: Teachers` Health Literacy Level (n<sub>t</sub>=189)**

Teachers` Health Literacy Level	Frequency	Percent	Bootstrap for percent			
			Bias	Std. Error	95% Confidence Interval Lower Upper	
Low Health Literacy (LHL)	0	0	.0	0	0	0
Moderate Health Literacy (MHL)	0	0	.0	0	0	0
High Health Literacy (HHL)	189	100	0	0	189	189
<b>Total</b>	<b>189</b>	<b>100.0</b>	<b>.0</b>	<b>.0</b>	<b>100.0</b>	<b>100.0</b>

#### 4.5 Pupils` Health-Related Knowledge

Findings in Table 12 show that majority of pupils 89.1% (95% CI: 86.8 to 91.2) had low health-related knowledge (LHRK). This implies that most pupils in schools lack health knowledge which could help them to make wise decisions on health-related issues especially when pupils encounter health-related problems. This is observed amidst teachers` high HL. Unquestionably, from FGDs the study reveals that low pupils` health-related knowledge was due to a lack of emphasis on HE within school settings which on the other hand can lead pupils to fail to make sound decisions on health-related issues. While a study done by Paakkari and Paakkari (2012) found that HE in schools is essential for the strengthening of young human`s health related-knowledge. The mphasis on HE and other health interventions is critical to improving health knowledge among the pupils in schools. Likewise, it was further noted from the FGDs that pupils` health-related knowledge in the study area is still low; this is due to the little time given to HE. Participants in an FGD consented as follows:

*...“In our schools in order to improve HL, health education must be introduced as a lesson. Likewise, topics of HE are taught through science subjects and do*

*not contain enough content and there is a need to review them. Similarly, the government through the ministry concerned should check the curriculum and indicate that health education is being given special time and taught to all pupils in schools ...”* (Female FGD participant, Mkundi Primary School).

Findings in Table 12 indicate that 10.9% (95% CI: 8.8 to 13.2) of pupils had moderate health knowledge. Similarly, Al-Rabeei *et al.* (2012) found that pupils with moderate health-related knowledge (MHRK) were able to access health information and make wise decisions on health issues more than pupils with low health-related knowledge. Other, findings in Table 12 indicate that 0% (95% CI: 0 to 0) of the interviewed respondents (pupils) had no (HHRK). This indicates that the majority of the pupils in the study area had (LHRK) unable to access health information and make prudent decisions on health related issues despite teachers’ high health literacy in schools.

**Table 12: Pupil’s Health-Related Knowledge Level (n<sub>p</sub>=750)**

Pupils’ knowledge (HRK)	Health Related	Frequenc y	Percen t	Bias and Std. Error		Bootstrap Percent <sup>a</sup>	for
				Bia s	Std. Erro r	95% Interval	Confidence
						Lower	Upper
LHRK		668	89.1	.0	1.1	86.8	91.2
MHRK		82	10.9	.0	1.1	8.8	13.2
HHRK		0	0	0	0	0	0
<b>Total</b>		<b>750</b>	<b>100.0</b>	<b>.0</b>	<b>.0</b>	<b>100.0</b>	<b>100.0</b>

#### **4.6 Association between Teachers’ HL and Pupils’ Health Related Knowledge**

In assessing the association between teachers’ HL and pupils’ health related knowledge levels. The Chi-square test was used. Based on a statistical measure of association as shown in Table 13a for pupil’s health-related knowledge and health literacy level. The findings in Table 13a show that there is no significant association between pupil’s health-

related knowledge as the p-value was found to be 0.108 with Pearson chi-square value of 7.584 at 4 degrees of freedom hence the null hypothesis is not rejected which was stating that “PHRK does not associate with HL”. This result statistically implies that the knowledge that pupils had, is irrespectively contributing to the health literacy level they had. This can be seen as in Table 13b that the majority of the pupils 89% had low health-related knowledge (LHRK) followed by 11% of pupils who had moderate health-related knowledge (MHRK).

**Table 13a: The association between pupil’s health-related knowledge and health literacy (n<sub>p</sub>=750)**

					Chi-Square Tests		
					Df	Pearson Chi-Square	Asymptotic Significance (2-sided)
Pupil's HRK	Low	668 (89%)	0 (0%)	0 (0%)	4	7.584	0.108
	Moderate	0 (0%)	82 (11%)	0 (0%)			
	High	0 (0%)	0 (0%)	0 (0%)			

\*\* and \*\*\* meaning that the chi-square test for association at 0.05 and 0.001 level of significance, n<sub>p</sub>=number of pupils

On the other hand, contrary to PHRK, teachers had a significant association with the health literacy level as it can be seen that the p-value is 0.000 which is highly significant as  $p < 0.001$  and the Pearson value is 378 and the degree of freedom is 4 which led to the decision rule of rejecting the null hypothesis which was stating that “there is no association between the health literacy level of a teacher and pupils’ health-related knowledge. This is significantly relevant as most teachers 100% had high health literacy (HHL) which is the best side as compared to the pupils who had the lowest rank of health-related knowledge. Despite the teachers’ HL being high in schools, teachers have failed to

utilize their health literacy level to influence school children to become health literate. This is due to little attention paid to the promotion of HL and other health-related knowledge in schools. Teachers with high HL have a great chance to promote HL and health-related knowledge in schools. During FGDs participants underlined that, to promote HL and health-related knowledge among school pupils the association between teachers and pupils on health and other health-related issues is essential. Through this association, pupils can learn about health-related issues and become health literate. Globally, a study by Paakkari and Paakkari (2012) shows that the association with health-literate people can influence others to learn, understand, and become health literate. Therefore, health-literate teachers are required for HL promotion in schools.

**Table 13b: The association between teacher's health literacy and health literacy (n<sub>t</sub>=189)**

					Chi-Square Tests		
		Low HL	Moderate HL	High HL	Df	Pearson Chi-Square	Asymptotic Significance (2-sided)
	Low	0 (0%)	0 (0%)	0 (0%)		378.000	0.000***
	Moderate	0 (0%)	0 (0%)	0 (0%)			
	High	0 (0%)	0 (0%)	189 (100%)			
Teachers' HL					4		

\*\* and \*\*\* meaning that the chi-square test for association at 0.05 and 0.001 level of significance, n<sub>t</sub>=number of teachers

#### 4.7 School-based Efforts to Improve Teachers' HL and Pupils' HRK

The results in Table 14 show efforts made toward the promotion of pupils' HRK in schools. The results indicate that 50.3% (95% CI: 82 to 108) of the respondents (teachers) pointed out that inspection of environments and pupils themselves are important efforts towards the promotion of HL in schools. This means that inspection in schools helps to provide accurate information about the issues of pupils' hygiene and how to take care of

the environmental status in schools, which normally influences health related-knowledge. Undeniably, through inspections health issues are addressed based on pupils' hygiene and the environment in schools. Thus, the study noted from the FGDs that timely inspection of environments and pupils themselves raise awareness of health issues and promote HRK in school settings. The promotion of HL through efforts implemented within school environments inspires pupils to acquire HRK, and reduce problems associated with low HRK. In addition, the study observed from the FGDs that numerous efforts are made in schools to promote HRK hence a healthier lifestyle. These include insisting pupils adhere to personal hygiene include; body cleaning, cutting hair, nails, and dressing in clean clothes. These create health consciousness in the pupils and reduce lifestyle-related diseases and build better a society that is healthier and more productive.

Results in Table 14 show that 25.9% (95% CI: 38 to 61) of the respondents (teachers) in the study area identified HE provision as one of the efforts toward the promotion of HL. This implies that HE provided on various health issues in schools during classes and beyond class sessions influences pupils to change and shape their health behaviours. On the other hand, 59.6% (95% CI: 339 to 427) of the respondents (pupils) admitted that the availability of sufficient time for HE is important for improving pupils' HRK in schools. Paakkari and Paakkari (2012) argue that the provision of education on health issues in schools is one of the efforts through which pupils' health behaviours can be shaped hence influencing HL. Indubitably, during FGDs participants elaborated that the government is doing a lot to improve HL through health education in schools. Though, such efforts are not enough to enable pupils to become health literate and enjoy a better healthy lifestyle in society. This is because; most of the topics included in science subjects to be taught in schools did not contain enough contents to enable pupils to become health literate in school settings. This also is consistent with the findings by DeBoer (2000) that health

education provided through topics embedded in science subjects was insufficient to enable pupils to accumulate sufficient HRK. Similarly, Mood *et al.* (2019) reported that to promote pupils' HRK for a better and healthy life in the community; HE must be provided in the classrooms to all pupils and sustainably insisted outside the classrooms in school settings. Also, participants in an FGD agreed as follows:

*...“To improve HL in the school environment and make pupils become health literate in their adulthood, health education must be introduced and taught as other lessons than teaching HE through topics attached in science subjects which do not contain enough contents to make pupils health literate...”* (FGD participants, Mazimbu 'A' Primary School).

Likewise, the findings in Table 14 indicate that 23.8% (95% CI: 34 to 57) of the respondents (teachers) agreed that the presence of learning materials on health issues had a great positive impact on HL promotion in schools. Unquestionably, the presence of textbooks, health pamphlets, and posters on health can facilitate easy access to health information and acquire health related-knowledge that leads to the promotion of HL among the general population in schools. About a quarter 24.9% (95% CI: 165 to 211) of the respondents (pupils) accepted that presence of learning materials e.g. textbooks on health education is important in schools to improve HL. However, there was a slight difference in terms of percentage but both respondents (teachers and pupils) in the study area unanimously agreed that the presence of learning materials including textbooks for teachers and pupils was one of the efforts to be undertaken to improve HL in schools. The results in Table 14 show that 30.9% (95% CI: 165 to 211) of the pupils from the study area lamented about inadequate time availability for health education in schools. This implies that insufficient time available for learning and practising issues related to health inside and outside the classrooms has negative impacts on HL promotion in schools.

Consequently, findings from FGDs revealed that to improve HL among the general population, ample time must be set an effort to learn and practise health issues inside and outside classrooms within school settings. Furthermore, as shown in Table 14 the results show that 15.5% (95% CI: 98 to 136) of the respondents (pupils) were not aware of the efforts which are made to enhance HL in schools in the study area.

**Table 14: School Based Efforts to Improve teachers' HL Pupils' HRK (n<sub>t</sub>=189, n<sub>p</sub>=750)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Teachers				
Inspection of school environment and pupils	95	50.3	82	108
Health education provision in schools	49	25.9	38	61
Presence of learning materials i.e. textbooks	15	23.8	34	57
Pupils				
Time available for HE in schools	447	59.6	399	497
Presence of learning materials	187	24.9	165	211
Do not know	116	15.5	98	136

#### **4.8 Supportive Efforts to Improve HL in Schools**

The findings in Table 15 show supportive efforts which are made to enhance HL in schools. The results in Table 15 indicate that 46.6% (95% CI: 65 to 116) of the teachers admitted that awareness creation on health and other health-related issues is one of the supportive efforts made in schools toward the promotion of HL. Health awareness creation is most important for making people become health literate in schools and the community as well. In a health context, it is only through such consciousness pupils' HRK is boosted hence the promotion of their health and that of others in the community. During a discussion with key informants, the study reveals that the promotion of HRK through health awareness creation is important within school settings that can help pupils



have smart decision-making on health-related issues and enjoy adult healthier lives in the community. Again, the study reveals that teaching health care, disease prevention, and health promotion issues creates wider health awareness and improves HL among the teachers within school settings and the community in general.

On the other hand, the results show that 37.0% (95% CI: 51 to 90) of the respondents consented that seminar provision in schools is one of the supportive efforts toward the promotion of HL. Unquestionably, it is apparent that the provision of health seminars supports efforts made and put into force toward the promotion of HL in schools. The study reveals that health-related seminars and other health-related training support both teachers and pupils to become health-conscious by increasing their knowledge and ability to care for their well-being in communities. This also is consistent with the findings by (Smith *et al.*, 2011; Pearson, 2012) who found that the provision of seminars and other training on health issues unambiguously supports efforts made within school settings and enables people to become health literate. However, from Table 15 a small proportion of 16.4% (95% CI: 24 to 45) of the respondents agreed that the provision of learning materials on HE undeniably support efforts already put in place to improve HL in schools. The provision of health learning materials on health issues and other health-related knowledge from the government and other interested parties e.g. textbooks, pamphlets, posters, and the like contributes towards improved HL in schools. Therefore, the availability of all necessary learning materials on health issues can indubitably prompt other efforts put in operation and empower both teachers and pupils to become health literate which in turn results in improved HL within school settings.

**Table 15: Supportive efforts to improve HL in Schools (n<sub>t</sub>=189)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Provision of learning materials for HE	32	16.4	24	45
Provision of seminars on health issues	70	37.0	51	90
Awareness creation on health issues in schools	87	46.6	65	116

#### 4.9 Hospital Workers' Visits to Update Teachers on Health Matters

The results in Table 16 show that 23.3% (95% CI: 35 to 54) of the respondents agreed that hospital workers occasionally pay visits to schools to inform teachers on health matters concerning HL. The study reveals that information provided by health professionals helps teachers to become more knowledgeable on health-related issues and contribute significantly to the promotion of HL within school settings. It is therefore apparent that health workers' visits to schools increase health knowledge among teachers and contribute to the promotion of HL in schools. Similarly, it was noted during FGDs that the transmission of health information to teachers associated with encouragement to search for health-related information is considered a role that health workers have to play towards improved HL in schools and the community as well. Furthermore, the results in Table 16 show that the majority 76.7% (95% CI: 118 to 176) of the respondents complained that hospital workers never visit schools to update teachers on health issues for the promotion of HL. The lack of health information to teachers due to the failure of health workers to visit and update teachers on issues related to health disproportionately affects the promotion of HL in schools. Again, it was observed from FGDs that, the habit of health professionals who focus on medication aspects and not on the dissemination of health information to other institutions, and schools inclusive overly affects efforts made in schools towards HL promotion.

**Table 16: Hospital workers' visits to update teachers on health matters (n<sub>t</sub>=189)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Occasionally	44	23.3	35	54
Never	145	76.7	118	176

#### 4.10 Government Efforts to Improve HL in Schools

The results in Table 17 indicate that 37.6% (95% C: 62 to 94) of the respondents consented to finance HL programs in schools. Unquestionably, financing HL promotion programs in schools is essential for improved HL. The financed health programs have much room to improve HL for both teachers and pupils (Denuwara and Gunawardena, 2017). Health programs in schools, instigate awareness creation among the general population which helps both pupils and teachers to become health conscious and be able to make decisions on health issues throughout their lives. However, from the FGDs it was noted that active HL activities influence people to become health-conscious and can make informed decisions on issues related to health. This is in line with the findings by Crooks *et al.* (2020) who found that financed HL programs in schools improve HL that strengthening self-awareness and self-management as well as promoting responsible decisions making on health issues which also has a great impact on the academic performance of the pupils. Again, from the FGDs the study reveals that investing in HL promotion programs in schools promptly increases awareness of health issues and other health-related knowledge which on the other hand can enable the government to improve HL in the community.

The results in Table 17 further reveal that 27.5% (95% CI: 34 to 51) of the respondents admitted an improved learning environment. Good learning environments greatly strengthen pupils' health status and reduce the magnitude of diseases emanating from low HL hence improving HL within school settings. During, FGDs with the discussants, the

study reveals that a conducive learning environment is important to enabling both teachers and pupils to comprehend health information hence easily improving both HL and HRK in schools. Similarly, the results in Table 17 show that 22.2% (95% CI: 30 to 49) of the respondents agreed that HL can be improved through the provision of health training to teachers in schools. Then, the provision of HL training includes; health seminars, workshops, and symposiums *inter alia*, helps teachers to keep informed about health issues. From FGDs the study reveals that, for the government to promote HL, health training is vital, through health training teachers acquire new knowledge and instructional skills needed to ensure that pupils learn HL knowledge to improve healthy lifestyles in schools and the community as well. In addition, one key informant from the education department when asked based on the efforts that the government should do to enhance HL through teachers to make pupils become health literate had this to say:

*...“Frankly speaking, to improve HL and make pupils become health literate the government should ensure that health seminars for science teachers who are responsible for health issues in schools must be given priority. Again, the government should ensure that health issues are taught in schools by considering the level of the pupils where possible the use of graphics and pictures is of great importance than words alone. Lastly, the learning environment must be improved to support both teachers and pupils learn and practise health issues healthily in schools? ...”* (KII, Ward Education Officer, Morogoro Municipality).

Other results in Table 17 indicate that a few 12.7% (95% CI: 18 to 31) of the respondents collectively accepted that HL can be improved in school environments by hiring health professionals. This implies that having health experts in schools working cooperatively with other staff can help schools identify numerous health problems that associate with low health literacy to be addressed and mitigated in schools. From the FGDs the study

reveals that having health professionals in schools can provide and conduct indoor seminar training on health issues and help both teachers and pupils attain health literacy knowledge in schools. Again, from the FGDs the study reveals that the presence of health professionals in schools seems to be imperative. Health professionals can be considered as the source of health information in schools from which health information can be communicated to both teachers and pupils and facilitate the promotion of HL (McInnes and Haglund, 2011; Muhanga, 2021). In addition, the interactions between health workers with others especially on health issues and other health-related knowledge can greatly contribute to improved HL in schools. Furthermore, health experts in schools can play a great role in collaboration with teachers to provide health training to pupils on all issues linked to health in so doing HL can be strengthened and improved in schools and the community as well.

**Table 17: Government efforts to Improve HL in Schools (n<sub>r</sub>=189)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Provision of health training	42	22.2	30	49
Improving learning environment	52	27.5	34	51
Financing HL programs in schools	71	37.6	62	94
Hiring Professionals in schools	24	12.7	18	31

#### **4.11 Respondents' Views on Health Promotion and HL in Schools**

To evaluate health promotion efforts towards improved health literacy in schools, respondents were asked to give out their views on the statements given out to them. The results in Table 18 reveal that (97.4%) of the respondents acknowledged that schools offer pupils health information awareness during teaching sessions which include physical activity and safety. This implies that schools are ideal places for the provision of correct and appropriate quality health education to pupils. Schools fit to be health-promoting

areas because they implement a well-structured and methodological approach to the development of health knowledge for pupils and the community as well (Ahmed *et al.*, 2017; Tett and Macleod, 2020). It is therefore apparent that teachers support health promotion and HL in various ways in schools. For instance, teachers support pupils to make healthy choices includes; healthy eating, smart and healthy dressing, body cleaning, and regular physical activity which have positive impacts on pupils' health and HL promotion in schools. Health literacy acquired through health awareness creation in schools helps pupils to develop a positive attitude toward improved decision-making on all issues related to health. The results in Table 18 show that the majority (93.7%) of the respondents from the study area admitted that schools offer pupils awareness of diet. Unquestionably, this implies that a lot of efforts are consistently made by the teachers in schools to promote HL. For example, insisting pupils eat balanced diets during teaching sessions may have a great impact on pupils' health throughout their lifespan and helps children grow both physically and mentally well.

In Table 18, the results indicate that (91.5%) of the respondents agreed that schools provide dental health education to pupils during teaching sessions. It is therefore obvious that the provision of dental health education during teaching sessions especially through science topics and other health speeches made in schools helps pupils to become health conscious. Generally, it was noted from the FGDs that health education provided by teachers in schools during teaching help pupils obtain important health knowledge include; disease prevention, healthy eating, and body cleaning required to adopt and maintain good health behaviors in schools as well as in the community. This also is in line with the findings by (Shim *et al.*, 2010; Saunders *et al.*, 2019) who found that health awareness offered in schools helps pupils acquire functional health knowledge, and

strengthen attitudes needed to maintain healthy behaviours throughout their lives which improve decision making on health issues.

Also, the results in Table 18 show that the majority (94.7%) of the respondents in the study accepted that schools offer pupils' awareness of safety during teaching sessions. Undoubtedly, safety education is offered to create awareness that pupils need to stay safe in school settings. In addition, schools have a legal responsibility to protect pupils through HE from harm that might jeopardize the health of the pupils and negatively affect health efforts toward HL promotion in schools. The provision of safety education protects the health of the pupils and on the other hand, helps to improve HL in the schools. However, the lowest proportions (67.7%) of the respondents agreed that schools offer pupils' awareness of medication contrary to (32.3%) of the respondents who disagreed. While (78.8%) of the respondents accepted that sexuality and personal affairs are offered in schools during teaching. Sexual and personal affairs education is provided to pupils to create health awareness and empower pupils to realise their health well throughout their lives in schools and community as well.

**Table 18: Respondents' views on health promotion and HL in schools (n<sub>t</sub>=189)**

No.	Statement	Responses	
		Yes	No
i.	Does your school offer pupils' awareness during teaching regarding physical activity?	97.4	2.6
ii.	Does your school offer pupils' awareness during teaching teaching regarding diet?	93.7	6.3
iii.	Does your school offer students awareness during teaching Regarding medication?	67.7	32.3
iv.	Does your school offer pupils' awareness during teaching regarding dental health?	91.5	8.5
v.	Does your school offer pupils' awareness during teaching Regarding safety?	94.7	5.3
vi.	Does your school offer pupils' awareness during teaching Regarding sexuality and personal affairs?	78.8	21.2

#### **4.12 Factors Influencing Health Literacy amongst Primary School Teachers**

The results in Table 19 indicate that 40.0% (95% CI: 107 to 165) of the respondents acquire health information from radio, television, and newspapers. This implies that searching the mass media (TV, newspaper, and radio) is the most common way for teachers to obtain health information and other health-related issues in the study area. This is consistent with Van Slooten *et al.* (2013) who reported that the media (TV, newspapers, and radio) were the best ways for teachers to obtain information on health-related issues. Information obtained from newspapers, radio, and television programs helps teachers to widen health knowledge and facilitate decision-making on all issues related to health, and be able to influence others in schools for the promotion of HL. This is similar to the findings by Corrigan *et al.* (2014) and Kilgour *et al.* (2015) which found that health information received by teachers through health programs televised significantly broadens the levels of HL and influences teachers to become health literate as well as able to solve health-related problems.

The results in Table 19 further show that 21.0% (95% CI: 45 to 86) of the respondents identified frequent visits to medical doctors for medical purposes influence teachers' health consciousness. This implies that frequent visits to medical doctors due to health-related problems help teachers to find potential health information related to health problems and get updated on new health information for a better healthy life. Information obtained increases the level of health consciousness on health-related issues and can influence others in schools to become health literate. Similarly, Woolner and Hall (2010) highlighted that health-conscious people tend to seek information more actively hence being with health-literate teachers in academic institutions is most important for the promotion of HL and the adjacent communities as well.



Table 19 indicates that 11.0% (95% CI: 45 to 86) of the respondents acquired health information through discussions with friends. Discussions on health-related issues with literate people help teachers to become health conscious. From the FGDs participants further underscored that discussions encourage healthy behaviours, for instance having discussions with health-literate people can motivate people to learn to become health-conscious and result in HL promotion. The results in Table 19 show that 11.0% (95% CI: 27 to 49) of the respondents obtain health information through health-related training. This implies that health training such as; seminars, workshops, and the like provided to teachers help teachers to acquire knowledge and skills on health issues. The knowledge and skills acquired from health-related training motivate teachers to improve and maintain their health which has a positive impact on the promotion of HL in schools (Meiklejohn *et al.*, 2012). The study also reveals from FGDs that health-related training is rarely provided to teachers despite its importance the promotion of HL in schools while health training is important for the sake of updating teachers for the enhancement of HL in schools. Hence, FGD participants had this to say:

... *“To rescue the situation the government in collaboration with other stakeholders should participate actively in the provision of seminars and other training on health-related issues not only for science teachers but also for all teachers in schools since all teachers in schools are key actors of HL promotion? ...”* (Female, FGD participant Chamwino ‘B’ Primary School).

Other results in Table 19 show that 17.0% (95% CI: 38 to 75) of the respondents receive health information through participation in community health programs. Active participation in health programs implemented in the community e.g. HIV/AIDs, and sustainable nutritious food education, assuredly help teachers to receive health education and be able to influence others in schools to become health literate. Woldie *et al.* (2018) found that participation in community health programs has much room to improve the HL

of the teachers and be able to influence others to have positive health behaviours in schools. During FGDs, participants said that participation in community health programs helps teachers to acquire health-related knowledge which is needed in addressing pupils' health-related problems for the promotion of HL in schools.

**Table 19: Factors influencing health literacy amongst primary school teachers (n<sub>t</sub>=189)**

Statement	Responses		95% Confidence interval	
	n	%	Lower Bound	Upper bound
Participation in community health programmes	55	17.0	38	75
Receiving health-related training	37	11.0	27	49
Frequently visiting the medical doctor	70	21.0	45	86
Access to radio, television, and newspapers	134	40.0	107	165
Discussions with friends	38	11.0	28	50

#### 4.13 Determinants of Health Information Searching/Seeking among Teachers

Table 20 shows that 20.1% (95% CI: 94 to 120) of the respondents admitted that health information searching is greatly influenced by health problems. Health problems trigger teachers to search for health information and other health-related knowledge for their health with a need to know their health status and prevent themselves from diseases. In other words, when teachers are health-conscious definitely can influence pupils to have positive attitudes toward health issues and lead to the promotion of HL in schools and communities as well, through various interactions (Sarwar *et al.*, 2015). Similarly, Bröder *et al.* (2017) found that improving HL for teachers can enable young people in academic institutions to understand themselves and make sound health decisions for better lifestyle choices in the communities.

Again, the results in Table 20 indicate that 12.2% (95% CI: 13 to 38) of the respondents argued that health information is extremely sought when teachers wanted to broaden their

knowledge on health issues; whereas 7.4% (95% CI: 8 to 21) of the respondents consented that health information is seriously sought when health risks happen. This implies that knowing the risks related to health helps people to find the best ways to avoid health problems and make informed decisions which on the other hand influence HL promotion in schools. On the other hand, the study from FGDs reveals that searching for health information only when there is a health problem for teachers e.g. diseases, stress, and uncertainty about health in general, affects HL promotion in school environments. Likewise, the results in Table 20 show that 3.1% (95% CI: 4 to 15) of the respondents had an interest in self-health management which result in the improvement of people's health status in life. It is therefore apparent that interest in self-health management to prevent diseases, and maintain health influences teachers to search for health information and increase health knowledge which has positive impacts on the improvement of HL in schools.

The results in Table 20 indicate that the majority 56.6% (95%: 94 to 120) of the respondents did not bother about health information searching in schools. This justifies that majority of the respondents from the study area do not search for health information. While, FGDs participants emphasized that health information seeking is important to be adhered to, by the teachers in schools. The information sourced on health and other health-related issues from various sources include; the internet, WhatsApp, Instagram, friends, and other mass media help teachers to improve their competencies of HL and personal healthy lifestyle experiences, and promote HL in schools.

**Table 20: Determinants of Health information searching/seeking among teachers  
(n<sub>t</sub>=189)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
NA	107	56.6	94	120
Had health problem	38	20.1	28	50
Wanted to broaden knowledge on health	23	12.2	13	38
There was a health risk	14	7.4	8	21
Interest in self - health management	7	3.7	4	15

#### **4.14 Challenges Facing Teachers in Enhancing Health Literacy**

The results in Table 21 indicate that 28.0% (95% CI: 41 to 71) of the respondents consented that most schools in the study area lack learning materials e.g. textbooks on health education. For example, textbooks on health and other health-related issues in schools are important for strengthening both teachers' and pupils' health hence improving HL (McKenzie *et al.*, 2013). The lack of health books, other materials, programmes on health promotion important for enhancing HL in schools is the biggest challenge for the teachers to learn and influence pupils to become health literate. Results from FGDs reveal that schools are the best places where pupils stay for a long time therefore equipping schools with adequate learning materials for health promotion is important to enable teachers to address HL properly. Studies by St Ledger, 2001 and Ringsberg *et al.* (2018) show that there are several challenges facing teachers in their efforts to promote HL in school environments include; time, resources, inadequate health knowledge, and others related to enhancing HL in schools.

Furthermore, the results in Table 21 indicate that 38.6% (95% CI: 52 to 94) of the respondents interviewed complained about inadequate time for the provision of HE in schools. This implies that insufficient time to address health issues and practice critical

health issues beyond classroom activities affects disproportionately the promotion of HL in schools. This is consistent with Milteer *et al.* (2012) who found that to improve HL in schools; teachers need adequate time and resources to learn about health issues before transmitting them to the pupils in school settings. Results from FGDs reveal that insufficient time allocated to address health education in schools is a big challenge in the promotion of HL in schools. While teachers need adequate time to learn about new concepts of health and other issues related to health for improving HL in schools.

The results in Table 21 show that 19.0% (95% CI: 26 to 47) of the respondents complained about a shortage of seminars and workshops on health and other issues related to health. This implies that a shortage of seminars; workshops, and other health-related-trainings hinder teachers to access health information and improve HL in school settings and the community as well. From FGDs, it was reported and emphasized that to improve HL in our schools, adequate seminars and other training on health issues should be given priority. Seminars equip teachers with knowledge, skills, and techniques that help them reach out to pupils and deepen their understanding of HE which better HL in schools and communities at large.

Other results in Table 21 indicate that 14.4% (95: 16 to 42) of the respondents lamented for lack of funds for health education in the study area. Inadequate financial support for health education interventions established to promote HL is a challenge that paralyses school efforts toward improved HL. This is in line with the study by McMullen *et al.* (2015) who found that inadequate financial support for health education launched to promote HL is one of the barriers to improved HL in schools in most developing countries in the world. From FGDs participants underscored that, to improve HL in schools, the

government should set aside enough funds to underpin various health programs established in schools for the promotion of HL in the country as a whole.

**Table 21: Challenges facing teachers in enhancing health literacy (n<sub>t</sub>=189)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Insufficient health materials i.e. text books	53	28.0	46	71
Inadequate time for teaching HE in schools	73	38.6	52	94
Shortage of seminars on health issues	36	19.0	26	47
Lack of funds for health promotion	27	14.4	16	42

#### **4.15 Challenges Facing Pupils in Accessing Health Education at Schools**

The results in Table 22 indicate that 25.0% (CI: 205 to 254) of the respondents complained about the shortage of teachers especially science teachers in schools. This implies that a shortage of science teachers impacts negatively on pupils' ability to understand comprehensively health issues and become health literate in schools. This is obviously true since health education and other health issues which influence HL are addressed by science teachers in most schools in the world (Custers, 2010).

Also, the results in Table 22 show that 16.5% (95% CI: 132 to 148) of the respondents argued on the lack of health books for health education in schools. Clearly, this shows that most schools in the study area lack textbooks, health pamphlets, and others related to health education which is yet a major challenge for the promotion of HL in the community. The study by Idehen and Oshodin (2008) supports that health learning materials were one of the main challenges which hinder the provision of desirable health education to pupils in schools in Nigeria. Furthermore, the results in Table 22 indicate that 22.1% (95% CI: 174 to 190) of the respondents (pupils) have little knowledge of health issues. This means that little understandings of health issues are due to a lack of health

education in schools. Little knowledge of health issues is a challenge that negatively limits pupils' HL promotion and rational decision-making about their health status in daily life. Also, other results in Table 22 show that 19.9% (95% CI: 156 to 182) of the respondents do not know of the challenges facing health education towards improved HL in schools. This justifies that low health literacy still exists among the general population in schools while 19.9% (95% CI: 156 to 182) of the respondents lamented for little time is set for health education in schools, which is yet a challenge for influencing HL to be attained in schools.

**Table 22: Challenges facing pupils in accessing health education (n<sub>p</sub>=750)**

Variable	Frequency	Percent	95% Confidence Interval	
			Lower Bound	Upper Bound
Lack of textbooks in schools	124	16.5	132	148
Little knowledge on health issues	166	22.1	174	190
Shortage of teachers e.g. science teachers	191	25.5	205	254
Insufficient time to learn HE at schools	120	16.0	136	173
Do not know	149	19.9	156	182

## **CHAPTER FIVE**

### **CONCLUSIONS AND RECOMMENDATIONS**

The main objective of this study was to assess the health literacy of primary school teachers and its influence on pupils' health-related knowledge in Morogoro Municipality. The study explicitly aimed at assessing teachers' HL and pupils' health-related knowledge; to determine the association between teachers' HL and pupils' HRK; identifying school-based efforts (SBEs) towards the promotion of health literacy and (HRK) in selected primary schools. The study also assessed the determinants of primary school teachers' health literacy in selected primary schools and identified challenges facing primary school teachers in enhancing their HL.

#### **5.1 Conclusion**

This study found that most pupils in schools had low HRK despite teachers' high HL. The study observed that to improve pupils' HRK in schools HE must be given priority and emphasized. Based on the association between teachers' HL and pupils' HRK, the study concludes that teachers' HL is very important for influencing pupils to become health literate in schools. The association can directly or indirectly influence pupils to learn about health-related issues through various interactions with their teachers and promote pupils' HRK hence improving HL in schools. Also, the study found most schools in the study area do address HL through inspections. Inspections in schools must be strengthened and improved since the information obtained through inspections help pupils to become health conscious within school settings. Similarly, health education provision in schools is essential to improve HL and HRK. Thus, to improve HL and HRK thereby HE must be given priority and taught as other lessons in schools. The study also observes that health information communicated to teachers by health professionals plays a great



role in improving HL and HRK in schools. Good communication between teachers and health workers on issues related to health help teachers to increase health knowledge and influence pupils to become health literate in schools.

Furthermore, the study observed that the financing of HL programmes in schools is very essential for improving HL. HL programmes can facilitate people to learn and understand health issues through observation, and acquire health-related knowledge. The study found that several efforts have been made to improve HL among the general population in schools. However, all efforts were undertaken and the rest have not yet been fully successful to bring many positive effects since HL is still low and problematic within school environments in the community. This situation is due to little attention paid to the efforts undertaken to improve HL in schools, with few evaluations to address the problem studied. The study revealed from the FGDs that pupils had low HL despite numerous efforts made in schools. Undoubtedly, low health literacy causes pupils to lack the abilities and knowledge to access and understand health information thoroughly for wise decision-making on issues linked to health.

Again, the study further found insufficient health materials in schools, and a lack of funds to support health interventions in schools were the major prevailing challenges that affect the promotion of HL in schools. Obviously, to improve HL and HRK, all needful resources including health materials e.g. textbooks on health and other health-related materials should be provided in schools.

## **5.2 Recommendations**

Based on the study findings, the following recommendations are put forward from this study:

- i. Health literacy in schools cannot be improved without needful resources required being made available e.g. textbooks on health education and the like. Again, the government and development partners should allocate enough budgets to support health education interventions established to promote HL among the general population in schools.
- ii. Low health-related knowledge amongst pupils can be promoted through health education promotion using teachers with health knowledge and skills in schools.
- iii. The government should review curricula and ensure that all topics of health education embedded in science subjects contain enough content for enabling pupils in schools to become health literate.
- iv. Timely provision of seminars and other types of training on health education to all teachers in schools are required to build up the ability of teachers to attain great levels of HL, so they can teach the same to their pupils for improving HL in schools and community as well.
- v. To promote HL in schools, teachers especially heads of schools should be sensitized to the importance of inspection of environments, and pupils themselves, since inspection helps to provide accurate information on health issues, hence improved HL.
- vi. More time should be set or allocated to teach health education in schools i.e. a minimum period for HE to be every day, bearing in mind that health is an everyday affair. Thus, the repetitive study strengthens the young human's health, and enhances health promotion in all circumstances in schools.
- vii. The government, communities, and other stakeholders should combine their efforts and work together in all academic institutions like schools which are some of the main agents of socialisation through which HE can be promoted to increase HL and HRK.

- viii. Schools should be equipped with radios and televisions from which teachers can easily access health information and other health-related knowledge by watching various health programs, and using information obtained to promote HL in schools.

### **5.3 Recommendation for Further Research**

Since health literacy is a very important aspect of human development and human life, it depends much on a good understanding of health and health-related issues. Therefore, this study suggests that there is a need for similar research to assess HL among teachers and pupils in other parts of Tanzania to see if the problem is the same so as to improve the health status of people in the country.

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## APPENDICES

### Appendix 1: Measurement of variables

Variable	Levels of Measurement	Type	Units of Measurement
Health Literacy	Ratio	Continuous variable	Index score (Adopted HLS - Q47)
Age	Interval	Continuous variable	Number of years
Sex	Nominal	Dummy variable	1 if male 0 if female
Education	Interval	Continuous variable	Number of years spent schooling
Marital Status	Nominal	Categorical variable	1. Married 2. Single 3. Widow 4. Widowed 5. Other specify
Ability to access health information	Nominal	Dummy variable	0 if not accessed 1 if accessed
School based efforts on promotion of health	Nominal	Dummy variable	1. Existing 2. Non - existent
Pupils' health related knowledge	Ratio	Continuous variable	Index score
Attitudes on health information seeking	Ordinal	Categorical variable	1. Positive 2. Neutral 3. Negative
skills on health information seeking	Ratio	Continuous variable	Index score
Context environment (Institutional)	Nominal	Dummy variable	1. Favourable 2. Unfavourable
Access to health service	Nominal	Dummy variable	1. Accessed 2. Not access
Teachers - students interactions	Interval	Continuous	Index score
Education policy	Nominal	Dummy variable	1. Implemented 2. Not implemented



**SOKOINE UNIVERSITY OF AGRICULTURE**  
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**DEPARTMENT OF POLICY PLANNING AND**  
**MANAGEMENT**

**An Assessment of Health Literacy of Primary School Teachers and Its Influence on  
Pupils' Health Knowledge in Morogoro Municipality, Tanzania**

**Appendix 2: Interview questionnaire for primary school teachers**

**Dear Respondent(s)**

You are invited to participate in this study conducted by MSHINGO, David Mathias, A Master of Arts in Project Management and Evaluation student from the College of Social Sciences and Humanities, Department of Policy Planning and Management at Sokoine University of Agriculture. Currently, I'm conducting a research on an assessment of health literacy of primary school teachers in Morogoro Municipality, Tanzania. I, kindly request your assistance in filling this questionnaire by giving your honest answers. I assure you the information you provide will be confidential and will only be used for preparation of my dissertation in partial fulfillment of Master of Art in Project Management and Evaluation degree. You are free to drop out at any time. Please, if you agree to participate in the study sign the form as evidence.

Date of Interview: .....Year 2021

1. School ..... Ward .....
2. Questionnaire' ID ..... Phone No of the respondent

**PART A: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENT**

Please circle applicable response(s)

1. Respondent's age/year of birth .....
2. Sex of respondent (1) Female (2) Male
3. Respondent's highest level of education (1) Secondary education (2) Certificate in education (3) Diploma in education (4) Degree (5) Master's degree (6) Others specify .....
4. Marital status (1) Married (2) Single (3) Divorced (4) Widow (5) Widowed (6) Separated
5. Position in this school (1) Head of school (2) Assistant head teacher of School (3) Ordinary teacher (4) Academic master (5) others specify .....
6. Duration in this profession: .....Years
7. Specialty in teaching: (major).
  - (i) Mathematics (ii) History (iii) Social sciences (iv) Science and technology (v) English language (vi) Religious and cultural science (vii) Sports or arts.
8. Membership to CHF/NHIF 0. No 1. Yes
9. Membership to any other organisations/societies: 0. No 1. Yes
10. If yes, to Qn. 9, mention the organisations/societies

**PART B: FACTORS INFLUENCING HL AMONGST SCHOOL TEACHERS  
IN MOROGORO MUNICIPALITY**

*B1 Self-reported health behaviors (general health perception, pattern of health service use, medical services preferred) and interest in health subjects.*

11. How would you assess your general health? (i) Very good (ii) Good (iii) Moderate, (iv) Bad (v) Very bad;
12. How often do you go for preventive care regardless of whether you are sick or not?
  - (i) Always (ii) Sometimes (iii) Never.
13. Which medical services do you visit first in case of illness?

(i) Hospital (ii) Pharmacy (iii) Traditional healers

14. Do you smoke cigarette? 0. No 1. Yes

15. Do you have access to the media? 0. No 1. Yes

16. If yes, to Qn. 15, which topics are you interested within the media?

(i). Healthy lifestyle topics in the media (ii) Alternative medicine (iii) Policies of the Ministry of Health (iv) Scientific discoveries (v) Diseases and treatment methods (vi) Medicine and medical products (vii) Health promotion (viii) Diseases prevention (ix) Any others (Specify) .....

17. Which media did you access in the last 3 months? (Multiple responses allowed)

(i) Radio (ii) TV (iii) Newspapers

(iv) Internet (with its associated apps: Instagram, whatsapp)

18. From which of the listed sources have you been obtaining health related knowledge?

(Multiple responses allowed)

(i) Participating in community health programs

(ii) Receiving health-related training

(iii) Frequently visiting a medical doctor (iv) Radio (v) TV (vi) Newspapers

(vii) Friends

## B2 Health promoting school (HPS) and health literacy

	Activity	No	Yes
i	Does your school offer students' awareness during teaching regarding physical activity?		
ii	Does your school offer students' awareness during teaching regarding diet?		
iii	Does your school offer students' awareness during teaching regarding medication?		
iv	Does your school offer students' awareness during teaching regarding dental health?		
v	Does your school offer students' awareness during teaching regarding safety?		
vi	Does your school offer students' awareness during teaching regarding sexuality and affairs?		

19. Have you ever attended to any health literacy related training before?



(1). Yes (2). No [   ]

20. If the answer to Qn. 19 is yes, indicate the focus of the training?

(1) Diseases prevention

(2) Health care

(3) Health promotion [   ]

(4) All of the above

21. If Yes to Qn. 20, who financed the training?

(1) Myself

(2) School management

(3) Sponsors /donors [   ]

(4) Municipal council

22. Explain how teachers are empowered on health literacy?

.....  
 .....

23. Have you ever experienced health-related problems amongst teachers/ pupils at school in the last 3 months?

(1). Yes (2). No [   ]

24. If yes, to Qn. 23, what kind of common health problems have been experienced by pupils?

(i) .....

(ii) .....

25. If yes, to Qn. 24, how those health problems are controlled in the school community by teachers? .....

.....

26. Do teachers support pupils to acquire health knowledge? 0. No 1. Yes [   ]

27. If yes, to Qn. 26, through which ways teachers support pupils to acquire health knowledge ? .....
- .....
28. In your opinions, do you think teachers have enough health knowledge that can develop pupil's health knowledge? (1). Yes (2). No [ ]
29. If yes to Qn. 28, which knowledge do you have which can be imparted to pupils .....
- .....
30. Where or how did you obtain that knowledge?
1. I attended to seminars and workshops
  2. Learnt from college
  3. Peers [ ]
  4. Family members
  5. Media
  6. Church/mosque
31. Have you ever interacted with pupils on health related matters in the past 3 months?
0. No 1. Yes [ ]
32. If yes, to Qn. 31, what were you attempting to address during that respective interaction? .....
- .....
33. Do you think such interactions have been effective enough to enhance pupils' health knowledge? 0. No 1. Yes 2. I don't know [ ]
34. If No, why .....
- .....
35. If yes, how? .....
- .....
36. Are there ways through which teachers – pupils' interaction can influence health knowledge to pupils in schools? 0. No 1. Yes [ ]

37. If yes, to Qn. 36, briefly explain. ....

38. Do you think parents – children interactions can influence pupils' health literacy at home?

1. Yes 0. No. [ ]

(a). If Yes? Explain briefly

.....

(b). If No, how explain

.....

39. What do you think should be done to enhance health knowledge of the pupils at school? Explain .....

40. What are the constraints impeding the promotion of HL amongst teachers in primary schools? .....

41. Based on your experience do you think pupils in your school have sufficient health knowledge? 0. No 1. Yes [ ]

42. If no, to Qn. 41, why is it so? Explain

.....

43. Are there any initiatives at your school to enhance pupils health related knowledge?

0. No 1. Yes [ ]

44. If yes to Qn. 43, what are those initiatives, mention them

.....

45. Do you think there are ways the education level of parents is likely to influence pupils health related knowledge? 0. No 1. Yes [ ]

46. If Yes to Qn. 45, how?

.....

47. Whose responsibility do you think it is on?

(i) Diseases prevention at school

- (a) School management only ( )
- (b) Teachers ( )
- (c) Pupils only ( )
- (d) Teachers and pupils only ( )
- (e) All of the above ( )
- (ii) Health promotion at school
- (f) School management only ( )
- (g) Teachers ( )
- (h) Pupils only ( )
- (i) Teachers and pupils only ( )
- (j) All of the above ( )
- (iii) Health care at school
- (k) School management only ( )
- (l) Teachers ( )
- (m) Pupils only ( )
- (n) Teachers and pupils only ( )
- (o) All of the above ( )
- (iv) Diseases prevention at home ( )
- (a) Parents only ( )
- (b) Teachers and parents ( )
- (c) Pupils only ( )
- (d) Teachers and pupils only ( )
- (e) Childhood friends ( )
- (f) Family ( )
- (g) Church/mosque ( )
- (h) Health services providers ( )

(i) All of the above ( )

(j) None of the above ( )

(v) Health promotion at home

(a) Parents only ( )

(b) Teachers and parents ( )

(c) Pupils only ( )

(d) Teachers and pupils only ( )

(e) Childhood friends ( )

(f) Family ( )

(g) Church/mosque ( )

(h) Health services providers ( )

(i) All of the above ( )

(j) None of the above ( )

(vi) Health care at home

a) Parents only ( )

b) Teachers and parents ( )

c) Pupils only ( )

d) Teachers and pupils only ( )

e) Childhood friends ( )

f) Family ( )

g) Church/mosque ( )

h) Health services providers ( )

i) All of the above ( )

j) None of the above ( )

### B3 Communication with health care providers in past 12 months

	Have you ever communicated with health care providers in past 12 months? 0. No 1. Yes	How often have you been communicating? 1. Everyday 2. Weekly 3. Monthly 4. Once a year 5. Need arises 6. NA	Purpose of communication 1. Attending to medication 2. Information on diseases 3. Screening for diseases 4. Vaccination 5. NA 6. Any other (Specify)	Accomplishment of your purpose 1. Very much 2. Much 3. No idea 4. Not accomplished 5. Not at all accomplished 6. NA
Medical Professionals	<b>0 1</b>	<b>1 2 3 4 5 6 7</b>	<b>1 2 3 4 5 6</b>	<b>1 2 3 4 5 6</b>
Veterinarians	<b>0 1</b>	<b>1 2 3 4 5 6 7</b>	<b>1 2 3 4 5 6</b>	<b>1 2 3 4 5 6</b>

### B4. Interactions between the Medical Personnel/Veterinarians and the school teachers

In the last 12 months did you visit/ were you visited by any of the following?

	Visits 0. No 1. Yes	Purpose of visit 1. Attending to animals 2. Informing us on environmental aspects 3. Following up quarantine issues 4. Medical treatments 5. Other (Specify)	How do you perceive your communication with health care providers? 1=very good, 2=good, 3=no idea, 4=poor, 5=very poor
Medical Personnel	0 1	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>
Veterinarians	0 1	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>
Environmentalist	0 1	<b>1 2 3 4 5</b>	<b>1 2 3 4 5</b>

B.4 School teachers' degree of health concern (personal health, animal health or the environment) for the past 12 months

Health aspects	Did you do/engage 0. No 1. Yes	Degree of Health Concern/extent (1= Very frequent, 2=Frequently, 3=Not at all, 4=Very rare, 5=Rarely)
<b>B4.1 Personal health</b>	<b>0</b>	
B4.1.1 Screening	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.2 Specific disease or medical problem	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.3 Certain medical treatment or procedure	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.4 Exercising	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.5 Obtain information about health, illness,	<b>0 1</b>	<b>1 2 3 4 5</b>

B4.1.6 Obtain information about health promotion	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.7 Obtain information about risks to health	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.8 Visiting a medical personnel	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.9 Diet, nutrition, vitamins, or nutritional supplements	<b>0 1</b>	<b>1 2 3 4 5</b>
B4.1.10 Problems with drugs or alcohol	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2 Animal health</b>	<b>0 1</b>	
<b>B4.2.1</b> Specific disease or medical problem for your animals	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2. 2</b> Certain medical treatment or procedure for your animals	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.3</b> screening	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.4</b> Vaccinations	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.5</b> Obtain information about health, illness,	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.6</b> Obtain information about health promotion	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.7</b> Obtain information about risks to health	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.8</b> Visiting a veterinarian	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.9</b> Diet, nutrition, vitamins, or nutritional supplements for animals	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.2.10</b> Finding information on drugs or medication for your animals	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3 The environment</b>	<b>0 1</b>	
<b>B4.3.1</b> Use of Insecticide-Treated Net (ITN	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.2</b> Indoor Residual Spraying (IRS)	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.3</b> Clear grasses and bushes around the home to prevent malaria	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.4</b> reduction of mosquito breeding grounds	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.5</b> Altering rivers to create more fast flowing water	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.6</b> Installing and maintaining drains	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.7</b> Removing pools of stagnant water	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.8</b> Managing vegetation	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.9</b> Environmental health hazards	<b>0 1</b>	<b>1 2 3 4 5</b>
<b>B4.3.10</b> Obtaining information about environmental quality promotion and risks	<b>0 1</b>	

## B.5 At which frequency and with who do you engage in health-related discussions

<b>B5.1 Health related item discussed</b>	<b>B5.2 Frequency of engagement in discussion</b> 1. Very frequently 2. frequently 3. Not at all 4. Very rare 5. Rarely 6. NA	<b>B5.3 What prompted the discussion</b> 1. Need to know 2. Part of medical treatment 3. Clear worries and doubts on diseases 4. Any other (specify) 5. I had developed symptoms 6. prevent from diseases 7. NA	<b>B5.4 Who discussed with</b> 1. Medical personnel 2. Veterinarian 3. Environmentalist 4. Family members 5. Neighbors 6. Political leaders 7. Religious leaders 8. Traditional healer 9. NA
Fitness	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
symptoms	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Screening	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Diagnosis	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
obtain information about health, illness	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
obtain information about health promotion	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
obtain information about risks to health	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Health care	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Diseases prevention	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Health promotion	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Specific disease or medical problem	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Certain medical treatment or procedure	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Diet, nutrition, vitamins, or nutritional supplements	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Exercise or fitness	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Prescription or over-the-counter drugs	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
A particular doctor or hospital	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Health insurance	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Alternative treatments or medicines	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Depression, anxiety, stress, or mental health issues	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Environmental health hazards	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Experimental treatments or medicines	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Immunizations or vaccinations	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Dental health information	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Medicare or Medicaid	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Sexual health information	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
How to quit smoking	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9
Problems with drugs or alcohol	1 2 3 4 5 6	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9



## D: ACCESS TO GENERAL AND BASIC HEALTH INFORMATION

*D1: Access to General and Basic Health Information for past 12 months (Multiple responses allowed D1.1, D1.2, D1.3, D1.4, D1.7)*

Sources	D1.1 Access to a Source No Yes	D1.2 If yes, items/programs accessed <sup>1</sup> Political and related issues Sports and Entertainment environment health issues academic any other, specify NA	D1.3 If No, why (barriers to seeking information) Expensive to access Not informative No time Not available No reason Don't have a TV Don't have a decoder Expensive to pay for the decoder No interesting programs aired Sources Self-efficacy No Intentions to seek for information No Reasons for seeking information No skills to access (cognitive access) NA	D1.4 Media/Website accessed in the past 1 week	D1.5 How often do you access Daily Weekly Monthly pressing news or information I have money to buy/pay I have time to read/watch/browse NA
N'papers	0 1	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9 10 11 12 13 14		1 2 3 4 5 6 7
TV	0 1	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9 10 11 12 13 14		1 2 3 4 5 6 7
Radio	0 1	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9 10 11 12 13 14		1 2 3 4 5 6 7
Internet	0 1	1 2 3 4 5 6 7	1 2 3 4 5 6 7 8 9 10 11 12 13 14		1 2 3 4 5 6 7

D1.6 Access to health related information in the last 12 month 0. No 1. Yes,	D1.7 If No, why 1. I don't need such information 2. information not available 3. Not comprehensible 4. Sources Self-efficacy 5. No Intentions to seek health information 6. No Reasons for seeking health information 7. Expensive to access 8. Not informative 9. No time 10. Not available 11. Don't have a TV 12. No skills to access (cognitive access) 13. NA	D1.8 Did you access health related information from the internet? 0. No 1. Yes	D1.9 Do you know any website(s) that provide(s) health information in Tanzania? (0=No,1=Yes, 2=NA)	D1.10 If yes, Mention
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<b>0 1</b>	<b>1 2 3 4 5 6 7 8 9 10 11 12 13</b>	<b>0 1</b>	<b>0 1 2</b>	
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Health information searching/seeking (*Multiple responses allowed*)

<b>D1.11 Did you search for health information in the past 3 months?</b> 0. No, 1. yes)  <i>If No, go to D1.22</i>	<b>D1.12 What were you searching for?</b> 1. Fitness 2. symptom (a/h) 3. Screening (a/h) 4. obtain information about health, illness (a/h) 5. Diagnosis (a/h) 6. obtain information about health promotion (a/h) 7. obtain information about risks to health 8. Health care (a/h) 9. Diseases prevention (a/h) 10. Specific disease or medical problem (a/h) 11. Certain medical treatment or procedure (a/h) 12. Diet, nutrition, vitamins, or nutritional supplements (a/h) 13. Prescription or over-the-counter drugs (a/h) 14. A particular doctor/veterinarian or service hospital (a/h) 15. Health insurance 16. Alternative treatments or medicines (a/h) 17. Depression, anxiety, stress, or mental health issues 18. Environmental health hazards 19. Experimental treatments or medicines 20. Immunizations or vaccinations (a/h) 21. Dental health information 22. Medicare or Medicaid 23. Sexual health information 24. How to quit smoking 25. Problems with drugs or alcohol 26. NA	<b>D1.13 Why did you search for that information?</b> 1. Had health problem 2. My animals had health problem 3. Wanted to broaden knowledge on health 4. There was a health risk 5. stressed and uncertain about my health 6. Searching for prescriptions for my patients/client 7. interest in self-health management 8. Any other (specify) 9. NA	<b>D1.14 Did you get what you were searching for?</b> 0. No 1. Yes	<b>D1.15 Why (barriers to seeking health information)</b> 1. Not informative 2. No time 3. Not available 4. No reason 5. Don't have a TV 6. Don't have a decoder 7. No interesting health programs aired 8. Sources Self-efficacy 9. No Intentions to seek health information 10. No Reasons for seeking health information 11. No skills to access (cognitive access) 12. did not know where to get it 13. Expensive to access 14. Any other (specify) 15. NA
<b>0 1</b>	<b>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20</b>	<b>1 2 3 4 5 6 7 8 9</b>	<b>0 1</b>	<b>1 2 3 4 5 6 7 8 9 10 11 12 13</b>

	21 22 23 24 25			
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D1.16 Do you think health and related information were adequately disseminated in the mass media and other sources in the last 3 months? (1=Not adequate at all, 2= Not adequate, 3= No opinion, 4=Adequate, 5= Very adequate)

D1.17 In your opinion, which information do you think were not adequately disseminated? Mention .....

D1.18 From which sources did you access the following Health information in the last 3 months?

CODE	Health Information	Source 1. TV 2. Newspapers 3. Internet 4. Local health personnel 5. Radio 6. Public gatherings 7. Health centres/hospitals 8. Local government authorities 9. Political leaders 10. Social networks
1.	Health care (a/h)	1 2 3 4 5 6 7 8 9 10
2.	Diseases prevention (a/h)	1 2 3 4 5 6 7 8 9 10
3.	Health promotion (a/h)	1 2 3 4 5 6 7 8 9 10
4.	Specific disease or medical problem (a/h)	1 2 3 4 5 6 7 8 9 10
5.	Certain medical treatment or procedure (a/h)	1 2 3 4 5 6 7 8 9 10
6.	Diet, nutrition, vitamins, or nutritional supplements (a/h)	1 2 3 4 5 6 7 8 9 10
7.	Exercise or fitness	1 2 3 4 5 6 7 8 9 10
8.	Prescription or over-the-counter drugs	1 2 3 4 5 6 7 8 9 10
9.	A particular doctor/veterinarian, service or hospital (a/h)	1 2 3 4 5 6 7 8 9 10
10.	Health insurance	1 2 3 4 5 6 7 8 9 10
11.	Alternative treatments or medicines (a/h)	1 2 3 4 5 6 7 8 9 10
12.	Depression, anxiety, stress, or mental health issues	1 2 3 4 5 6 7 8 9 10
13.	Environmental health hazards	1 2 3 4 5 6 7 8 9 10
14.	Experimental treatments or medicines	1 2 3 4 5 6 7 8 9 10
15.	Immunizations or vaccinations (a/h)	1 2 3 4 5 6 7 8 9 10
16.	Dental health information	1 2 3 4 5 6 7 8 9 10
17.	Medicare or Medicaid	1 2 3 4 5 6 7 8 9 10
18.	Sexual health information	1 2 3 4 5 6 7 8 9 10
19.	How to quit smoking	1 2 3 4 5 6 7 8 9 10
20.	Problems with drugs or alcohol	1 2 3 4 5 6 7 8 9 10

**D1.19 Would you kindly rank the following sources of health information, according to your preference for you and your household members? (Circle the applicable)**

<b>D1.19.1 Source of information</b>	<b>D1.19.2 Rank</b> 1. Not preferred at all 2. Not preferred 3. No idea 4. Very much preferred 5. Preferred 6. NA	<b>D1.19.3 Reason for using the source</b>	<b>D1.19.4 Reasons for not using the source</b>
TV	1 2 3 4 5		
Medical personnel	1 2 3 4 5		
Newspaper	1 2 3 4 5		
Radio	1 2 3 4 5		
Internet	1 2 3 4 5		
Public gatherings	1 2 3 4 5		
Health centres/hospitals	1 2 3 4 5		
LGAs	1 2 3 4 5		
Political leaders	1 2 3 4 5		

**D1.20 How do you perceive the costs involved in accessing and how simplified it is for lay person's consumption the following sources of information?**

<b>Source</b>	<b>Perceived costs</b> 1. Very expensive 2. Expensive 3. I have no idea 4. Very cheap 5. Cheap 6. NA	<b>How simplified for lay persons' consumption</b> 1. Not simplified at all 2. Not simplified 3. No opinion 4. Completely Simplified 5. Simplified 6. NA	<b>Perceived Adequacy of dissemination</b> 1. Not adequate at all 2. Not adequate 3. No opinion 4. Adequate 5. Very adequate 6. NA
TV	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Newspapers	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Internet	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Local health personnel	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Radio	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Public gatherings	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Health centres/hospitals	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
LGAs	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Political leaders	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Religious leaders	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

**D1.21 Social network - Please tell me about your social contacts**

	<b>Outside of your own household, is there any one you go to most frequently for advice?</b> 0. No	<b>Relation</b> 1. Relative 2. Friend 3. Village elder 4. Local government official 6. Traditional	<b>Is this person of the same religion as you?</b> 0. No 1. Yes 2. I don't	<b>Does this person belong to the same tribe as you?</b> 0. No	<b>Does this person belong to the same political party as you?</b> 0. No 1. Yes 2. I don't
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	1. Yes	healer 7. Health worker 8. Leader of community group 9. School teacher 10. NA	know 3. NA	1. Yes 2. I don't know 3. NA	know 3. NA
Economic matters	0 1	1 2 3 4 5 6 7 8 9 10	0 1 2 3	0 1 2 3	0 1 2 3
Health matters	0 1	1 2 3 4 5 6 7 8 9 10	0 1 2 3	0 1 2 3	0 1 2 3
Social matters	0 1	1 2 3 4 5 6 7 8 9 10	0 1 2 3	0 1 2 3	0 1 2 3

## **F: Impact of Health Information on Health Care and Health Behaviour, Health Care Seeking and Health Literacy**

*Say to what extent health information you lastly accessed affected the following on 5 point self-reporting scale (Skip this if No to D1.11)*

	<b>Perceived effect of information accessed</b> 1. No impact at all 2. No impact 3. I have no opinion 4. Minor impact 5. Major impact 6. NA
sharing feelings of concern with their veterinarian	1 2 3 4 5 6
Affected a decision about whether to see a veterinarian.	1 2 3 4 5 6
Changed the way they think about feeds for their animals	1 2 3 4 5 6
Lead them to ask a veterinarian new questions or to get a second opinion from another veterinarian	1 2 3 4 5 6
Changed their overall approach to maintaining health or the health of their animals	1 2 3 4 5 6
Affected a decision about how to treat an illness or condition for their animals.	1 2 3 4 5 6
sharing feelings of concern with their doctors	1 2 3 4 5 6
Affected a decision about whether to see a doctor.	1 2 3 4 5 6
Changed the way they cope with a chronic condition or manage pain	1 2 3 4 5 6
Changed the way they think about diet, exercise, or stress management.	1 2 3 4 5 6
Lead them to ask a doctor new questions or to get a second opinion from another doctor.	1 2 3 4 5 6
Changed their overall approach to maintaining health or the health of someone they help take care of	1 2 3 4 5 6

Affected a decision about how to treat an illness or condition.	<b>1 2 3 4 5 6</b>
Your sanitary behaviours	<b>1 2 3 4 5 6</b>
Health information seeking behaviour	<b>1 2 3 4 5 6</b>
Choose of health care services	<b>1 2 3 4 5 6</b>
Immunizations or vaccinations	<b>1 2 3 4 5 6</b>
Screening	<b>1 2 3 4 5 6</b>
Health care	<b>1 2 3 4 5 6</b>
Diseases prevention	<b>1 2 3 4 5 6</b>
Environmental health hazard	<b>1 2 3 4 5 6</b>
Alternative treatments or medicines	<b>1 2 3 4 5 6</b>
Preparation and consumption of livestock products	<b>1 2 3 4 5 6</b>
Use of latrines	<b>1 2 3 4 5 6</b>
Decision on Where to purchase livestock products	<b>1 2 3 4 5 6</b>
How to handle your animals (i.e. where to keep them, washing hands after attending them)	<b>1 2 3 4 5 6</b>
Use of insecticides and Indoor Residual Spraying (IRS)	<b>1 2 3 4 5 6</b>
Removing pools of stagnant water	<b>1 2 3 4 5 6</b>
Use of shared water sources between animals and humans	<b>1 2 3 4 5 6</b>

**H: PRIOR KNOWLEDGE** (Health, Diseases and Environmental Management Practices) .

H1 Mention the causes, symptoms and treatments of the following diseases

<b>H1.1 Diseases</b>	<b>H1.2 Symptoms</b>	<b>H1.3 Causes</b>	<b>H1.4 Treatments</b>
	1. Fever 2. Rash 3. Cough that lasts longer than 3 weeks 4. Coughing up blood 5. Severe headache 6. Nausea 7. Weight loss 8. Fever without clear cause that lasts more than 7 days 9. Chest pain 10. Shortness of breath 11. Ongoing fatigue 12. Do not know	1. Tsetse flies bite 2. Dog bites 3. Mosquitoes bites 4. Drinking raw milk, meat and blood 5. Unsanitary environments 6. Inadequate meat inspection 7. Through handshakes 8. Through the air when a person with TB coughs or sneezes 9. Through sharing dishes 10. Through eating from the same plate 11. Through touching items in public places (doorknobs, handles in transportation, etc.)	1. Traditional healer 2. Vaccination of cattle against diseases 3. Promotion of good husbandry practices 4. Community orientated bio - sanitation 5. Use medicines 6. Drink a lot of water 7. Get a lot of rest 8. Buy medicines from pharmacy 9. Any other (specify)
Malaria	<b>1 2 3 4 5 6 7 8 9 10 11 12</b>	<b>1 2 3 4 5 6 7 8 9 10 11</b>	<b>1 2 3 4 5 6 7 8 9</b>
Diarrhea	<b>1 2 3 4 5 6 7 8 9 10 11 12</b>	<b>1 2 3 4 5 6 7 8 9 10 11</b>	<b>1 2 3 4 5 6 7 8 9</b>

Schistomiasis	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Rabies	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Brucellosis (Human)	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Brucellosis(Animals)	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Tuberculosis	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Worms	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Trypanosomosis,	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Foot and Mouth Disease	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Contagious Bovine Pleuropneumonia (CBPP)	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Severe Acute Respiratory Syndrome (SARS),	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Tick-borne diseases	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Anthrax	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Canine distemper epidemics	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Cryptosporidiosis in animals and humans	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Porcine	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
Bovine cysticercosis	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9
COVID-19	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11	1 2 3 4 5 6 7 8 9

**PART C: SCHOOL BASED EFFORTS TOWARDS PROMOTION OF HL FOR  
PRIMARY SCHOOL TEACHERS IN MOROGORO MUNICIPALITY**

48. Do you think teachers have roles to play on the listed below at school?

- |                          |       |        |
|--------------------------|-------|--------|
| (i) Health care:         | 0. No | 1. yes |
| (ii) Diseases prevention | 0. No | 1. yes |
| (iii) Health promotion   | 0. No | 1. yes |

49. If yes, which roles have you ever played in the last 3 months?

- (i) Health care: .....
- (ii) Diseases prevention: .....
- (iii) Health promotion: .....

50. Is health education provided to pupils in school? Yes/No.

51. How is education provided

- (i) Through A curriculum based teachings
- (ii) Informal through interactions with pupils [    ]
- (iii) When need arises

52. What is your view on the following statements concerning teachers and decision making about health issues of the pupils in your school? (Tick).

No	Statement	Agree	Don't know	Disagree
i	Teachers normally listen to pupils' views and allow them to discuss and make decisions concerning pupils' health care issues			
ii	Decisions are made in the classrooms on a consensus basis			
iii	Teachers are less cautious in making follow up about pupils' health problems			
iv	Teachers have no transparency with respect to pupils' basic health information			
v	Health literacy is seen as one of the most important influence on health care			
vi	Adequate health literacy allows individuals to make decisions and deliberate authorization in relation to health care, disease prevention and health promotion			
vii	Teachers' health literacy is increasingly seen as less important part of school health promotion programmes			
viii	It is desirable that teachers' health literacy levels should be high			
ix	Teachers' roles include teaching students about health information and health-related behaviours as a part of basic education at the primary school levels.			
x	Enhancing health literacy levels of teachers is necessary for Health Promoting Schools.			
xi	Health literacy is understood as a variable construct that is acquired in a life-long learning process, starting in early childhood.			
xii	Professional development opportunities are required to build up the ability of teachers to attain great levels of critical health literacy in themselves and in their learners.			

53. Mention supportive efforts which are made in schools to improve pupils' HL?

.....

.....

.....



54. How often do hospital physicians/workers visit the school to update teachers on health matters? (1) Frequently (2) Occasionally (3) Never [ ]

55. Mention efforts which are made in schools to improve pupils' HL?

.....  
 .....

56. What efforts do you think the government should undertake to improve HL in schools? .....

.....  
 .....

57. Does Tanzania health policy and education policy support primary school teachers to enhance health literacy of the pupils in the community?

(i) If yes how?

.....

(ii). If No, why? Briefly explain

.....

58. If yes, what should be done by the government of Tanzania on health policy and education policy to ensure health literacy is being given much attention in schools

.....

#### **PART D: HL AND PUPILS HEALTH RELATED KNOWLEDGE**

59. Which abilities and knowledge do you think a child or young person should possess for making sound health decisions.

.....

60. Do you think the pupils at schools in this area have those abilities and knowledge?

.....

61. Is it true that limited knowledge of health issues to teachers hinder them from

influencing pupils become health literate? (i) Yes (ii) No.

(a). If yes, what should be done to make teachers become acquainted with health literacy in school.....

(b). If not, why? .....

62. Health Literacy Assessment on human health.

On a scale from very easy to very difficult, how easy would you say it is to: ...

S.	Health Related Tasks	Scale
1.	Find information about symptoms of illnesses that concern you?	1 2 3 4
2.	Find information on treatments of illnesses that concern you?	1 2 3 4
3.	Find out what to do in case of a medical emergency?	1 2 3 4
4.	Find out where to get professional help when you are ill?	1 2 3 4
5.	Understand what your doctor says to you?	1 2 3 4
6.	Understand the leaflets that come with your medicine?	1 2 3 4
7.	Understand what to do in a medical emergency?	1 2 3 4
8.	Understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?	1 2 3 4
9.	Judge how information from your doctor applies to you?	1 2 3 4
10.	Judge the advantages and disadvantages of different treatment options?	1 2 3 4
11.	Judge when you may need to get a second opinion from another doctor?	1 2 3 4
12.	Judge if the information about illness in the media is reliable?	1 2 3 4
13.	Use information the doctor gives you to make decisions about your illness?	1 2 3 4
14.	Follow the instructions on medication?	1 2 3 4
15.	Call an ambulance in an emergency?	1 2 3 4
16.	Follow instructions from your doctor or pharmacist?	1 2 3 4
17.	Find information on how to manage unhealthy behaviour such as smoking, physical inactivity and drinking too much?	1 2 3 4
18.	Find information on how to manage mental health problems like stress or depression?	1 2 3 4
19.	Find information about vaccinations and health screenings that you should have?	1 2 3 4
20.	Find information on how to prevent or manage conditions like being overweight, high blood pressure or high cholesterol?	1 2 3 4
21.	Understand health warnings about behaviour such as smoking, low physical activity and drinking too much?	1 2 3 4
22.	Understand why you need vaccinations?	1 2 3 4

23.	Understand why you need health screenings?	1 2 3 4
24.	Judge how reliable health warnings are, such as smoking, low physical activity and drinking too much?	1 2 3 4
25.	Judge when you need to go to a doctor for a check-up?	1 2 3 4
26.	Judge which vaccinations you may need?	1 2 3 4
27.	Judge which health screenings you should have?	1 2 3 4
28.	Judge if the information on health risks in the media is reliable?	1 2 3 4
29.	Decide if you should have a flu vaccination?	1 2 3 4
30.	Decide how you can protect yourself from illness based on advice from family and friends?	1 2 3 4
31.	Decide how you can protect yourself from illness based on information in the media?	1 2 3 4
32.	Find information on healthy activities such as exercise, healthy food and nutrition?	1 2 3 4
33.	Find out about activities that are good for your mental well-being?	1 2 3 4
34.	Find information on how your neighborhood could be more health-friendly?	1 2 3 4
35.	Find out about political changes that may affect health?	1 2 3 4
36.	Find out about efforts to promote your health at work?	1 2 3 4
37.	Understand advice on health from family members or friends?	1 2 3 4
38.	Understand information on food packaging?	1 2 3 4
39.	Understand information in the media on how to get healthier?	1 2 3 4
40.	Understand information on how to keep your mind healthy?	1 2 3 4
41.	Judge where your life affects your health and well-being?	1 2 3 4
42.	Judge how your housing conditions help you to stay healthy?	1 2 3 4
43.	Judge which everyday behaviour is related to your health?	1 2 3 4
44.	Make decisions to improve your health?	1 2 3 4
45.	Join a sports club or exercise class if you want to?	1 2 3 4
46.	Influence your living conditions that affect your health and wellbeing?	1 2 3 4
47.	Take part in activities that improve health and well-being in your community?	1 2 3 4

**Key:** 1= very difficult, 2= fairly difficult, 3=fairly easy, 4=very easy

**PART E: TEACHERS PERCEPTIONS ON THE ASSOCIATION BETWEEN  
TEACHERS' HL AND PUPILS' HEALTH RELATED KNOWLEDGE**

Indicate your level of agreement with the following statements

No	Statements	1	2	3	4	5
01.	There is no association between HL level of a teacher and pupils' health related knowledge?					
2	It is only the role of the families to impart health related knowledge to students					
3	Health issues are sensitive hence teachers have no role to play to avoid clashes with parents					
4.	It is the responsibility of Socialisation agents to impart health knowledge to pupils					
5	Schools should not be involved in health related knowledge dissemination					
06.	High frequencies of diseases occurrence at school promotes health related knowledge at school					
07.	Low level of HL hinders teachers to impart health related knowledge to pupils in schools					
8.	The level of teachers HL should not necessarily reflect pupils health knowledge					
<b>Total</b>						

**Key: 5 = Strongly agree 4 = Agree 3 = Neutral 2 = Strongly disagree 1 =Disagree**

**PART F: CHALLENGES FACING PRIMARY SCHOOL TEACHERS IN  
ENHANCING HL**

63. Are there challenges in accessing health information? (i) Yes (ii) No.

a) If yes, what challenges have you recently faced?

i) .....

ii) .....

b) How the above mentioned challenges hinder enhancement of pupils' health

literacy in your school .....

64. What do you think is the best way to address challenges facing HL in school context in Tanzania? .....

**THANK YOU FOR YOUR COOPERATION**

**SOKOINE UNIVERSITY OF AGRICULTURE**

**COLLEGE OF SOCIAL SCIENCES AND HUMANITIES (CSSH)**



**DEPARTMENT OF POLICY, PLANNING AND MANAGEMENT**

**An Assessment of Health Literacy of Primary School Teachers and Its Influence on  
Pupils' Health related Knowledge in Morogoro Municipality, Tanzania**

**Appendix 3: Interview questionnaire for pupils**

**Pupils' interview questionnaire**

**Socio-demographic characteristics of the pupils**

1. Pupil's age/year of birth .....
2. Sex of pupil? (i) Female (ii) Male.
3. How many are you in your family (household)?
4. Pupil's parents/guardian education level attained? (i) Primary education (ii) Secondary education (iii) College (iv) University education (iv) Other specify.....
6. Occupation of the parents/ guardians
7. Pupil's highest education in school? (i) Standard V (ii) Standard VI (iii) Standard VII.
8. What is your position in school? (i) Prefect (ii) Head prefect (iii) Normal pupil.
9. Average Academic performance of the respective pupil in the last terms examinations  
(i) A (ii) B (iii) C (iv) D (v) E (vi) F
10. Family type: (i) Female headed family (ii) Male headed family (iii) Both parents (vi)  
Staying with guardians  
3.1 Mother /female guardian

### 3.2 Father /male guardian

11. What do you understand by the term health?

.....

12. How did you get to know about the term health for the first time?

(i) Childhood friends (ii) Parents (iii) Family members (iv) Media (v) Teachers at school

13. Is health education provided to pupils in school? 0. No. 1. Yes

14. If yes, which of the following are means through which health education is provided at your school

- (i) Through class lessons
- (ii) Seminars and workshops
- (iii) Teachers interaction in non-formal situations

15. If Yes? Does health education provided in school is enough to pupils to become health literate.

16. If No? What efforts do you think can be done to make health education provided in schools meet the needs of the pupils.

17. Do your parents/ guardians assist you to understand health education at home? Yes/No.

- (i) If yes, what your parents/guardian teach you about health education?
- (ii) If no, why your parents/guardians do not support you to become health literate at home?

18. What factors do you think contribute to low level of health education to pupils in school?

(i) ..... (ii) .....

(ii) What efforts do you think the government should undertake to improve knowledge in schools? (i) ..... (ii) .....

(iii) What challenges do you face in accessing health education at schools?

(i) ..... (ii) .....

(ii) What strategies, if addressed, can help to solve the challenges you mentioned above? (i) ..... (ii).....

(iii) In order to solve the challenges mentioned above. Do you think, it is important to engage other stakeholders? Yes/No

(iv) If yes who are they, list all of them whom you know

(i) ..... (ii) ..... (iii) .....

(iv) .....

**H: PRIOR KNOWLEDGE** (Health, Diseases and Environmental Management Practices).

Mention diseases occurring in your area plus their causes, symptoms and treatments (Circle the diseases mentioned)

<b>H1.1 Diseases</b>	<b>H1.2 Symptoms</b> 1. Fever 2. Rash 3. Cough that lasts longer than 3 weeks 4. Coughing up blood 5. Severe headache 6. Nausea 7. Weight loss 8. Fever without clear cause that lasts more than 7 days 9. Chest pain 10. Shortness of breath 11. Ongoing fatigue 12. Do not know	<b>H1.3 Causes</b> 1. Tsetse flies bite 2. Dog bites 3. Mosquitoes bites 4. Drinking raw milk, meat and blood 5. Unsanitary environments 6. Inadequate meat inspection 7. Through handshakes 8. Through the air when a person with TB coughs or sneezes 9. Through sharing dishes 10. Through eating from the same plate 11. Through touching items in public places (doorknobs, handles in transportation, etc.)	<b>H1.4 Treatments</b> 1. Traditional healer 2. Vaccination of cattle against diseases 3. Promotion of good husbandry practices 4. Community orientated bio-sanitation 5. Use medicines 6. Drink a lot of water 7. Get a lot of rest 8. Buy medicines from pharmacy 9. Any other (specify)
Malaria	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Diarrhea	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Schistomiasis	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Rabies	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Tuberculosis	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Typhoid	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
Worms	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9
COVID-19	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9 10 11 12	1 2 3 4 5 6 7 8 9



(v) Do you sometimes discuss with parents some issues related to health issues?

0. No 1. Yes

27. If yes, did you had such a discussion in the past 3 months

Who normally initiates such a discussion whenever you had it?

(i) Me (ii) Father (iii) Mother

**THANK YOU FOR YOUR COOPERATION**

#### **Appendix 4: Checklist for the key informants**

Dear respondent,

I am MSHINGO, David Mathias a Master's student from Sokoine University of Agriculture doing Master Degree of Arts in Project Management and Evaluation from College of Social Sciences and Humanities, Department of Policy Planning and Management. Currently, I'm conducting a research on an assessment of health literacy of primary school teachers in Morogoro Municipality, Tanzania. I, kindly request you to respond positively to my questionnaire by giving your view concerning.

I assure you that the information collected in this dialogue will be confidential and used to inform the government to enhance health literacy in school institutions in the country.

1. What do you understand about HL in schools?
2. Which abilities and knowledge do you think a child or young person should possess for making sound health decisions?
3. Do you think the pupils at schools in this area have those abilities and knowledge?
4. How teachers in schools access health information?
5. Why pupils' health related knowledge is important in schools?
6. What efforts should the government adopt to promote health HL in school environment?
7. What factors influencing HL in schools?
8. What challenges encounter teachers in enhancing HL in schools?
9. What ways do you think can help teachers reduce challenges facing in enhancing HL in schools?
10. What measures the government should undertake basing on education policy to ensure that HL is being promoted in schools?
11. What do you think is the best way to address the mentioned challenges towards HL?
12. What are your recommendations on health literacy enhancement in schools?

13. Do you consider the schools In Morogoro Municipality as Health promoting school (HPS)
14. What and when is a school considered as a Health promoting school (HPS).

**THANK YOU FOR YOUR COOPERATION**

### **Appendix 5: Interview guide for FGD**

Dear respondent,

I am MSHINGO, David Mathias a Master's student from Sokoine University of Agriculture doing Master Degree of Arts in Project Management and Evaluation from College of Social Sciences and Humanities, Department of Policy Planning and Management. Currently, I'm conducting a research on an assessment of health literacy of primary school teachers in Morogoro Municipality, Tanzania. I, kindly request you to respond positively to my questionnaire by giving your view concerning.

I assure you that the information collected in this dialogue will be confidential and used to inform the government to enhance health literacy in school institutions in the country.

1. What do you understand about health literacy in school?
2. Why HL is important to both pupils and teachers in school?
3. If HL is important, what efforts do you think teachers should use to influence pupils to become health literate and community as well?
4. Which sources of information are available to teachers?
5. Which challenges do you face to access such health information sources?
6. Are there other ways through which pupils can get health knowledge?
7. What efforts the government should make to enhance HL through teachers in schools?
8. How Tanzania health policy and education policy support primary school teachers to make pupils become health literate?
9. What challenges face teachers in enhancing health literacy in schools?
10. What measures can help teachers reduce challenges facing in promoting HL in schools?
11. Based on education policy of Tanzania, what measures the government should adopt to ensure that HL is promoted in schools?

12. What do you think is the best way to address challenges facing HL in school context in Tanzania?

**THANK YOU FOR YOUR COOPERATION**