

**KNOWLEDGE AND PRACTICES OF HAND WASHING AMONG PRIMARY SCHOOL  
CHILDREN IN KWENENG CENTRAL SUB-DISTRICT, BOTSWANA**

by

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## DECLARATION

I, declare that **KNOWLEDGE AND PRACTICE OF HAND WASHING AMONG PRIMARY SCHOOL CHILDREN IN KWENENG CENTRAL SUB-DISTRICT, BOTSWANA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

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Alakanani Kgosimotho

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Date

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- Above all, I thank the Lord almighty for His sufficient grace and sustenance.

## **DEDICATION**

I dedicate this piece of work to my husband Mopati Kgosimotho and to my two daughters Khanyisile Letia Kgosimotho as well as Sedi Olorato Kgosimotho who granted me unconditional love and support during the two years of my study.

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## DEFINITION OF CONCEPTS

**Child:** A child is defined by the World Health Organization (2013) as any individual who is aged 18 years or less. In this study, a child refers to individuals who are attending primary school in Botswana aged between six and 14 years.

**Hand washing:** Hand washing is the performance of cleaning hands using water only or water and soap or other detergents in order to disinfect (World Health Organization, 2009). In this study, hand washing is defined as the act of cleansing hands using water only or water and soap by primary school children.

**Knowledge:** Knowledge is the expertise, skill or information acquired through instruction and experience (Wiley & Cory, 2013). In this study, knowledge refers to access to information about hand washing by primary school children.

**Practice:** According to the Merriam Webster Dictionary (2016), practice is defined as the actual way of doing something. Practice in this study means the actual process of hand washing by primary school children.

**Primary school:** An institution in which children aged between six and 14 years old receive teaching (Ministry of Health, 2012). In this study primary school refers to an institution offering primary education in Botswana.

**Proper hand washing:** The steps include wetting hands with clean warm or cold running water, lathering hands with soap, scrubbing hands for at least 20 seconds, rinsing hands well with water and drying hands with a clean towel (Center for Disease Control and Prevention, 2018). In this study proper hand washing is when a school child follows all the five steps of hand washing as outlined by Center for Disease Control and Prevention.

## **ABBREVIATIONS**

I.H.S: Institute of Health Sciences

WHO: World Health Organization

## **ABSTRACT**

**Background:** School children are mostly affected by diarrhoeal and respiratory infections and these are related to lack of proper hand washing. For children to be able to practice proper hand washing, they must have the knowledge and necessary resources to practice hand washing. The study's purpose was therefore to establish the knowledge and practice of hand washing among primary school children.

**Purpose:** The study's aim was to assess the knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District.

**Methods:** A quantitative approach using a self-administered structured questionnaire to collect data regarding knowledge and practices on hand washing among primary school children was used. An observation checklist was also used to assess the practice of hand washing among primary school children. A stratified random sampling method was used to come up with a sample size of 330. SPSS 24.0 version was used to analyse the data.

**Results:** The study revealed that the majority of primary school children had knowledge on hand washing but lacked proper hand washing practices. The results also showed that hand washing knowledge and practice among primary school children had no association with their age and gender. However, there was association between washing hands after going to the toilet and gender as well as the availability of bucket/basin to wash hands and gender.

**Conclusion:** Children spend much of their day time at school; therefore schools are the right institutions to impart hand washing information and emphasise the importance of hand washing to the children. The availability of facilities such as clean water and soap are paramount to the facilitation of hand washing among primary school children and as such should be adequately provided in schools.

**Keywords:** Hand washing, knowledge, practice, children, primary school.

# CHAPTER 1

## OVERVIEW OF THE STUDY

### 1.1 INTRODUCTION AND BACKGROUND

According to Oyibo (2012), the hands are the most common route for the transmission of infection because they are usually in direct contact with the mouth, nose and the eyes' conjunctiva. Human beings use hands to do a variety of tasks and this predisposes them to contamination. Children in schools are mostly affected by infections which are mainly caused by improper hand washing (Sarkar, 2013). Using soap in the hand washing process is important because it is a less costly way of eliminating the transmission of bacteria from the hands to the mouth (Biswas, Saboo, Dasgupta, Preeti, Amitavakumar & Das, 2015).

The World Health Organization (2015) indicates that the global burden of disease among children under the age of five emanates mostly from preventable and communicable infections such as diarrhoeal diseases. Diarrhoeal diseases and pneumonia are responsible for 3.5 million child deaths every year (United Nations Children's Fund, 2009). This shows the contribution of diarrhoea to mortality though statistically compounded with other diseases. Assefa and Kumie (2014) affirm that more often schools are implicated in the spread of diarrhoeal infections and the rates are high among primary school children. Vivas, Galaye, Aboset, Kumie, Berhane and Williams (2010) state that children who practice proper hand washing techniques are less likely to have diarrhoeal and respiratory symptoms. Most of the child deaths attributable to diarrhoeal diseases can be prevented as it has been proven that using soap when washing hands can reduce the risk of contracting diarrhoeal diseases by 44% and respiratory infections by 23% (Shereen, Azziz & Abdulla, 2012).

In 2012, diarrhoea caused by inadequate water and sanitation was projected to have resulted in 842, 000 deaths worldwide and 297, 000 of these deaths were attributed to improper hand washing (Pruss-Ustun, Bartram, Clasen, Colford, Cumming, Curtis, Bonjour, Dangour, De France, Fewtrell, Freeman, Gordon, Hunter, Jonhston, Mathers,

Mausezahl, Medicott, Neira, Stocks, Wolf & Cairncross, 2014). Freeman, Stocks, Cumming, Jeandron, Higgins, Wolf, Pruss-Ustun, Bonjour, Hunter, Fewtrell and Curtis (2014) reveal that from 42 studies that were carried out on the prevalence of hand washing, roughly 19% of people worldwide washed their hands with soap after visiting the toilet and with regards to Africa, 13 studies revealed that, the prevalence of hand washing was at 14%. This means that a very small portion of the world's population engaged in hand washing. Taylor, Basco, Zaied and Ward (2010) highlight that despite the proven importance and benefits of washing hands, hand washing is not as prevalent as it is desired in order to prevent the infections among the general population as expected. A survey undertaken in Botswana in 2011 among preschool children, primary school children, preschool and primary school teachers indicated that the number of school children who wash their hands using soap before eating was much lower than that of school children who wash their hands after visiting the toilet (Ministry of Health, 2011). With the limited research in Botswana about hand washing knowledge and practice among primary school children, this study will assess hand washing knowledge and practice among primary school children in the Kweneng Central Sub-District in Botswana.

## **1.2 RESEARCH PROBLEM**

Whilst working as a lecturer at the Institute of Health Sciences (I.H.S) in Botswana in September 2015, the researcher engaged with Diploma in Health Education students on school health practicum in Molepolole, Kweneng Central Sub-District. It was observed that primary schools had stand pipes without running water and other facilities for hand washing such as basins, sinks and soap. The researcher observed that at tea and lunch breaks, the majority of the school children rushed to food serving points in order for them to be first in the queue without washing their hands. After eating, some of the children were observed proceeding to their classrooms without washing their hands. According to Oyibo (2012), hands are a major transmission route for infection because they are usually in direct contact with the mouth, nose and the eyes' conjunctiva. Improper hand washing can result in the transmission of water and sanitation related diseases such as diarrhoea and also the spread of respiratory infections. Therefore, the

researcher found it important to establish the knowledge and practices of hand washing among primary school children in the Kweneng Central Sub-District of Botswana.

### **1.3 AIM OF THE STUDY**

The study's aim was to assess the knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana.

### **1.4 RESEARCH QUESTION**

What are the knowledge and hand washing practices among primary school children in Kweneng central Sub-District, Botswana?

### **1.5 RESEARCH OBJECTIVES**

- To determine the knowledge of hand washing among primary school children in Kweneng Central Sub-District, Botswana.
- To identify the practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana.
- To compare the demographic profile with knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana.
- To assess the availability of hand washing facilities in the school environment in the Kweneng Central Sub-District.

### **1.6 LITERATURE REVIEW**

A literature review is a process of collecting, synthesising and evaluating data that is relevant to the topic of interest or research area. According to Burns and Grove (2009), a literature review is very crucial because it provides background information that helps the researcher to have a thorough understanding of the research topic. It also promotes clarity of the research problem, highlights the significance of the study and specifies the study's objectives and questions. A detailed literature review will be provided in Chapter 2 of this report.

A literature review on the importance, knowledge and practice of hand washing among primary school children was conducted. Knowledge of hand washing is an important aspect that has to be considered among primary school children. A study by Assefa and Kumie (2014) revealed that primary school children in Northern Ethiopia had inadequate knowledge on hand washing. Another study by Gawai, Taware, Chatterjee and Thukar (2016) also revealed inadequate knowledge among primary school children in Mumbai, Maharashtra, India. Primary school children lacked knowledge on hand washing and so they did not practice it properly as indicated by 0.7% that followed all the steps of hand washing.

The practice of hand washing among primary school children was also considered in this study. The literature review intended to establish if the participants practised hand washing. Several studies have been conducted worldwide in primary schools on hand washing and different findings about the practice have been observed. A study conducted in Arba Minch, Ethiopia among primary school children, revealed that 22.2% had proper hand washing techniques (Besha, Guche, Chare, Amare, Kassahun, Kebede, Workineh, Yeheyis, Mulugeta, Alemayehu, & Yesuf, 2016) whereas study by Nazliansyan, Wichaikull and Wetasin (2016) showed poor hand washing techniques among primary school children in Indonesia.

Another area that was looked into was the environment assessment where the focus was on the availability of resources to aid the practice of hand washing among primary school children. The physical environment or the availability of hand washing facilities plays an important role in the practice of hand washing among primary school children as it determines whether the children practice hand washing. Bulled, Poppe, Ramatsitsi, Sitsula, Winegar, Gumbo, Dillingham and Smith (2017) point out that hand washing behaviour is multifaceted, as a result, it can be significantly impacted by the environmental context. Xuan and Hoat (2013) established that school children in ethnically diverse population in Northern rural Vietnam had improper hand washing techniques because they did not have adequate hand washing facilities.



## **1.7 RESEARCH METHODOLOGY**

A quantitative, descriptive and cross-sectional approach was used to assess the knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana. Quantitative research is usually carried out to describe a phenomenon that has a large number of participants and it uses survey methods (Burns & Grove, 2009). In cross-sectional studies, design data is collected on the whole study population at one point (Polit & Beck, 2012). The cross-sectional study design was appropriate for this study because the data was accessed at a single point. Cross-sectional study designs are also cost effective and easy to manage. According to Schmidt and Brown (2009), the purpose of descriptive studies is to depict a situation in a natural setting without manipulation.

The study was conducted in Kweneng Central Sub-District. The district has 19 primary schools and data was collected from 330 primary school children in their natural setting which is their usual schools. There was no manipulation of the situation or modification of the environment in this study. This study was conducted in two phases. The first phase was through an observation study which was conducted to assess the hand washing practice among primary school children. The second phase was a descriptive cross-sectional study design which was applied in order to understand the knowledge and hand washing practices among primary school children in Kweneng Central Sub-District. School children whose parents had consented were given a self administered questionnaire to complete. The questionnaire consisted of closed ended questions which were mostly dichotomous and multiple choice questions. The research methodology will be detailed in Chapter 3.

## **1.8 SIGNIFICANCE OF THE STUDY**

The significance of this research may be to increase the understanding of this phenomenon and contribute to efforts aimed at improving hand hygiene in primary schools and ultimately improve health. The study may serve as a baseline about knowledge and practices of hand washing among primary school children in Botswana. It might also help in shaping the existing policies and government could use the results

to strengthen and improve the available resources and facilities in order to improve the children's health. Finally, it could be used to improve the curriculum, thus allowing for the emphasis on knowledge and hand washing practices.

## **1.9 OUTLINE OF CHAPTERS**

### Chapter 1

This chapter comprises of the study's introduction, background and the research framework.

### Chapter 2

Chapter 2 focuses on the literature review on the knowledge and hand washing practices among primary school children.

### Chapter 3

The chapter covers the research methodology which includes the research design, study site, study population, sampling method, pilot study, inclusion and exclusion criteria, data collection, data analysis, reliability and validity, bias and the ethical considerations.

### Chapter 4

In this chapter, the focus is on the presentation and interpretation of the study's results.

### Chapter 5

The chapter outlines the discussion of the findings, the limitations of the study, conclusion and the recommendations.

## **CONCLUSION**

Chapter 1 provided the introduction and background of the study, the research problem, research aim, research question and the research objectives. It further summarised the literature review, research methodology and the significance of the study. Chapter 2 will discuss literature review in detail.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

A literature review is a process of collecting, synthesising and evaluating data that is relevant to the topic of interest or research area. According to Joubert and Ehrlich (2014), a literature review is a process whereby the researcher takes stock of available knowledge in order to make informed decisions about policy, research direction and research allocation. This chapter provides an overview of knowledge and hand washing practices among primary school children. The literature review was carried out using a varied selection of sources which included proquest, ebscohost, open access databases and direct internet searches. The reviewed literature looked at the hand washing benefits at events especially before eating and after using the toilet. The objective was to determine if the participants in previous studies had adequate knowledge about hand washing. The hand washing practice among primary school children was also considered in this study and it was used to establish if the participants practiced hand washing. Another area that was looked into was the environment assessment where the focus was on the availability of resources to aid the practice of hand washing among primary school children.

#### **2.2 IMPORTANCE OF HAND WASHING**

It has been established that hands are the single most important route of infection transmission since they are usually in direct contact with the mouth, nose and the eyes (Oyibo, 2012). Burton, Cobb, Donachie, Judah, Curtis and Schmidt (2011) conducted a study to determine the effect of hand washing using water and soap on the bacterial contamination of hands. It was found that the presence of bacteria was reduced to 23% among those who washed hands using water only. Among those who washed their hands using water and soap, the bacterial presence was reduced to 8%. Therefore, it was concluded that washing hands using water and soap is a less costly way of eliminating the transmission of bacteria from the hands to the mouth and it also reduces morbidity and mortality related to communicable diseases (Oyibo, 2012).

Respiratory and diarrhoeal diseases are the second leading causes of death among children aged between 5-14 years globally (Lopez-Quintero et.al, 2009). Mbakaya, Lee and Lee (2017) affirm that diarrhoea has been identified as the second most common cause of mortality among school children in Sub Saharan Africa. Therefore, proper hand washing practice is a prerequisite for the prevention of infectious diseases such as diarrhoea. The prevention of diarrhoeal diseases through proper hand washing does not only result in a decrease in morbidity and mortality rates but it also reduces school absenteeism among school children. Furthermore, proper hand washing can result in improved performance of children in school (Mbakaya, Lee & Lee, 2017). Proper hand washing reduces absenteeism in schools hence improves education results.

Children are more vulnerable because their immune systems are not fully developed, thus they are less able to fight infections compared to adults (Lee, Leung, Tong, Chen & Lee, 2015). The school environment puts children in a vulnerable position as there is close contact and overcrowding which results in the spread of disease causing micro-organisms (Ministry of Health, 2011). The schools should be the right place to equip school children with hand washing knowledge. Hand washing should be facilitated by the provision of safe water and proper hand washing techniques. The technique includes wetting hands with water, lathering hands with soap, scrubbing hands at least 20 seconds, rinsing hands with clean water and drying hands with a clean towel (Centre for Disease Control, 2018). According to Tetteh-Quarcoo et.al (2016), children in schools are mostly affected by infections that are mainly caused by unsafe water supplies, poor sanitation and poor hygiene (Sarkar, 2013).

It is important to establish a strong foundation of personal health maintenance and develop positive values at childhood to ensure that children grow up to be responsible and healthy adults. This can be achieved through imparting knowledge on hand washing to children at an early stage. Maintenance of personal hygiene in children is critical for improving the quality of life and prolonging life (Sarkar, 2013). It is therefore important to focus this study on the knowledge and hand washing practices among children so that programmes that build lifelong habits in children can be developed.

## **2.3 KNOWLEDGE OF HAND WASHING**

A study by Dajaan, Addo, Ojo, Amegah, Loveland, Bechala and Benjamin (2018) revealed that 100% of primary school children in Kitampo Municipality, Ghana had adequate knowledge about hand washing and its importance. Majority (53.3%) of these school children reported that they had never been educated about hand washing. The study further revealed that only 32% washed their hands with soap after visiting the toilet and before eating. Therefore, though primary school children had adequate knowledge on the importance of hand washing, they did not practice proper hand washing techniques. A similar study was conducted by Shereen, Aziz and Abdulla (2012) and it showed that though 80% of the participants had adequate knowledge on the importance of hand washing, only 20% reported that they washed their hands prior to eating, whilst 55% washed after eating, 60% washed hands after visiting the toilet. In another study carried out in Kenya, hand washing knowledge was high but only 1% of the participants washed their hands with soap and water and 28% reported to wash their hands with water (Republic of Kenya, UNICEF & Water Sanitation Program, 2009).

## **2.4 HAND WASHING PRACTICES**

Several studies have been conducted worldwide in primary schools on hand washing and different findings about the practice have been observed. Several studies have confirmed that proper hand washing with soap and water reduces diarrhoea incidences by 42% – 48%, the prevalence of upper respiratory by 24% and dermatological infections by between 23% - 43% (Lopez–Quintero, Freeman & Neumark, 2009). According to Steiner-Asiedu et.al (2011), proper hand washing includes wetting hands thoroughly, lathering the hands with soap to remove dirt after which the hands are scrubbed for at least 20 seconds. Then scrubbing hands, rinsing hands with clean water and drying hands with a clean towel.

In the study by Beshu, Guche, Chare, Amare, Kassahun, et al (2016), of the 350 study participants, 79.4% washed their hands using soap and water after visiting the toilet whilst 79.1% of them washed their hands with soap and water before having their meals. Though the majority of these children appeared to wash their hands with soap

and water after visiting the toilet and before eating and, only 22.3% of them practised proper hand washing practice. In another study by Oyibo (2012), school children had adequate knowledge on hand washing yet they did not practice proper hand washing. The knowledge score was 74.1% whereas the practices score was 54.9%. In a study by Vivas and Galeye (2010) conducted in Angolela, Ethiopia, 99% of the study participants reported that they washed their hands before eating their meals, the day prior to the interviews and 46% reported to have washed their hands before and after their meals. Only 15% of the participants washed their hands after visiting the toilet.

Steiner-Asiedu et.al (2011) used a questionnaire to assess the hand washing practices of school children before eating and after visiting the toilet. The study revealed that most (88.3%) school children practised hand washing with soap after visiting the toilet at school and the same trends were observed for washing hands with water only and washing hands with soap and water before eating. All these studies confirm that there is a mismatch between knowledge and practice as school children have adequate hand washing knowledge and improper hand washing practice. In this study, the researcher intends to determine the hand washing practices of the Kweneng Central Sub-District primary school children.

## **2.5 ENVIRONMENTAL ASSESSMENT FOR HAND WASHING**

The physical environment or the availability of hand washing facilities play an important role in the hand washing practice among primary school children as they determine whether the school children practice hand washing. Xuan and Hoat (2013) compare the school's physical environment with the home environment and conclude that the school environment is poor because from the six schools that they examined, four schools did not have hand washing stations or if they did, the stations were not functional whereas, in the two schools with the stations, only one had water supply. This, therefore, made it impossible for school children to practice proper hand washing. In another study conducted amongst children attending public primary schools in Malawi, the researchers gathered from the school children and teachers that the poor sanitation and hygiene practices were not only associated with the availability of the hand washing

facilities but also with how those facilities were designed and where they were placed. The researchers observed that a large water tank that required to be filled up independently was located 91 meters away from the toilet and therefore concluded that the facility was less likely to be used compared to a simple device outside the toilet (Grimason, Masangwi, Morse, Jabu, Beattie, Taulo & Lungu, 2013).

With regards to the availability of soap, a study carried out by Steiner-Asiedu et.al (2011) assessed eight schools and found that only one private school had a tap that had a soapy solution but had no source of clean running water for the children to rinse their hands. Therefore, the availability of the soapy solution was not of benefit to the school children because for the hand washing process to be complete, after the use of soap the school children have to rinse their hands. The Ministry of Health (2011) conducted almost a similar study on school sanitation and hand washing in Botswana and found out that there was a shortage of hand washing facilities. The study was also carried out in the four districts of Botswana which did not include Kweneng Central Sub District. However the availability of sanitation may be different across the country and the results may not be generalised to the whole country. The researcher aims to determine the environmental factors that facilitate or impede the primary school children from practising hand washing in the Kweneng Central Sub-District.

## **CONCLUSION**

The literature review showed that the primary school children did not wash their hands at critical times such as before eating, after eating and after using the toilet. Children also lacked proper hand washing skills. For school children to effectively practice proper hand washing, they have to be provided with the essentials and adequate hand washing facilities. The literature review showed that the majority of the schools in the previous studies did not have adequate hand washing facilities such as soap, water and hand washing stations. The review further furnished the researcher with information on the diverse methodologies used to research the topic. The research methodology used in the current study will be explained in Chapter 3.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

Chapter 2 discussed literature on knowledge and hand washing practices among primary school children. Chapter 3 will focus on the research methodology which includes the research design, study site, study population, sampling method, pilot study, inclusion and exclusion criteria and ethical considerations. The chapter further discusses the data collection method, data analysis, reliability and validity and bias

#### **3.2 RESEARCH DESIGN**

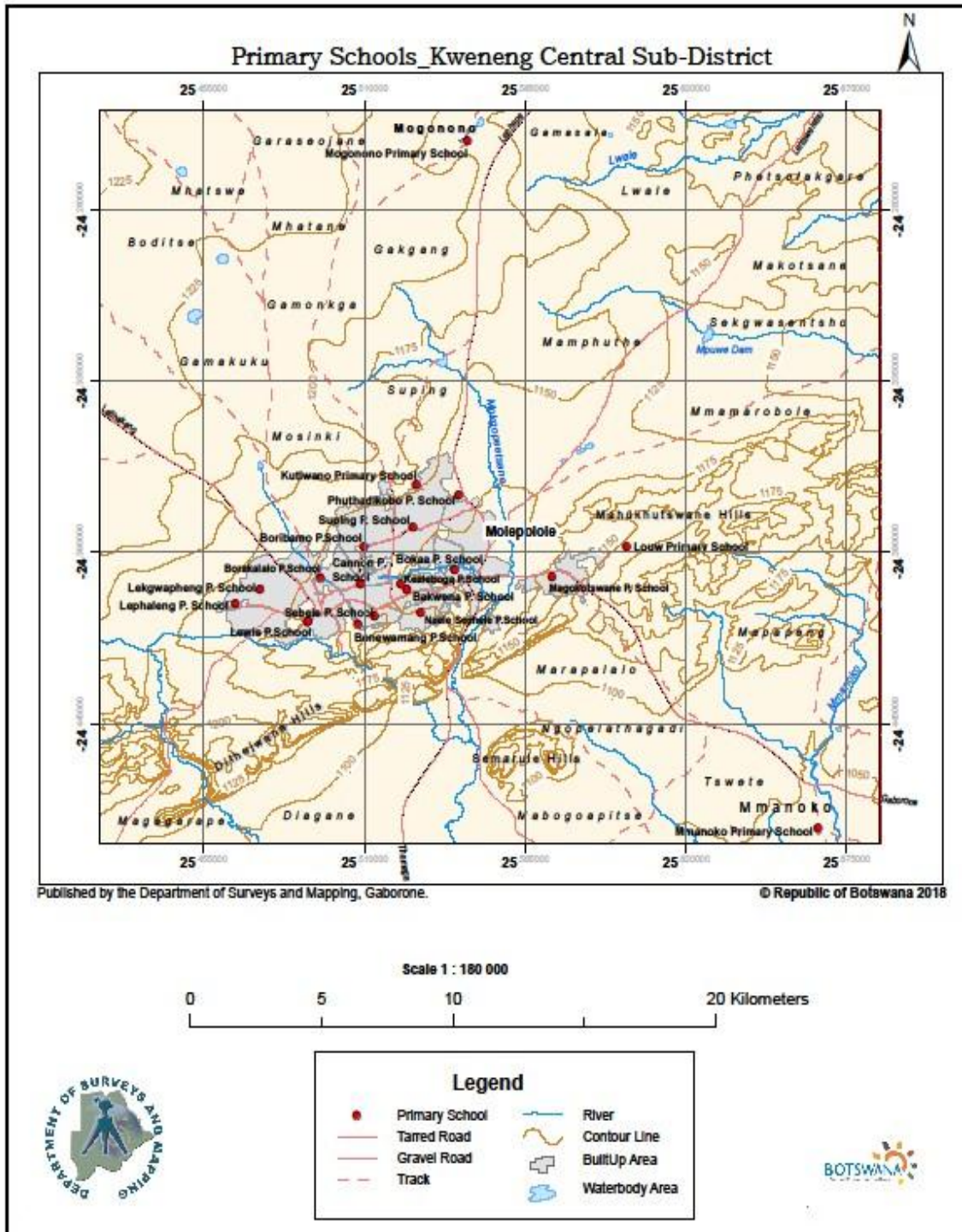
A quantitative, descriptive and cross-sectional approach was used to assess the knowledge and hand washing practices among primary school children in Kweneng Central Sub-District, Botswana. Quantitative research is usually carried out to describe a phenomenon that has large numbers of participants and it is done through the use of survey methods (Burns & Grove, 2009). A cross-sectional study design was applied in this study. In the cross-sectional study design, data is collected on the whole study population at one point (Polit & Beck, 2012). According to Schmidt and Brown (2009), the purpose of descriptive studies is to depict a situation in a natural setting without manipulation. Therefore, data was collected from a large number of primary school children in their natural school setting. There was no manipulation of the situation or modification of the environment in this study.

This study was conducted in two phases. The first phase was through an observation study which was conducted to assess the hand washing practice among primary school children. The second phase was through a descriptive cross-sectional study design in order to understand the knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District.



### **3.3 STUDY SITE**

Kweneng District is located in the south eastern part of Botswana and it is a rural area. The district has four sub districts which are Kweneng South East, Kweneng West, Kweneng North and Kweneng Central. The study was conducted in Kweneng Central Sub District (See Figure 1). The Sub district has 19 public primary schools which are about three to four kilometres apart. The primary schools have Grades 1 to 7 of one class or more and there are 40 school children or more per class. Only one primary school has 17 school children in grade 7. The Grade 1s are usually around six years of age and at Grade 7, they will be aged 12 to 14years. The reading proficiency of Grade 7 children enables them to complete the questionnaire with ease and within the time allowed, therefore, the Grade 7 children in the Kweneng Central Sub-District public primary schools were invited to participate in the study.



Source: Central Statistics office, Botswana

Figure 1: Kweneng Central Sub-District Map showing the 19 primary schools

### 3.4 STUDY POPULATION

The study population was public primary school children in Grade 7 in the Kweneng Central Sub-District, Botswana. The majority of the schools have one to three Grade 7 classes of 40 children or more in each class and only one primary school has 17 children in class. The sub district has 19 schools with 1 746 Grade 7 school children (Ministry of Basic Education, 2017).

#### *Sampling*

The Slovin's formula was used to determine the required sample size at 95% confidence interval and 5% sampling error. A sample size of n=330 was calculated using Slovin's formula, with population sizes (N=1746) of school children in Kweneng Central Sub-District, there was a sampling error of 5%.

$$n = \frac{N}{1 + N(e)^2}$$

Where

n denotes the sample size

N denotes the population sizes (N=1746) of school children in the selected district  
e sampling error = 5%.

A stratified random sampling method was used to select the study participants. A stratified random sampling method is a technique in which the population is divided into small groups (Burns & Grove (2009). The technique was employed to ensure a fairly equal representation of the study variables. In this study, the 19 schools in the Kweneng Central Sub-District are strata and random samples were selected from each stratum (See Table 1). All the Grade 7 school children were given information letters and consent forms for their parents to sign. The number of parents who returned the consent forms granting permission for their children to participate in the study was 1 001. Thereafter, 331 school children were selected from those whose parents had allowed to participate in the study.

A lottery method was used to select the school children until the sample size was reached. The names of the school children who were granted permission by their parents to participate in the study were hand-written on papers. The names were then placed in a cup and mixed thoroughly. A school child who was not participating in the study was requested to handpick the required number in each school. The child was blinded folded before the selection of the sample size. For the observation study, one school child was observed in each school (n=19). The hand washing practice of school children in all the 19 schools were observed using a structured non-participant observation method between 10H00 and 10H30. The practices of school children were observed before eating. In a structured non-participant observation, the observer observes the events without interacting with the participants and also uses a checklist to observe and record the events (McKenzie, Neiger & Thackeray, 2017). An arrangement was made with teachers to release grade 7 first to go for their meals and the researcher waited at the hand washing point. The first grade 7 child to appear at the hand washing point was observed.

**Table 1: Selected schools in Kweneng Central Sub-District**

NAME OF SCHOOL	TOTAL NUMBER OF SCHOOL CHILDREN	% OF TOTAL SCHOOL CHILDREN	SAMPLE SIZE
Bakwena School	85	5	16
Bokaa	130	7	23
Bonewamang	49	3	10
Borakalalo	99	6	20
Boribamo	119	7	23
Canon Gordon	106	6	20
Kealeboga	51	3	10
Kutlwano	106	6	20
Lekgwapheng	106	6	20
Lephaleng	127	7	23
Lewis Memorial	130	7	23
Magokotswane	116	7	23
Mmanoko	43	3	10
Mogonono	17	1	3
Louw	43	3	10
Neale Sechele	87	5	16
Phuthadikobo	124	7	23
Sebele	118	7	23
Suping	90	5	17
TOTAL	1746	100	331

### 3.5 PILOT STUDY

The questionnaire was pilot tested in Solomon Dihutso Primary School in Kweneng South East Sub-District. The required sample size was 10%, thus 33 school children were used for the pilot study. The Kweneng South East Sub-District was appropriate to be used for the pilot study since the group has similar characteristics to the Kweneng Central Sub-District. According to LoBiondo-Wood and Haber (2010), a pilot-testing is a small scale study conducted as a prelude to a larger scale study using a sample of the population. The researcher pilot tested the questionnaire for its applicability and suitability to the school children in Kweneng District in terms of the duration, language appropriateness and questionnaire comprehensibility (Lopez-Quintero, Freeman &

Neumark, 2009). Minor corrections were made on the questionnaire to improve the comprehensibility of the questions.

### **3.6 INCLUSION AND EXCLUSION CRITERIA**

#### **3.6.1 Inclusion criteria**

The study included all primary school children in Grade 7, who had been given permission by their parents to participate.

#### **3.6.2 Exclusion criteria**

All primary school children in Grade 7 who had not been given permission by their parents to participate were excluded.

### **3.7 DATA COLLECTION**

An observation checklist (See Annexure 1) adapted from Cevizci, Uludag, Topaloglu, Babaoglu, Celik and Bakar (2015) was used to assess the hand washing practice among primary school children. An observation checklist (See Annexure 1) was used to record types of hand washing facilities, the method used for hand washing and time taken by the school children to wash their hands. Hand washing practice of school children in all the 19 schools were observed using the non-participatory observation method. A self-administered structured questionnaire (See Annexure 2a) was used to collect data regarding the knowledge and practices on hand washing among primary school children. According to LoBiondo-Wood and Haber (2010), questionnaires are instruments used to gather self-report data. The questionnaire had four sections namely, biographical information, knowledge of hand washing, hand washing practice and environmental assessment. The questionnaire consisted of closed ended questions which were mostly dichotomous and multiple choice questions. Joubert and Ehrlich (2014) indicated that in self-administered questionnaires, the respondents read and complete the questionnaire by themselves and the data collector may have to stand by in case there are any problems. The researcher explained the questionnaires and gave the participants clear instructions on how to complete them. The researcher was also

available to assist the school children in case there was a need for clarity. The school children took approximately 30 to 40 minutes to complete the questionnaire. The data collection process took 20 working days to complete.

Various studies have been carried out on the knowledge and practice of hand washing among primary school children, therefore the researcher adapted and modified a questionnaire that was used in Botswana by the Ministry of Health (2011). The questionnaire was translated to Setswana (See Annexure 2b) and pretested for its applicability to the children in the Kweneng South East Sub District. Questionnaires are appropriate for this study because they are less expensive and can involve a large number of samples (LoBiondo-Wood & Haber, 2010). Furthermore, they save time and allow confidentiality and anonymity as school children did not have to write their names and as such the information could not in any way be linked to any particular individual.

### **3.8 DATA ANALYSIS**

According to Burns and Grove (2009), data analysis is the process of reducing and organising data in such a way that it will have meaning and answer the research question. The Statistical Package for Social Sciences (SPSS) Version 23 was used to analyse data with the help of the Biostatistician. The descriptive statistical analysis was used to analyse the frequencies and means. A p-value was used to analyse the association with the significance level at 0.05. The p-value less than 0.05 were considered as significant association.

### **3.9 RELIABILITY AND VALIDITY**

#### **3.9.1 Reliability**

Reliability is the extent of consistency with which the tool measures the attributes which it is intended to measure (Moule & Goodman, 2014). The reliability of the questionnaire and observation checklist was ensured by pretesting the questionnaire in another primary school (Solomon Dihutso Primary School in Kweneng South East Sub District). The questionnaire was tested on 10% of the sample size, which was 33 school children

whereas the checklist was also tested on 2 school children in Solomon Dihutso Primary School. Corrections were made on the questionnaire and the observation checklist based on the results of the pilot study. The layout of the item for level of education on the questionnaire was changed from a table to a checklist. Under environmental assessment, availability of soap and water was one item before, then it was split into two items. The hand washing steps on the initial observation checklist were not chronological and were later written chronologically after the pilot study

### **3.9.2 Validity**

Validity is the extent to which an instrument measures what it is intended to measure (Burns & Grove, 2013).

### **3.9.3 Content validity**

Content validity is the study's ability to measure and collect data about the phenomenon under study (Moule & Goodman, 2104). The data collection tools were submitted to the supervisors for expert review. This was to ascertain that the questionnaire content covered all the areas.

### **3.9.4 Face validity**

Face validity is whereby the measuring instrument appears to be valid or as though it is measuring what it is intended to measure (Polit & Beck, 2012). To address validity, the questionnaire and observation checklist were submitted to the supervisors on numerous occasions for expert review. The purpose of submitting the questionnaire and observation checklist to the experts was to ensure that the data collection tools are relevant and adequately address all the areas stated in the study objectives.

### **3.10 BIAS**

Bias is any action that elicits some misrepresentation in the results of the study and undermines validity (Burns & Grove, 2013). Sampling bias is a distortion which occurs when a sample is not representative of the population from which it is drawn (Polit &



Beck, 2012). To prevent sampling bias in this study, the researcher used the stratified random sampling technique which gave all the schools and school children an equal chance of participating in the study. The 19 schools in the Kweneng Central Sub District were strata and random samples were selected from each stratum.

### **3.11 ETHICAL CONSIDERATIONS**

Polit and Beck (2012) suggested that where human beings are used as study participants, the researcher should be alert to ensure that the rights of the participants are not violated. Therefore, ethical considerations are meant to safeguard the participants' welfare or protect them from any form of harm which might occur as a result of their participation in the study (Joubert & Ehrlich, 2014). The ethical issues that were considered in this study include ethical clearance, protecting anonymity and confidentiality, protecting the rights of participants, minimising potential risks of harm and providing the right to withdraw.

#### **3.11.1 Ethical clearance**

The ethical clearance certificate (see Annexure 3) was obtained from Turfloop Research and Ethics Committee (TREC). After obtaining clearance from TREC, permission to conduct the study was requested from the Ministry of Health and Wellness– Health Research and Development Unit (See Annexure 4 and 5). Thereafter, permission was requested from the Department of Education and Research Planning in the Ministry of Basic Education (See Annexure 6 and 7) and the Kweneng Regional office (See 8 and 9).

#### **3.11.2 Protecting anonymity**

Anonymity of the study participants was maintained by omitting the names of the respondents from the questionnaires. The respondents' identity and information remained confidential and could not be linked with their individual responses.

### **3.11.3 Protecting confidentiality**

The information of the study participants was kept confidential and not accessed by anyone who is not part of the study.

### **3.11.4 Protecting right of participants**

LoBiondo-Wood and Haber (2010) suggest that researchers should explain ethical and legal issues in the study prior to, during and after the research. In this study, the purpose, objectives and the benefits of the research project were fully explained to the parents in writing and school children verbally and in the form of study information letter (See annexure 10a) so that they knowingly consent or agree to participate. The study information letter was translated to Setswana (See annexure 10b). After obtaining permission to conduct the study from the Ministry of Basic Education, the researcher requested for consent from the parents (See annexure 11a) and also asked the school children to assent prior to completing the questionnaire (See annexure 12a). According to the Ministry of Health (2011), when children are involved in research, they should be requested to assent and their parents or guardians should provide consent. This is because children are thought to not have reached their full intellectual and emotional capabilities and therefore according to the law, they are not capable of giving valid consent.

### **3.11.5 Minimising potential risks to harm**

According to Polit and Beck (2012), the discomfort or harm in a study can be physical, psychological, social or economic in nature. There is no harm for participating in this study.

### **3.11.6 Providing the right to withdraw**

Burns and Grove (2009) defined informed consent as the situation where participants have enough information about, understand the study and are in a position to voluntarily participate or decline participation. Children were requested to assent. The assent was translated to Setswana. However, the participants were also informed of the liberty to

withdraw their participation at any given stage of the research process without any form of punishment.

## **CONCLUSION**

This chapter detailed the research methodology used for the study on the knowledge and practice of hand washing among primary school children in the Kweneng Central Sub-District of Botswana. The sampling method, pilot study, inclusion and exclusion criteria, data collection procedure and data analysis methods were explained. The measures put in place to ensure reliability and validity and ethical considerations were discussed. The next chapter presents the results.

## **CHAPTER 4**

### **PRESENTATION AND INTERPRETATION OF THE RESULTS**

#### **4.1 INTRODUCTION**

The previous chapter discussed the research methodology which encompasses the research design, study site, study population, sampling method, inclusion and exclusion criteria, data collection method, data analysis, reliability and validity and the ethical considerations. This chapter presents the results from the 331 primary school children in the Kweneng Central-Sub District. The SPSS Version 24 was used to analyse data with the help of the statistician. The descriptive statistical analysis was used to analyse frequencies, percentages and means in tables, graphs and charts. A p-value was used to analyse the association with the significance level at 0.05. The chapter comprises of the following sections: Demographic characteristics of primary school children, knowledge and practices of hand washing among primary school children, assessment of the school environment for the availability of hand washing facilities, the association between knowledge and practice with gender and age and observation of hand washing among primary schools.

#### **4.2 Demographic characteristics**

A total of 331 school children participated in this study. The mean age of the participants was  $11 \pm 1.0$  years range 7 to 14 years. The majority (54%) were in the 11 years age group (Figure 1).

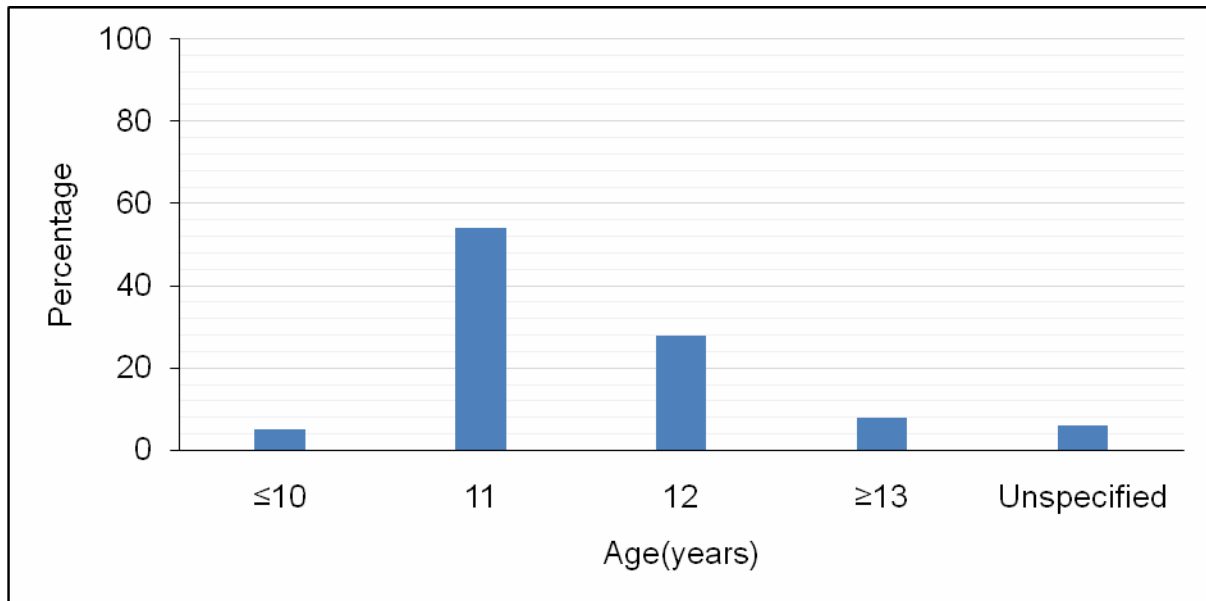


Figure 2: Age distribution

The gender distribution of the respondents is shown in Figure 2. More than half (56%) of the respondents were females and (41%) were males. Three percent (3%) of the school children did not indicate their gender.

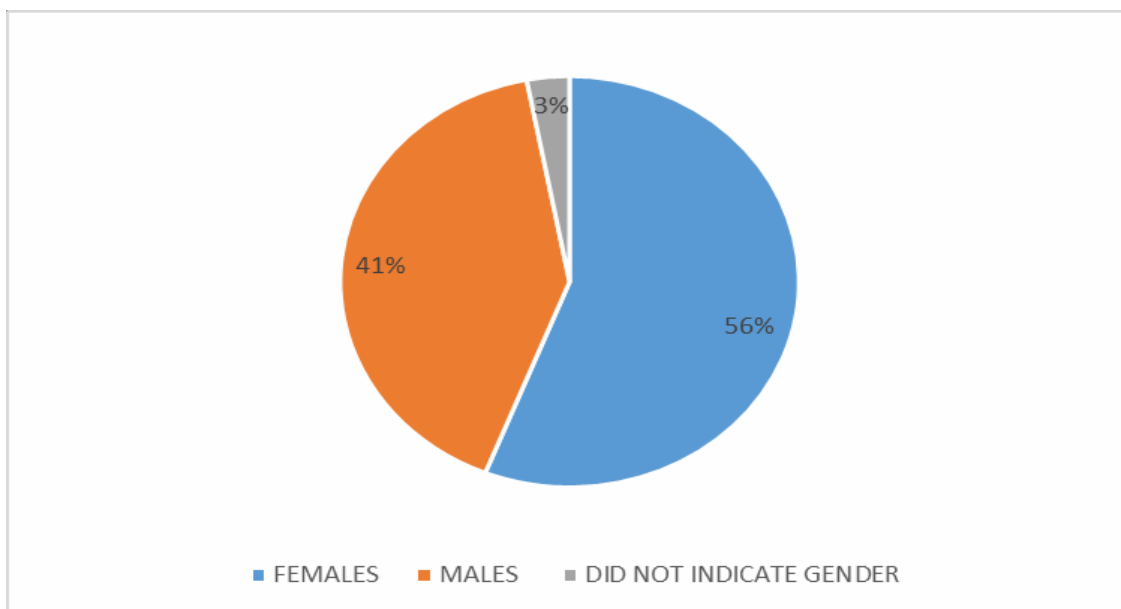


Figure 3: Gender distribution

Eighty three percent (83%) of the respondents said they have siblings. Of these, 32% and 29% had one and two siblings, respectively (Figure 3).

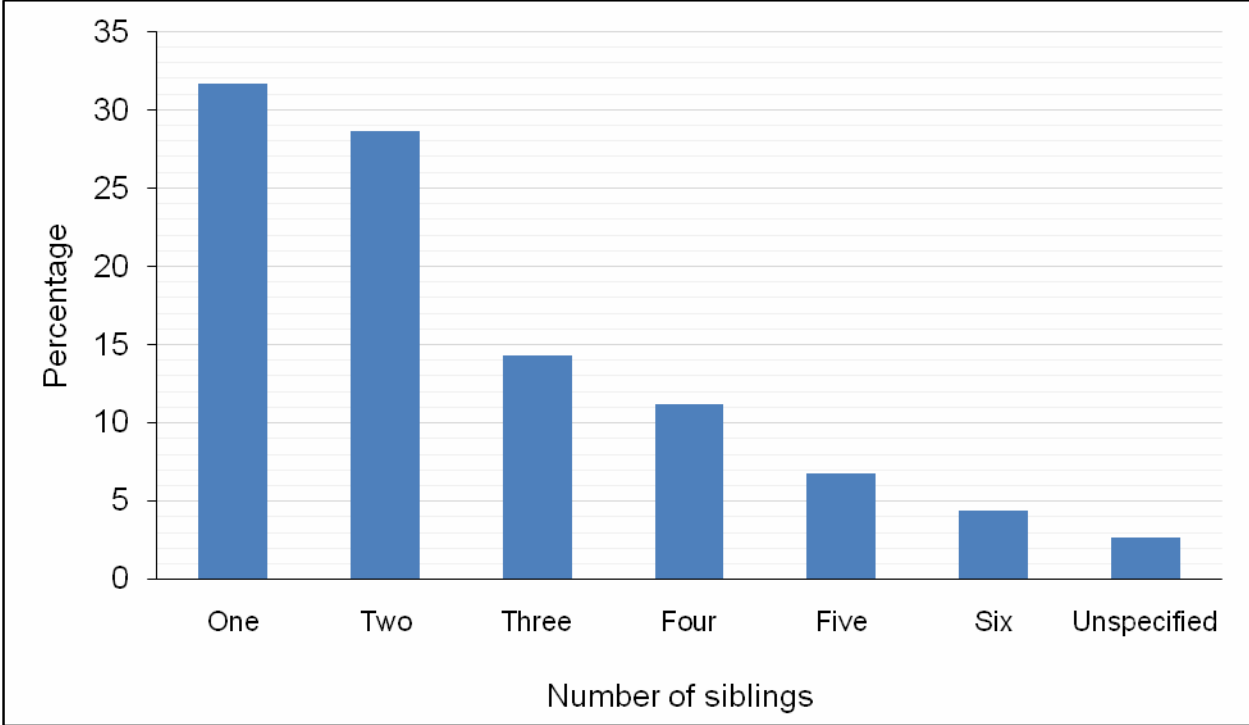


Figure 4: Number of siblings

The demographic characteristics of the parent are shown in Table 2. A greater proportion of the children stay with their mothers (40%) and this was followed by those who stay with both parents (38%). Slightly more than half (53%) of the mother and/or father of the children is employed. Most (49%) of the mothers had secondary education, while some fathers had tertiary education (31%).

**Table 2: Demographic profile of parent**

	No	%
Stay with		
Mother	132	39.8
Father	15	4.5
Both	126	38.0
Other	58	17.5
Mother employment status		
Employed	175	52.8
Unemployed	141	42.5
Don't know	15	4.5
Father employment status		
Employed	175	52.8
Unemployed	82	24.7
Don't know	74	22.4
Mother level of education		
None	15	4.5
Primary	32	9.6
Secondary	161	48.6
Tertiary	91	27.5
Don't know	32	9.6
Father level of education		
None	28	8.4
Primary	29	8.7
Secondary	89	26.8
Tertiary	104	31.4
Don't know	81	24.4

### 4.3 Knowledge of hand washing among primary school children

The majority which was 91% (301) of the respondents indicated that they are taught about hand washing at school. Eighty three percent (293) said they have had information about hand washing steps. Some school children reported to have had information about hand washing from more than one source of information. Of the school children with knowledge of hand washing steps, 69% (201) got the information from their parents, 42% (122) from the teachers and 35% (103) from health workers. There were a few school children who got information from the radio and these were 19% (55), friends 9% (27) and 8% (23) got the information from the newspaper (See Table 3).

**Table 3: Source of information about hand washing, n=293**

	No	%
Parent	201	69
Friend	27	9
Teacher	122	42
Radio	55	19
Newspaper	23	8
Healthcare Worker	103	35

#### 4.4 Practices of hand washing among primary school children

Most (61%) of the children said they sometimes wash their hands after visiting the toilet at school (Figure 4). Slightly more than half (53%) indicated that they sometimes wash their hands with water only before eating at school, and 59% sometimes washed their hands with soap and water.

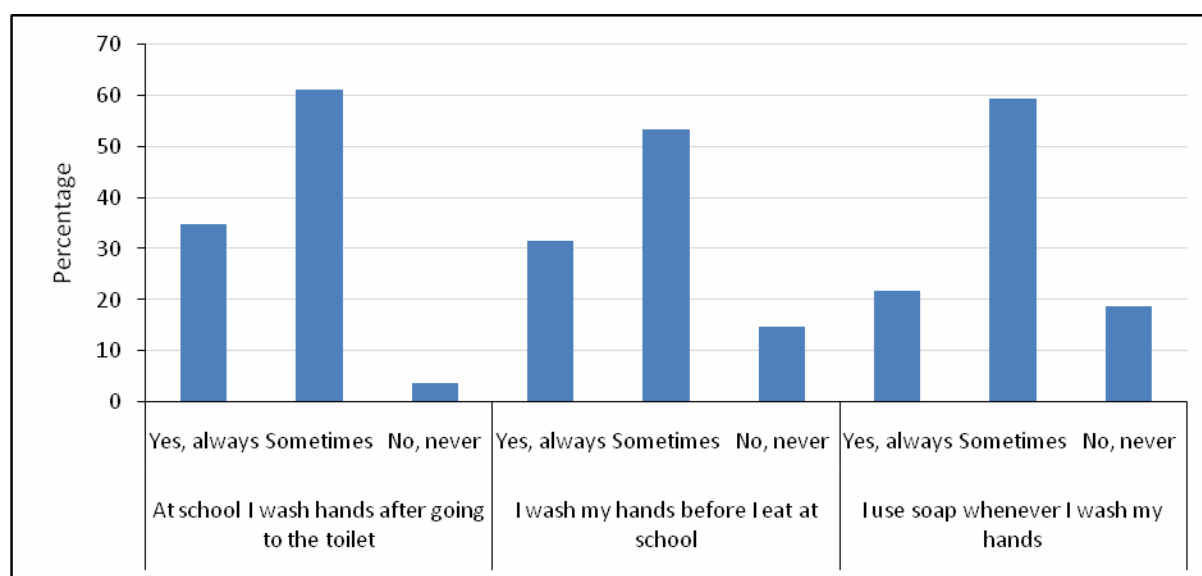


Figure 5: Hand washing practices



## 4.5 Assessment of the school environment

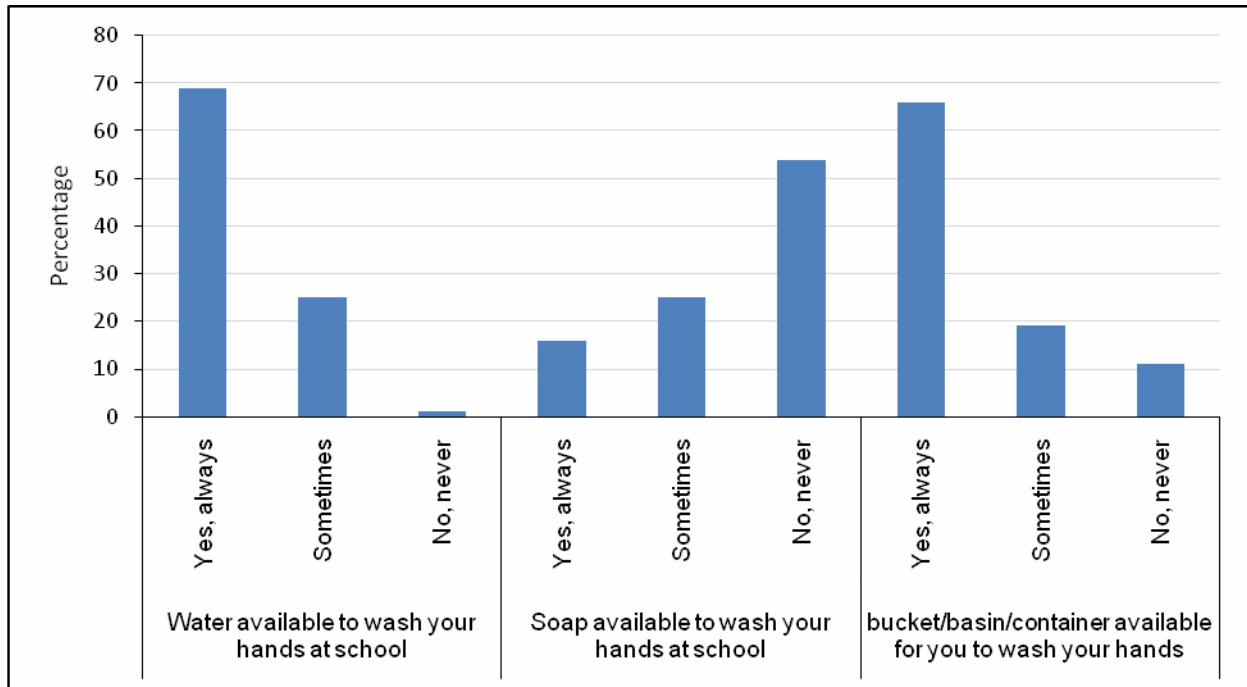


Figure 6: Environmental assessment

With regard to the environmental assessment, 54% of the children said soap is never available at school, however, 69% said there is always water at school to wash their hands. Sixty one percent of the school children indicated that there is always a bucket/basin/container available for them to wash their hands.

## 4.6 Comparison of the demographic characteristics with knowledge and practices

Table 4 shows an association between knowledge, gender and age. Of the children who indicated that they were taught about hand washing at school, a higher proportion (93%) were males and 91% were females, but the result was not significant ( $p > 0.05$ ). Moreover, children aged  $>11$  years were more likely to be taught about hand washing at school compared to those in the age group  $\leq 11$  years (95% versus 90%,  $p > 0.05$ ).

**Table 4: Association between knowledge, gender and age**

		Gender		p-value	Age		p-value
		Male	Female		≤11	>11	
Taught about hand washing at school	Yes	124(93)	168(91)	0.692	173(90)	107(95)	0.126
	No	10(7)	16(9)		20(10)	6(5)	
Had information about hand washing steps	Yes	122(92)	164(89)	0.442	176(91)	105(93)	0.594
	No	11(8)	20(11)		17(9)	8(7)	

Regarding the school children who had information about hand washing steps, males (92%) were more likely to have information than 89% females ( $p>0.05$ ). Children aged >11 years (91%) had information about hand washing steps compared to those aged ≤11 years, but the result was not significant ( $p>0.05$ ).

As shown in Table 5 below, there was no statistical significant association between the parental level of education and the respondents knowledge of hand washing ( $p>0.05$ ).

**Table 5: Association between knowledge of hand washing and parent's level of education**

		Got information about hand washing steps from parents		p-value
		Yes (%)	No (%)	
Mother level of education	None	8(4)	7(7)	0.315
	Primary	13(7)	16(15)	
	Secondary	95(49)	51(49))	
	Tertiary	55(28)	23(22)	
	Don't know	23(12)	8(8)	
Father level of education	None	14(7)	12(11)	0.069
	Primary	18(9)	10(10)	
	Secondary	50(26)	29(28)	
	Tertiary	68(35)	25(24)	
	Don't know	44(23)	29(28)	

**Table 6: Association between hand washing practice, gender and age**

		Gender		p-value	Age		p-value
		Male	Female		≤11	>11	
<b>Practice</b>							
At school, I wash hands after going to the toilet	Yes, always	54(43)	49 (28)	0.028	56(31)	45(41)	0.118
	Sometimes	69(54)	119(68)		116(64)	63(57)	
	No, never	4(3)	8(8)		9(5)	2(2)	
I wash my hands before I eat at school	Yes, always	50(39)	47(26)	0.071	49(27)	44(39)	0.095
	Sometimes	62(48)	102(57)		104(57)	53(47)	
	No, never	17(13)	29(16)		29(16)	16(14)	
I use soap whenever I wash my hands	Yes, always	31(24)	35(20)	0.633	33(18)	28(25)	0.355
	Sometimes	74(58)	109(61)		111(61)	64(57)	
	No, never	23(18)	34(19)		38(21)	20(18)	

Table 6 shows the association between hand washing practice, gender and age. A significantly higher proportion of males than females said that they always wash their hands after going to the toilet at school (43% versus 28%,  $p < 0.05$ ). No significant differences were observed between children aged  $\leq 11$  years and those aged  $> 11$  years with regard to washing their hands after going to the toilet ( $p > 0.05$ ). With regard to washing my hands before I eat ( $p > 0.05$ ) and use soap whenever I wash my hands ( $p > 0.05$ ), there was no significant differences with relation to age and gender.

**Table 7: Association between environmental assessment, gender and age**

		Gender		p-value	Age		p-value
		Male	Female		≤11	>11	
<b>Environmental assessment</b>							
Water available to wash your hands at school	Yes, always	95(74)	124(70)	0.689	131(72)	81(72)	0.942
	Sometimes	32(25)	50(28)		49(27)	30(27)	
	No, never	1(1)	3(2)		1(1)	1(1)	
soap available to wash your hands at school	Yes, always	24(19)	25(14)	0.422	30(17)	18(16)	0.847
	Sometimes	34(26)	47(26)		46(25)	32(28)	
	No, never	71(55)	106(60)		106(58)	63(56)	
bucket/basin/container available for you to wash your hands	Yes, always	77(60)	132(74)	0.033	124(68)	76(67)	0.577
	Sometimes	35(27)	27(15)		39(21)	21(19)	
	No, never	17(13)	19(11)		19(10)	16(14)	

No statistically significant relationship was observed between age, gender and water available to wash hands at school and soap available to wash hands at school ( $p > 0.05$ ). A higher proportion of females than males said a bucket/basin/container are available for washing hands at school (74% versus 60%,  $p < 0.05$ ).

#### 4.7 Observation of hand washing in primary schools

In each school ( $n=19$ ), one child was observed washing hands. Three (16%) schools were found to have a basin/bucket with a running water pipe system. Most (84%) of the schools had a bucket/basin available for washing hands but had no running water pipe system. These were communal plastic containers which were bought by the schools so that the children can wash their hands. One school in the Kweneng Central Sub-District had a bar of soap for hand washing. Table 8 below presents the types of hand washing facilities available for hand washing and the steps of hand washing by the school children. The school children in all the 19 schools did not wipe their hands.

**Table 8: Items observed**

Items observed		No	%
<b>Types of hand washing facilities available:</b>			
Basin/bucket with running water pipe system		3	16
Hand poured water system		-	-
Basin/bucket without running water pipe system		16	84
Soap		1	5
steps of hand washing	Wet hands with water		
	Yes	15	79
	No	4	21
	Apply enough soap to cover all hand surfaces		
	Yes	1	5
	No	18	95
	Rub between finger		
	Yes	11	58
	No	8	42
	Rub hands palm to palm		
	Yes	12	63
	No	7	37
	Rinse hands with water		
	Yes	2	11
No	17	89	
Dry hands with ..... (specify)			
	Yes	0	0%
	No	19	100%
<b>Time taken to clean/wash hands (mean ± sd)</b>		8.1±3.7(range:2 to 14 seconds)	
<5 seconds		3	17
5-10 seconds		11	61
>10 seconds		4	22

## CONCLUSION

Chapter 4 described the findings of the study on the knowledge and hand washing practices among primary school children in Kweneng Central Sub-District, Botswana. The results focused on the demographic characteristics of primary school children, knowledge and practice of hand washing among the school children, and the association between knowledge and practice with gender and age. The results further looked at the availability of hand washing facilities in the school environment. Chapter 5 will provide the discussion of the findings.

## **CHAPTER 5**

### **DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The previous chapter focused on the presentation and interpretation of the study's findings. This chapter deliberates the study's findings on the knowledge and hand washing practice among primary school children in Kweneng Central Sub-District, Botswana. The chapter further presents the limitations of the study, conclusion and recommendations based on the findings presented in Chapter 4.

The objectives of this study were:

- To compare the demographic profile with knowledge and practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana.
- To determine the knowledge of hand washing among primary school children in Kweneng Central Sub-District, Botswana.
- To identify the practices of hand washing among primary school children in Kweneng Central Sub-District, Botswana. To assess the availability of hand washing facilities in the school environment in the Kweneng Central Sub-District.

#### **5.2 SUMMARY AND INTERPRETATION OF FINDINGS**

##### **5.2.1 Knowledge of hand washing among primary school children**

This study documents the knowledge of hand washing among primary school children in Kweneng Central Sub-District, Botswana. In this study, 91% of the respondents indicated that they were taught about hand washing at school and 89% had information about hand washing steps. These findings are similar to a study conducted in China which revealed that approximately 87% of the children pointed out that they had been educated on hand washing (Monney, Bismark, Isaac & Yaw, 2014). A study by Shereen, Aziz and Abdulla (2012) that was conducted in Erbil city, Iraq, found that 80% of the participants had adequate knowledge on the importance of hand washing. In

contrast, Assefa and Kumie (2014) revealed that 71% of the children in Northern Ethiopia had inadequate knowledge on hand washing. The results of the current study revealed that the majority of the school children (91%) knowledge of hand washing since they reported that they had been taught about hand washing. The school children indicated that they had information about hand washing from their parents.

### **5.2.2 Source of knowledge of hand washing**

A study conducted in Jordan found that the common source of information about hand washing among students was 62% from the families and 48% from the teachers (Albashtawy, 2017). Similarly, in this study, most of the children said they got information about hand washing from their parents (69%) and 42% from the teachers. There were few respondents who got information from health workers (35%) and 19% got information from the radio. These findings show that the parents are the most influential persons regarding children's knowledge on hand washing. Children spend one third of their time at school, therefore teachers should be the leaders in modifying the hand washing practices of the children since they interact closely with school children learning activities (Setyautami, Sermsri & Chompikul, 2012).

### **5.2.3 Hand washing practices among primary school children**

In the present study, 61% of the children reported that they sometimes wash their hands after visiting the toilet at school and 53% wash their hands before they eat. In Ghana, 90% of the participants indicated that they wash their hands after visiting toilet and 91.5% said they wash their hands before eating (Steiner-Asiedu et al., 2011). In contrast, a study carried out in Mumbai, India found that 23% of the children reported that they sometimes wash their hands after visiting the toilet and 39.4% sometimes washed their hands before eating (Gawai, 2016).

With regard to hand washing with soap and water, 69% of children in the present study reported that they sometimes wash hands with soap and water. Similar results were reported in studies conducted in Bangalore and Kolkata (Ray, Amarchand, Srinkath & Majumdar, 2011) and Ghana (Steiner-Asiedu et al., 2011) which revealed that a quarter

of the children always washed their hands with soap and water. However, the finding of this study is higher than 33.6% and 36.2% reported in a study conducted in Colombia (Quintero-Lopez et al., 2009) and Ethiopia (Vivas et al., 2010) among primary school children.

#### **5.2.4 Assessment of the school environment**

In this study, 69% of the participants reported that water is always available for them to wash their hands, while 54% said that soap is never available for hand washing. However these results are in contrast to a study conducted in primary schools in Indonesia which found that all the children said that water and soap were always available for hand washing at school (Ansyah, Wichaikull & Wetasin, 2016). So far the studies carried out in Africa, children's views were not gathered on their perceptions of the school environment.

Interestingly, 61% of the children in this study reported that there is always a bucket/basin/container available for them to wash their hands at school. In a study by Ansyah it was found that 85.4% of the children said that hand washing stands were available for hand washing (Ansyah et al, 2016)

The result of this study shows that 95% of the Kweneng Central Sub District schools did not have soap for school children to wash their hands after visiting the toilet and before eating. The researcher observed that school children wash their hands in a communal bucket/basin/container and this could be detrimental to health. According to Dajaan, Addo, Ojo et al (2018) communal hand washing facility with soap does not constitute proper hand washing facility. A communal hand washing is when the same water, with or without soap is used by more than one person to wash hands (Tetteh-Quarcoo et al, 2016).



### **5.2.5 Association between knowledge, gender, age and parents' level of education**

In the present study, a higher proportion (92%) of male primary school children were had adequate knowledge on hand washing than their female counterparts (89%), however, the results were not significant. The findings are similar to a study carried out to assess the knowledge and practice of hand washing among school going adolescents in Chennai in 2016 which revealed that most of the female school children had more knowledge than the male school children (Tamilarasi, 2016).

In the present study, children aged  $\geq 11$  years were more knowledgeable than those in the age group  $< 11$  years but the result was not significant. These findings are coherent to a study conducted among pre-school children in Tanta, Egypt which showed that older children had considerably enhanced knowledge and practices than the younger ones (Elsabagh, Atlam & Shehab, 2016).

In agreement with a study conducted by ALBashtawy (2017), hand washing among school children in the present study improved with the parents' increased level of education, however, the results were not statistically significant. The reasons for this improvement are not documented, however, ALBashtawy (2017) suggests that it could be because the level of education is one of the basic determinants of a family's socio economic status as well as hand washing practice background.

### **5.2.6 Association between hand washing practice, gender and age**

Sibiya and Gumbo (2013) conducted a study in selected schools in Vhembe District, South Africa among secondary schools and in their study revealed that girls are more likely than boys to wash their hands after going to the toilet. In contrast, in the present study, a significantly higher proportion of males (43%) than females (28%) always wash their hands after going to the toilet at school.

Interestingly, the respondent's age >11 years were more likely to wash their hands always as compared to those in the age group ≤11 years but the result was not statistically significant (31% versus 41%,  $p>0.05$ ). Findings of this study are similar to those found by Xuan and Hoat (2013) among the school children in an ethnically diverse population in northern rural Vietnam, which revealed that the practice of hand washing increased with age and/or grade.

The study's findings showed that both gender and age were not significantly associated with, "I wash my hands before I eat at school" and "I use soap whenever I wash my hands". Majority of the studies have not shown any association between gender, age and washing before eating and using soap whenever they wash their hands.

### **5.2.7 Environmental assessment of hand washing facilities**

Regarding environmental assessment, the majority (69%) of the children indicated that water is always available to wash hands at schools and very few (16%) reported that soap is always available. In addition, nearly two thirds (61%) of the children said that bucket/basin are always available for them to wash their hands. In Indonesia, 65.9% of school children reported that they had access to clean water, 68.5% said soap was always available and 73.7% said that hand washing stands were always available for hand washing at school (Setyautami et al. 2012). In the current study, school children used the same water in basin to wash their hands. Although hand washing has the potential of eliminating microbes, shared hand washing practices where children use water in one basin can be regarded as a possible transmission avenue (Tetteh-Quarcoo et al, 2016).

### **5.2.8 Observation of hand washing practices in primary schools**

In each school (n=19), one child was observed washing their hands. The standard for good hand washing practice includes: (1) to wet hands thoroughly, (2) apply soap, (3) rub the hands vigorously together for about 15 – 20 seconds and (4) pay particular attention to the finger tips, thumbs, wrists, finger webs and back to the hands (Steiner-Asiedu et al., 2011). According to the Center for Disease Control and Prevention (2018)

proper hand washing is when all the five hand washing steps are followed, therefore improper hand washing is when the participant does not wash hands at all. The hands should be well sanitised, then rinsed well in clean water and finally dried with a clean towel.

In the present study, 79% wet their hands with water, 5% applied soap to cover all hand, 58% rubbed between fingers, 63% rubbed hands palm to palm and 11% of the children who were observed rinsed their hands with water. These findings are different to those of a study conducted by Gawai et.al (2016) which revealed that 96.2% of the children rubbed the palms of their hands together, 58.6% rubbed back of the hand and few children (6.5%) cleaned the space between fingers. The results of the present study indicate that majority the school children did not wash their hands properly.

Regarding duration of hand washing, the World Health Organization recommends that the entire process should take at least 20 seconds (WHO, 2009). In the current study, the time spent for washing hands range from 2 to 14 seconds which is less than the recommendation by the World Health Organization. A greater proportion (61%) of children spent 5-10 seconds followed by 22% who spent more than 10 seconds. There were a few (17%) children who spent less than 5 seconds washing their hands. It is therefore important to teach children the basic hand washing steps to help them to prevent the transmission of diseases.

### **5.3 LIMITATIONS OF THE STUDY**

The study used a self-administered questionnaire and the self-reported data revealed that the participants had adequate knowledge of hand washing. Twenty two (22%) said that they always washed their hands with soap and water and 59% said they sometimes wash their hands with soap and water. However, during observation, the findings indicated that the hand washing practices for school children were not appropriate which means that the hand washing practices could be exaggerated. One child in each school was observed whilst washing their hands; therefore, the results might not be representative of the whole school.

## **5.4 CONCLUSION**

The study revealed that the majority of the school children identified parents as the source of information for hand washing and a small number of children identified teachers as the source of information. Children spend much of their time during the day at school, therefore schools are the right institutions to impart hand washing information and emphasise hand washing to the children. Children lacked proper hand washing practices and facilities. Availability of facilities such as clean water, hand washing basins and soap are paramount to the facilitation of hand washing among primary school children and so should be adequately provided in schools.

## **5.5 RECOMMENDATIONS**

### **5.5.1 Knowledge of hand washing**

Schools are the right place for children to learn about hand washing and teachers should take the lead in empowering children about hand washing. It is recommended that the Ministry of Health and Wellness in conjunction with the Ministry of Basic Education facilitate in-service training for primary school teachers. Then teachers will educate children about the importance of hand washing.

### **5.5.2 Environmental assessment and hand washing**

It is recommended that the Ministry of Basic Education and the Ministry of Local Government and Rural Development install hand washing facilities such as hand basin/ bucket and make available soap and adequate clean water in primary schools to facilitate hand washing. Availability of these coupled with hand washing education will allow children to practice proper hand washing and ultimately prevent transmission of microorganisms.

### **5.5.3 Hand washing practices**

The ability for children to practice hand washing is dependent on knowledge acquired and availability of facilities that enable hand washing. Therefore, it is

recommended that children should be taught proper hand washing steps and be observed to practice proper hand washing.

#### **5.5.4 Research**

As children used the same water in the buckets provided this could lead to compromised quality of water used. It is recommended that water is changed on regular basis as it could be contaminated therefore increasing chances of spread of disease causing microorganisms. Further research is recommended to determine the microbiological content of water used for communal hand washing by primary school children.

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## ANNEXURE 1: OBSERVATION CHECKLIST

School..... Date.....

<b>Availability of hand washing facilities</b>		Yes	No
1. Water			
2. Soap			
<b>Kind of hand washing facilities</b>			
1. Running water from a piped system or tank		Yes	No
2. Hand – poured water system		Yes	No
3. Basin/bucket		Yes	No
4. Others (specify)			
<b>Hand washing steps</b>			
1 Wet hands with water		Yes	No
2 Apply enough soap to cover all hand surfaces		Yes	No
3 Rub hands palm to palm		Yes	No
4 Rub between fingers		Yes	No
5 Rinse hands with water		Yes	No
6 Dry hands with ..... (specify)		Yes	No
<b>Record the time taken to clean hands</b>			

## ANNEXURE 2a: QUESTIONNAIRE IN ENGLISH

Kweneng District

School:

Date: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

### INTRODUCTION

This booklet contains questions on issues related to your background, health views and practices. The questionnaire has a set of questions which have options from which you should select the most appropriate answer that best reflects your views, knowledge and practices. If any of the questions makes you uncomfortable, you may skip it and continue with the next question. Your responses will be kept confidential; no one except the investigators will have access to your responses. Please answer all questions carefully and honestly. Please work by yourself, while you are answering the questions.

**SECTION A: BIOGRAPHICAL INFORMATION**

A1. Name of school..... Date.....

A2. Date of Birth..... Age.....

A3. Gender            Male      
                              Female

A4. Do you have siblings (brother and sisters)?

                              YES      
                              NO    

A5. If yes, how many? \_\_\_\_\_

A6. Are you staying with your mother?

                              YES      
                              NO    

A7. Does your mother work?

                              YES      
                              NO       
                              I don't know

A8. If yes, what is your mother's job \_\_\_\_\_?

A9. Are you staying with your father?

                              YES      
                              NO    

A10. Does your father work?

                              YES      
                              NO       
                              I don't know

A11. If yes, what is your father's job \_\_\_\_\_?

A12. What is your mother's level of education?

- None
- Primary
- Secondary
- Tertiary
- I don't know

A13. What is your father's level of education?

- None
- Primary
- Secondary
- Tertiary
- I don't know

**SECTION B: KNOWLEDGE OF HANDWASHING**

**B1.** How can a person get diarrhoea (Please tick the appropriate answer/s)?

- a) Through handshake
- b) Through drinking contaminated water
- c) Through the air when a person coughs or sneezes
- d) Through eating contaminated food
- e) Eating with hands that are not washed with water and soap
- f) Other (please explain).....

**B2.** How can a person prevent getting diarrhoea? (Please tick the appropriate answers)?

- a) Avoid shaking hands
- b) Drink and use safe water
- c) Cover mouth and nose when coughing or sneezing
- d) Washing hands often with water and soap



- e) Use latrines
- f) Other (please explain).....

B3. How can a person get flu (cough)? (Please tick the appropriate answers)

- a) Through handshakes
- b) Through drinking contaminated water
- c) Through the air when a person coughs or sneezes
- d) Through touching nose and eyes with unwashed hands
- e) Other (please explain).....

B4. How can a person prevent getting flu (cough)? (Please tick the appropriate answers)

- a) Avoid shaking hands
- b) Covering mouth and nose when coughing or sneezing
- c) Washing hands often with water and soap
- d) Use latrines
- e) Other (please explain).....

B5. Are you taught about hand washing at school?

- Yes
- No

B6. Have you ever had information about proper hand washing steps?

- Yes
- No

B7. If yes, where did you first here the information?

- a) Parents
- b) Friends
- c) Teachers
- d) Radio/TV
-

- e) Newspaper
- f) Health workers
- g) Other .....

**SECTION C: PRACTICE OF HANDWASHING**

**C1.** When you are at school, do you wash your hands after visiting the toilet?

- Yes, always
- Sometimes
- No, never

**C2.** Do you wash your hands before you eat at school?

- Yes, always
- Sometimes
- No, never

**C3.** Do you ever use soap whenever you wash your hands?

- Yes, always
- Sometimes
- No, never

**SECTION D: ENVIRONMENTAL ASSESSMENT**

**D1.** Is there soap available to wash your hands at school?

- Yes, always
- Sometimes
- No, never

**D2.** Is there water available to wash your hands at school?

- Yes, always
- Sometimes
- No, never

**D3.** Is there a bucket/basin/container available for you to wash your hands at school?

- Yes, always
- Sometimes
-

No, never

**THANK YOU!**

## ANNEXURE 2b: QUESTIONNAIRE SETSWANA

### POTSOLOTSO KA SETSWANA

Kweneng Legare

Leina la sekolo:

Letsatsi: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

**MATSENO**

Lokwalo lo lona le dipotso tse di amanang le kitso le ka fa o tlhaphang diatla ka teng. Dipotso tse di mo lokwalong lo dinale le dikarabo tse o tla bong o tlhophisa karabo ee leng gore ke yone e tlhomameng kgotsa e tsamaelana le kitso le maikutlo a gago. Fa nngwe ya dipotso eka go gogomosa maikutlo oka e tloa wa araba e latelang. Lokwalo lo lwa dipotso lo tlaa bewa mo felong le le faphegileng ka jalo ga gona ope fa ese motsamaisa wa patlisiso e yo o tla di dirisang. Tsweetswee araba dipotso tsotlhe ka kelothoko ole nosi.

**Segela karabo e siameng**

**KGAOLO A:**

A1. Leina la sekolo..... Letsatsi.....

A2. Letsatsi la gago la matsalo..... Dingwaga tsa gago.....

A3. Bong Rre

Mme

A4. A ona le batsalwa le wena (monnao kgotsa mogoloo)?

Ee

Nnyaa

A5. Fa karabo ya gago ya A4 ele “ee”, ba kae? \_\_\_\_\_

A6. A o nna mo lapeng le lengwe le mme mmago?

Ee

Nnyaa

A7. A mme mmago oa bereka?

Ee

Nnyaa

Ga ke itse

A8. Fa karabo ya gago ya A7 ele “ee”, tiro ya ga mme mmago ke eng?

\_\_\_\_\_

A9. A o nna mo lapeng le lengwe le rre rrago?

Ee

Nnyaa

A10. A rre rrago oa bereka?

Ee

Nnya

Ga ke itse

A11. Fa karabo ya gago ya A10 ele "ee", tiro ya ga rre rrago ke eng?

---

A12. Mme mmago o tsene sekolo go ema fa kae?

Ga a tsena sekolo

Dithuto tse di potlana (Primary level)

Dithuto tse dikgolwane (Secondary level)

Go feta dithuto tse dikgolwane (university/colleg

Ga ke itse

A13. Rre rrago o tsene sekolo go ema fa kae?

Ga a tsena sekolo

Dithuto tse di potlana (Primary level)

Dithuto tse dikgolwane (Secondary level)

Go feta dithuto tse dikgolwane (university/colleg

Ga ke itse

### **KGAOLO B: KITSO KA GO TLHAPA DIATLA**

B1. Motho oka tsenwa ke letsholo jang (tsweetswee tshwaya karabo/dikarabo tse siameng)?

- a) Ka go dumedisana ka diatla
- b) Ka go nwa metsi aa kgotlelesegileng
- c) Ka go amana le phefo fa mongwe a gotlholo kgotsa a ethimola
- d) Ka go ja dijo tse di kgotlelesegileng
- e) Ka go ja dijo osa tlhapa diatla
- f) Tse dingwe (tlhalosa).....

B2. O ka iphemela jang go ka tsenwa ke letshololo (tsweetswee tshwaya karabo/dikarabo tse siameng)?

- a) Ka go sa tshwareng batho ba bangwe ka diatla
- b) Ka go nwa metsi a a phepa
- c) Ka go sireletsa molomo le nko fa o gotlholo le fa o ethimola
- d) Ka go tlhapa diatla kgapetsa kgapetsa ka molora le metsi
- e) Ka go dirisa matlwana a boitiketso
- f) Tse dingwe (tlhalosa).....

B3. Oka tsenwa ke kgotlholo jang (tsweetswee tshwaya karabo/dikarabo tse siameng)?

- a) Ka go tshwarana ka diatla
- b) Ka go amana le phefo fa mongwe a gotlholo kgotsa a ethimola
- c) Ka go ja dijo tse di kgotlelesegileng
- d) Ka go ja dijo osa tlhapa diatla
- e) Tse dingwe (tlhalosa).....

B4. Motho oka kganela jang go tsenwa ke kgotlholo (tsweetswee tshwaya karabo/dikarabo tse siameng)?

- a) Ka go sa tshwareng batho ba bangwe ka diatla
- b) Ka go sireletsa molomo le nko fa o gotlholo le fa o ethimola
- c) Ka go tlhapa diatla kgapetsa kgapetsa ka molora le metsi
- d) Ka go dirisa matlwana a boitiketso
- e) Tse dingwe (tlhalosa).....

B5. A ka nako ya dithuto le rutiwa go tlhapha diatla

- Ee
- Nnyaa

B6. A o setse o kile wa nna le dithuto ka tsela e tlhamaletseng ya go tlhapha diatla

- Ee
- Nnyaya

B7. Fa o arabile ore ee fa potsong efa godimo, supa gore dithuto tseo o amane le tsone kae

- |                                 |                      |
|---------------------------------|----------------------|
| a) Batsadi                      | <input type="text"/> |
| b) Ditsala                      | <input type="text"/> |
| c) Barutabana                   | <input type="text"/> |
| d) Seromamowa/sekapatshwantso   | <input type="text"/> |
| e) Pampiri ya dikgang           | <input type="text"/> |
| f) Badiri ba lephata la botsogo | <input type="text"/> |
| g) Tse dingwe .....             | <input type="text"/> |

**KGAOLO C: TIRAGALO YA GO TLHAPA DIATLA**

C1. Fa ole ko sekolong, a o tlhapa diatla fa o sena go dirisa ntlwana ya boitiketso?

- |                     |                      |
|---------------------|----------------------|
| Ee, ka nako tsotlhe | <input type="text"/> |
| Nako tse dingwe     | <input type="text"/> |
| Nnyaya              | <input type="text"/> |

C2. Fa ole ko lapeng, a o tlhapa diatla fa o sena go dirisa ntlwana ya boitiketso

- |                     |                      |
|---------------------|----------------------|
| Ee, ka nako tsotlhe | <input type="text"/> |
| Nako tse dingwe     | <input type="text"/> |
| Nnyaya              | <input type="text"/> |

C3. A o tlhapa diatla pele ga o ja kwa sekolong

- |                     |                      |
|---------------------|----------------------|
| Ee, ka nako tsotlhe | <input type="text"/> |
| Nako tse dingwe     | <input type="text"/> |
| Nnyaya              | <input type="text"/> |



## KGAOLO D: TSHEKATSHEKO YA LEFELO LE GO TLHAPELWANG DIATLA

D1. A molora o teng gore o tlhape diatla, kwa sekolong

Ee, ka nako tsothe

Nako tse dingwe

Nnyaa

D2. A metsi a teng gore o tlhape diatla, kwa sekolong?

Ee, ka nako tsothe

Nako tse dingwe

Nnyaa

D3. A beisana kgotsa dijana di teng gore o tlhape diatla?

Ee, ka nako tsothe

Nako tse dingwe

Nnyaya

**KE A LEBOGA!!**

## ANNEXURE 3: ETHICAL CLEARANCE CERTIFICATE



University of Limpopo  
Department of Research Administration and Development  
Private Bag X1106, Sovenga, 0727, South Africa  
Tel: (015) 268 2212, Fax: (015) 268 2306, Email:noko.monene@ul.ac.za

### TURFLOOP RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

**MEETING:** 04 July 2017

**PROJECT NUMBER:** TREC/109/2017: PG

**PROJECT:**

**Title:** Knowledge and practices of handwashing among Primary school children in Kweneng Central Sub-District, Botswana

**Researcher:** A Kgosimotho

**Supervisor:** Dr SF Matlala

**Co-Supervisor:** Dr TS Ntuli

**School:** Health Care Sciences

**Degree:** Masters in Public Health

  
PROF TAB MASHEGO  
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

- Note:**
- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
  - ii) The budget for the research will be considered separately from the protocol.  
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.

**ANNEXURE 4: LETTER TO MINISTRY OF HEALTH AND WELLNESS REQUESTING  
FOR PERMISSION TO CONDUCT RESEARCH**

Institute of Health Sciences  
P O Box 128  
Serowe

12<sup>th</sup> June, 2017

The Secretariat of Health Research and Development Committee  
Ministry of Health  
Private Bag 0038  
Gaborone

**Dear Sir**

**REQUEST FOR PERMISSION TO CONDUCT RESEARCH**

I am a Master of Public Health at the University of Limpopo, South Africa.

The aim of my study is to assess the knowledge and practices of hand washing among primary school children in Kweneng central sub district, Botswana. The study has 3 objectives which are:

- 1) To determine the knowledge of hand washing among primary school children in Kweneng central sub district, Botswana.
- 2) To identify the practices of hand washing among primary school children in Kweneng central sub district, Botswana.
- 3) To compare the demographic profile with knowledge and practices of primary school children in Kweneng central sub district, Botswana.

I hereby request permission from your office to conduct research in Kweneng Central Sub district primary schools. I have attached the following documents

- a) Research proposal
- b) A copy of ethical clearance certificate from the University of Limpopo
- c) A copy of the data collection tool

If you have questions regarding this study, you may contact me or my supervisor at;

[alicat.kgosi@gmail.com](mailto:alicat.kgosi@gmail.com) 00267 71830263

Or

[France.Matlala@ul.ac.za](mailto:France.Matlala@ul.ac.za)

Yours Faithfully,

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

## ANNEXURE 5: PREMISSION FROM MINISTRY OF HEALTH AND WELLNESS

PRIVATE BAG 0038  
GABORONE  
BOTSWANA  
REFERENCE:



REPUBLIC OF BOTSWANA

MINISTRY OF HEALTH AND WELLNESS

TEL: (+267) 363 2500  
FAX: (+267) 391 0647  
TELEGRAMS: RABONGAKA  
TELEX: 2818 CARE BD

REFERENCE NO: HPDME 13/18/1 XI

27 June 2017

Health Research and Development Division

Notification of IRB Review: **New application**

Alakanani Kgosimotho  
P O BOX 128  
Serowe

Dear Alakanani Kgosimotho

**Protocol Title:** KNOWLEDGE AND PRACTICES OF HANDWSHING  
AMONG PRIMARY SCHOOL CHILDREN IN KWENENG  
CENTRAL SUB DISTRICT, BOTSWANA

HRU Approval Date: 27 June 2017  
HRU Expiration Date: 26 June 2018  
HRU Review Determination: Approved  
Risk Determination: Minimal risk

Thank you for submitting new application for the above referenced protocol. The permission is granted to conduct the study.

This permit does not however give you authority to collect data from the selected sites without prior approval from the management. Consent from the identified individuals should be obtained at all times.

The research should be conducted as outlined in the approved proposal. Any changes to the approved proposal must be submitted to the Health Research and Development Division in the Ministry of Health for consideration and approval.

Furthermore, you are requested to submit at least one hardcopy and an electronic copy of the report to the Health Research, Ministry of Health and Wellness within 3 months of completion of the study. Approval is for academic fulfillment only. Copies should also be submitted to all other relevant authorities.

### Continuing Review

In order to continue work on this study (including data analysis) beyond the expiry date, submit a Continuing Review Form for Approval at least three (3) months prior to the protocol's expiration date. The Continuing Review Form can be obtained from the Health Research Division Office (HRDD), Office No. 7A.7 or Ministry of Health website: [www.moh.gov.bw](http://www.moh.gov.bw) or can be requested via e-mail from Mr. KgomotsoMothlanka, e-mail address: [kgmmotlhanka@gov.bw](mailto:kgmmotlhanka@gov.bw) As a courtesy, the HRDD will send you a reminder email about eight (8) weeks before the lapse date, but failure to receive it does not affect your responsibility to submit a timely Continuing Report form

### Amendments

During the approval period, if you propose any change to the protocol such as its funding source, recruiting materials, or consent documents, you must seek HRDC approval before implementing it. Please summarize the proposed change and the rationale for it in the amendment form available from the Health Research Division Office (HRDD), Office No. 7A 7 or Ministry of Health website: [www.moh.gov.bw](http://www.moh.gov.bw) or can be requested via e-mail from Mr. KgomotsoMothlanka, e-mail address: [kgmotlhanka@gov.bw](mailto:kgmotlhanka@gov.bw) . In addition submit three copies of an updated version of your original protocol application showing all proposed changes in bold or "track changes".

### Reporting

Other events which must be reported promptly in writing to the HRDC include:

- Suspension or termination of the protocol by you or the grantor
- Unexpected problems involving risk to subjects or others
- Adverse events, including unanticipated or anticipated but severe physical harm to subjects.

If you have any questions please do not hesitate to contact Mr KgomotsoMothlanka at [kgmotlhanka@gov.bw](mailto:kgmotlhanka@gov.bw) at 3632751. Thank you for your cooperation and your commitment to the protection of human subjects in research.

Yours faithfully



Dr K. Seipone  
for/PERMANENT SECRETARY



**ANNEXURE 6: LETTER TO MINISTRY OF BASIC EDUCATION REQUESTING FOR  
PERMISSION TO CONDUCT RESEARCH**

Institute of Health Sciences  
P O Box 128  
Serowe

6 July 2017

The Permanent Secretary  
Ministry of Basic Education  
P O Box  
Gaborone

**REQUEST FOR PERMISSION TO CONDUCT RESEARCH**

I am a Master of Public Health student at the University of Limpopo, South Africa.

The aim of my study is to assess the knowledge and practices of hand washing among primary school children in Kweneng central sub district, Botswana. The study has 3 objectives which are:

- 1) To determine the knowledge of hand washing among primary school children in Kweneng central sub district, Botswana.
- 2) To identify the practices of hand washing among primary school children in Kweneng central sub district, Botswana.
- 3) To compare the demographic profile with knowledge and practices of primary school children in Kweneng central sub district, Botswana.

I hereby request permission from your office to conduct research in Kweneng central sub district primary schools. I have attached the following documents

- a) A copy of ethical clearance certificate from the University of Limpopo
- b) A copy of the letter of permission from the Health Research Unit (Ministry of Health)
- c) Research proposal
- d) A copy of the data collection tools

If you have questions regarding this study, you may contact me or my supervisor at;

[alicat.kgosi@gmail.com](mailto:alicat.kgosi@gmail.com) 00267 71830263

Or

[France.Matlala@ul.ac.za](mailto:France.Matlala@ul.ac.za)

Yours Faithfully,

Name: \_\_\_\_\_

Signature: \_\_\_\_\_



## ANNEXURE 7: PREMISSION FROM MINISTRY OF BASIC EDUCATION

TELEPHONE: 3655400/3655483  
TELEX: 2944 THUTO BD  
FAX: 3914271



MINISTRY OF BASIC EDUCATION  
PRIVATE BAG 005  
GABORONE, BOTSWANA

REPUBLIC OF BOTSWANA

REF: DPRS 7/1/5 XXX (88) SEO II-Research

19<sup>th</sup> July 2017

Alakanani Kgosimotho  
P O Box 128  
Serowe

Dear Madam

### **RE: PERMIT TO CONDUCT A RESEARCH STUDY**

This serves to grant you permission to conduct your study in the sampled areas in Botswana to address the following research objectives/questions /topic:

#### **Knowledge and Practices of Hand Washing Among Primary School Children in Kweneng Central Sub District, Botswana.**

It is of paramount importance to seek **Assent** and **Consent** from the Director of the Kweneng region, School Head, Teachers and Students of sampled Primary Schools that you are going to collect data from. We hope that you will conduct your study as stated in your proposal and that you will adhere to research ethics. Failure to comply with the above stated, will result in immediate termination of the research permit. The validity of the permit is from **19<sup>th</sup> July 2017 to 19<sup>th</sup> July 2018**.

**You are requested to submit a copy of your final report of the study as stated in the Research Guidelines (para 4.5 - 4.6, 2007) to the Ministry of Education and Skills Development, in the Department of Educational Planning and Research Services, Botswana.**

Thank you.

Yours faithfully

Shadreck Majwabe  
For/Permanent Secretary



moesd16885@gov.bw | Private Bag 005 Gaborone



**ANNEXURE 8: LETTER TO KWENENG REGIONAL OFFICE REQUESTING FOR  
PERMISSION TO CONDUCT RESEARCH**

Institute of Health Sciences  
P O Box 128  
Serowe

2<sup>nd</sup> August 2017

The Permanent Secretary  
Ministry of Basic Education  
P O Box  
Gaborone

**REQUEST FOR PERMISSION TO CONDUCT RESEARCH**

I am a Master of Public Health student at the University of Limpopo, South Africa.

The aim of my study is to assess the knowledge and practices of hand washing among primary school children in Kweneng central sub district, Botswana. The study has 3 objectives which are:

- 4) To determine the knowledge of hand washing among primary school children in Kweneng central sub district, Botswana.
- 5) To identify the practices of hand washing among primary school children in Kweneng central sub district, Botswana.
- 6) To compare the demographic profile with knowledge and practices of primary school children in Kweneng central sub district, Botswana.

I hereby request permission from your office to conduct research in Kweneng central sub district primary schools. I have attached the following documents

- a) A copy of ethical clearance certificate from the University of Limpopo
- b) A copy of the letter of permission to conduct the study from the Health Research Unit (Ministry of Health)
- c) A copy of the letter of permission to conduct the study from the Ministry of Basic Education
- d) Research proposal
- e) A copy of the data collection tools

If you have questions regarding this study, you may contact me or my supervisor at;

[alicat.kgosi@gmail.com](mailto:alicat.kgosi@gmail.com) 00267 71830263

Or

[France.Matlala@ul.ac.za](mailto:France.Matlala@ul.ac.za)

## ANNEXURE 9: PERMISSION FROM KWENENG REGIONAL OFFICE

90



(267) 5921724



DIRECTOR, REGIONAL OPERATIONS  
MINISTRY OF EDUCATION AND SKILLS DEVELOPMENT  
KWENENG REGION  
PRIVATE BAG 045  
MOLEPOLOLE

FAX: (267) 5905157

REPUBLIC OF BOTSWANA

REF: KWR 1/12/2 II (89)

08 August 2017

Alakanani Kgosimotho  
Institute of Health Sciences  
P O Box 128  
SEROWE

Dear Sir

### **PERMISSION TO CONDUCT RESEARCH - YOURSELF**

We acknowledge your letter requesting to conduct research in Kweneng Central Primary Schools. We further acknowledge the permission granted by Permanent Secretary, Ministry of Basic Education.

We hereby grant you permission to conduct your studies and advise you to adhere to the instruction in your study permit.

By this correspondence all primary schools in Kweneng Central are informed to assist you.

Thank you.

Yours faithfully

C. Sunday

**Aq. DIRECTOR - KWENENG REGIONAL OPERATIONS**

cc. Chief Education Officer – MAA Sub-Region  
All School Heads – Primary Schools

CS/n



## **ANNEXURE 10a: STUDY INFORMATION LETTER IN ENGLISH**

Date: \_\_\_\_\_

Dear Parent

My name is Alakanani Kgosimotho and I am currently pursuing Master of Public Health at the University of Limpopo. As part of my studies, I am assessing the knowledge and practices of hand washing among primary school children in Kweneng district, Botswana. Information will be collected from primary school pupils in grade 7. I am therefore inviting your child to participate in this study since he/she is in grade 7.

The child will be given a questionnaire at school which will take about 30minutes to complete. The researcher cannot guarantee that your child will receive any benefits from participating in this study. However we hope that sharing their ideas, views and experiences will assist the researcher to understand the knowledge, and practices of hand washing among primary school children in Kweneng central sub district, Botswana.

There are no known risks associated with this study however your child will be advised to discontinue participation if the child begins to feel uncomfortable, either temporarily or permanently or they may ask us to skip those specific questions.

No name or identifying information will be written on any of the questionnaires. The information provided by the child will be highly confidential as it will not be shared with anyone who is not part of the study. All materials and any hard and soft copies collected in this study shall be kept under lock and key for a period of not less than five years whereupon would be disposed of by handing it over to national archives.

Participation in this study is voluntary. As a parent, you may refuse your child to participate in this study. You are also allowed to withdraw your child from the study at

any time if for some reason you feel that the child should not continue with the study. You and your child will not be subjected to any penalty should you refuse to allow your child to participate or withdraw your child.

Questions about the Study: If you have any questions about the study, you may contact;

Principal Investigator  
Ms Alakanani Kgosimotho  
University of Limpopo

00267 71830263/76580224  
[alicat.kgosi@gmail.com](mailto:alicat.kgosi@gmail.com)

Dr Matlala  
Supervisor  
[France.Matlala@ul.ac.za](mailto:France.Matlala@ul.ac.za)

If you have questions regarding your rights as a participant in this study, you may contact;

The Secretariat of Health Research and Development Committee  
Ministry of Health  
Private Bag 0038  
Gaborone  
Tel: 3170585/3632500

## ANNEXURE 10b: STUDY INFORMATION LETTER IN SETSWANA

Letsatsi: \_\_\_\_\_

Go Motsadi

Leina lame ke Alakanani Kgosimotho ke ithuta ka tsa botsogo ko University of Limpopo. Dithuto tsame di itebagntse le go sekaseka kitso ya bana ba dikolo tse dipotlana ka go tlhapa diatla mo kgaolong ya Kweneng legare, mo Botswana. Ke tlaa botsolotsa bana ba lokwalo lwa bosupa mo dikolong tse dipotlana mabapi le go tlhapa diatla. Jaanong ke laletsa ngwana wag ago yo eleng moithuti wa lokwalo lwa bosupa go tsaya karolo mo potsolotsong e.

Moithuti o tlaa fiwa pampiri ya dipotso gore a e tlatse mo lebakeng la la metsotso ee masome a mararo. Jaaka motsamaisi wa ditshekatsheko tse ga ke solofetse gore moithuti o tlaa atswiwa ka sepe fela. Mme tsholofelo ke gore go tsaya karolo ga gagwe go tlaa re sedimose tse ka kitso ya bana ba dikolo tse dipotlana mo Kweneng legare, Botswana mabapi le go tlhapa diatla.

Ga gona dikotsi dipe fela tse di itsegeng tse di ka diragalelang moithuti mme fa ka mokgwa mongwe dipotso di ka mo ama, ngwana oa a letlelesega go ka emisa potsolotso ka nakwana kgotsa a ikopela go tlogela potsolotso gotlhelele.

Maina a moithuti ga ane a kwalwa mo lokwalong lwa dipotso. Morago ga potsolotso, mekwalo yotlhe e amanang le moithuti e tlaa sutlhiwa ebile e tlaa seke e bontshiwe ope yo o sa amaneng le dipatlisiso tse.

Moithuti ga a patelediwe go tsenelela dipatlisiso, ka jalo go mo maruding a gagwe go nna le seabe kgotsa go ithaopa. Onale tshono ya go ka ikogela morago fa dipatlisiso ka mokgwa mongwe di sa mo tseye sentle. Mme mo go direng jalo ga gona ditlamorago fela tse di tlaa mo amang ene le ba lelwapa la gagwe

Dipotso mabapi le dipatlisiso: Fa onale dipotso o ka leletsa

Motsamaisa dipatlisiso  
Ms Alakanani Kgosimotho  
University of Limpopo

00267 71830263/76580224

[alicat.kgosi@gmail.com](mailto:alicat.kgosi@gmail.com)

Dr Matlala

Mookamedi

[France.Matlala@ul.ac.za](mailto:France.Matlala@ul.ac.za)

Fa onale dipotso dingwe mabapi le ditswhanelo tsa gago mo dipatlisisong tse oka ikamanya ka mokwalo kgotsa wa leletsa kwa go;

The Secretariat of Health Research and Development Committee

Ministry of Health

Private Bag 0038

Gaborone

Tel: 3170585/3632500



## ANNEXURE 11a: INFORMED CONSENT BY PARENT IN ENGLISH



### INFORMED CONSENT

Statement concerning participation in a Research project

Name of Project: Knowledge and practices of hand washing among primary schoolchildren in Kweneng Central Sub District, Botswana.

I have understood the aims and objectives of the proposed study and was provided with the opportunity to ask questions and given adequate time to rethink the issue. The objectives of the study are sufficiently clear to me. I have not been pressurised to participate in any way.

I understand that participation in this study is completely voluntary and that I may withdraw my child from it at any time and without supplying reasons. I know that this study has been approved by the Research, Ethics and Publications Committee of the faculty of Health Care Sciences, University of Limpopo (Turfloop Campus). I am fully aware that the results of this study will be used for scientific purposes and may be published. I agree to this, provided my privacy is guaranteed.

I hereby give consent to participate in this study/project.

-----  
Name of Patient/volunteer

-----  
Signature of patient or guardian

-----

-----

-----

Place

Date

Witness

Statement by the Researcher

I provided verbal information regarding this study/project.

I agree to answer any future questions concerning the study/project as best as I am able. I will adhere to the approved protocol.

-----

Name of researcher

-----

Signature

-----

Date

-----

Place

## ANNEXURE 11b: INFORMED CONSENT BY PARENT IN SETSWANA



### TUMALANO YA GO TSENELELA DIPATLISISO

Maitlamo mabapi le seabe sa gago mo dipatlisisong tse.

Leina la patlisiso: Kitso ya bana ba dikolo tse dipotlana mabapi le go tlhapa diatla, mo kgaolong ya Kweneng legare, Botswana

Ke itse ka maikaelelo le moonno wa patlisiso e gape ke filwe nako go botsa dipotso le go tlhatlhanya ka kgang e. Maikaelelo a patlisiso a tlhalositswe fela mo go nkgotsofatsang. Ga ke a patelediwa ka mokgwa ope fela go nna le seabe mo patlisisong e.

Ke tlhaloganya gore go tsenelela patlisiso e game ke go bo ke ithaopa mme ebile nka kgona go ikogela morago ke sa patelesege go fa mabaka. Mme mo go direng jalo ga gona ditlamorago dipe fela tse di tlaa nkamang.

Ke tlhaloganya gore dipatlisiso tse di letleletswe go ka tsamaisiwa ke ba Komiti ya dipatlisiso le kanamiso ya faculty of Health Care Sciences, University of Limpopo (Turloop Campus). Ke tlhaloganya thata gore ditlamorago tsa patlisiso e di tlaa dirisiwa mo go tsa maranyana ebe di anamisiwa. Ke dumalana le se fela fa diphiri tsame di sireletsegile.

Ke fa tetla ya go nna le seabe mo patlisisong e.

-----

Leina la moithaopi

monwana wa moithaopi/motsadi

-----

-----

-----

Lefelo

Letsatsi

Mosupi

Maitlamo a motsamaisa wa dipatlisiso

Ke buile ka molomo maikaelelo a dipatlisiso.

Jalo he ke ikemiseditse go araba dipotso mo isagon tse di tsamaelanang le dipatlisiso tse ka fa nka kgonang ka teng. Ke tlaa sala morago ditumalano tsotlhe tse di dumalanweng

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-----

-----

Leina la motsamaisa

Monwana

Letsatsi

Lefelo

dipatlisiso

**ANNEXURE 12a: INFORMED ASSENT FORM FOR PRIMARY SCHOOL CHILD IN ENGLISH**

I have been invited to participate in the study at \_\_\_\_\_ Primary School. I understand that the research is about the knowledge and practices of hand washing among primary school children in Kweneng district, Botswana. In this research, I will be asked to answer a set of questions and this takes close to 30minutes to complete.

The information about the study has been explained. I have been allowed to ask questions which have been answered and know that I can ask questions later if I have them.

I then agree to take part in the research.

*OR*

I do not wish to take part in the research and so I will not sign the assent below. \_\_\_\_\_(initialled by child/minor)

Only if child assents:

Print name of child: \_\_\_\_\_

Signature of child: \_\_\_\_\_

Date: \_\_\_\_\_

**ANNEXURE 12b: INFORMED ASSENT FORM FOR PRIMARY SCHOOL CHILD IN  
SETSWANA**

Ke laleditswe go tsaya karolo mo patlisisong kwa\_\_\_\_\_Primary School.  
Ke tlhaloganya gore maikaelelo a patlisiso e ke go sekaseka kitsoka go tlhapa diatla ga bana ba dikolo tse dipotlana, mo kgaolong ya Kweneng Legare, Botswana. Mo potsolotsong e ke tlaa fiwa pampiri ya dipotso e e tlaa ntsayang metsotso e masome a mararo go e tlatsa.

Ke tlhaloseditswe gotlhe mo ke tlhokanang le go go itse mabapi le patlisiso e. Ke filwe nako go botsa dipotso ebile ke arabilwe. Mme ebile ke itse gore ke santse ke ka botsa dipotso mo nakong etang fa kenale tsone.

Jaanong ke batla go tsaya karolo mo patlisisong e.

**KGOTSA**

Kgotsa ga kena keletso ya go tsaya karolo mo patlisisong e, ke jalo ke tlaa seke ke beye monwana fa tlase.\_\_\_\_\_(moithuti/ngwana wa sekolo)

**Fela fa ngwana a dumalana:**

Kwala leina la ngwana ka botlalo: \_\_\_\_\_

Monwana wa ngwana: \_\_\_\_\_

Letsatsi: \_\_\_\_\_

## ANNEXURE 13: LANGUAGE EDITING CERTIFICATE

LoveToEdit

**EDITING**

**CERTIFICATE**



I confirm that I have done Language Editing for

Dissertation titled: **KNOWLEDGE AND PRACTICES OF HAND WASHING AMONG  
PRIMARY SCHOOL CHILDREN IN KWENENG CENTRAL SUB DISTRICT,  
BOTSWANA**

The Dissertation now conforms to language editing standards of



Name of Editor: **Lynn N Sibanda**

*Signature*

Contact Number: 011 050 0376/ 071 989 0983

Email address: [lynn@lovetoedit.co.za](mailto:lynn@lovetoedit.co.za)

Date Issued: 10 May 2018