

**EVALUATION OF RAYMOND MHLABA LOCAL MUNICIPALITY
COMMUNICATION STRATEGIES IN REDUCING THE RISK OF WATER-BORNE
DISEASES OUTBREAK**

ANIMAWUN OLUWATOSIN TOLULOPE

2018



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COMMUNICATION STRATEGIES IN REDUCING THE RISK OF WATER-BORNE
DISEASES OUTBREAK**

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SOUTH AFRICA**

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February 2018

DECLARATIONS

I, the undersigned, **ANIMAWUN OLUWATOSIN TOLULOPE** (201511962), hereby declare that this dissertation is my own original work and that it has not been submitted, and will not be presented at any other University for a similar or any other degree award.

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PLAGIARISM DECLARATION

I, **ANIMAWUN OLUWATOSIN TOLULOPE** (201511962), hereby declare that I am fully aware of the University of Fort Hare's Policy on Plagiarism and I have taken every precaution to comply with the regulations. Where other peoples' work is included or cited, appropriate reference is made to acknowledge the sources or authors.

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Signature

Date_____

DEDICATION

This project is dedicated to the Almighty God, my Creator, the Beginning and the End, the Giver of life, my Sustenance and my ever-present Help in all times.

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My sincere thanks goes to the Almighty God for bringing me this far and for making the writing of this research possible.

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ABSTRACT

Health Communication plays an important role in health sustenance. It is cardinal to disease prevention, health promotion and quality of life. Water-borne diseases are known to pose a significant threat to global health and has claimed many lives. This study seeks to evaluate Raymond Mhlaba Local Municipality's communication strategies employed in reducing the risk of water-borne diseases outbreak in the community. The research method used for this study is mixed method. In-depth interview and questionnaire was used to collect data. The two sampling procedures that were used in this study are purposive sampling for the qualitative aspect of this study and simple random sampling for the quantitative aspect of this study. The conclusion that was drawn from this study is that Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of a communication strategy, which is awareness campaign, in educating its people about water-borne diseases and its prevention but the information is limited in its reach. This study recommends that the awareness campaign done by Raymond Mhlaba (formerly Nkonkobe) Local Municipality should be embarked on more frequently because the more the messages are reinforced for a long time, the more the people in the community are able to remember and the greater the likelihood that they will act upon the message. In addition, Raymond Mhlaba (formerly Nkonkobe) Local Municipality should carry out evaluations like this research at least quarterly in order to assess the impact of the awareness campaigns on the Community, which can also be used as a tool to educate the people of Raymond Mhlaba Local Municipality about Water-borne diseases. Finally, social media is a new trend that most people are now into, most especially the youths; Raymond Mhlaba (formerly Nkonkobe) Local Municipality should key into this and educate the public on platforms on social media as it can be seen as a form of reinforcing health information.

Keywords: Health Communication, Disease Prevention, Health Sustenance, Water-borne diseases

TABLE OF CONTENTS

DECLARATIONS	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
Table of figures	xi
List of tables	xii
Acronyms	xiii
CHAPTER 1	1
INTRODUCTION	1
1.1. Introduction and Background to the study	1
1.2. Statement of the Problem	6
1.3. Aim of the Study	7
1.4. Objective of the Study	7
1.5. Research Questions	7
1.6. Research Methodology	8
1.7. Significance of the Study	8
1.8. Scope of the Study	9
1.9. Profile of Raymond Mhlaba Local Municipality	9
1.10. Conceptual Definition	10
CHAPTER 2	12
LITERATURE REVIEW	12
2.1. Introduction	12
2.2. Defining the concept “Communication”	12
2.3. Contexts of Communication	14

2.4. Strategic Communication	15
2.5. Health Communication.....	19
2.5.1. Purpose of Health Communication	21
2.6. Communication Strategies Employed in Health Communication	22
2.6.1. Social Marketing Approach and Persuasion	23
2.6.2. Tailoring health communication messages	25
2.6.2.1. Emergence of Tailored Health Communication.....	25
2.6.3. Advertising Approach to Public Health Issues	26
2.6.4. New Media approach to Public Health Issues.....	29
2.7. Methods in Health Communication	30
2.7.1. Individual approach.....	31
2.7.2. Group approach.....	31
2.7.3. Mass Media	32
2.8. Health Communication and Communicable Diseases	32
2.8.1. Overview of Water- Borne Diseases	33
Agents of Water-borne diseases.....	35
2.8.1.1. Viruses.....	36
2.8.1.2. Bacteria	37
2.8.1.3. Protozoa.....	38
2.8.2. Causes of water-borne diseases	39
2.8.3. Record of Water-borne Disease Internationally	39
2.8.4. Record of Water-borne Disease in South Africa from year 2000	40
2.8.4.1. Cases of Cholera Epidemic in South Africa in Year 2000-2003	41
2.8.5. Review of Public Health Campaigns on Water-borne Diseases	41
2.8.6. Preventive Measures	43
2.9. Theoretical Framework	44
2.9.1. Theories associated to Behaviour Change	44
2.9.2. Elaboration Likelihood Model.....	46

2.9.2.1. The Central Route to Persuasion	46
2.9.2.1.1. Types of Elaborated Arguments.....	47
2.9.2.2 The Peripheral Route to Persuasion	48
2.9.2.2.1 Types of Peripheral Cues.....	49
2.9.2.2.2 Types of Peripheral Messages	51
2.10. Conclusion	53
Chapter 3	54
Research Methodology	54
3.1. Introduction	54
3.2. Research Design	54
3.2.1. Descriptive Exploratory Research Design.....	56
3.3. Research Methodology	58
3.3.1. Mixed Method	59
3.4. Organization of the Study.....	59
3.4.1. Phase One	59
3.4.1.1. Qualitative Research Method.....	59
3.4.1.2. Population of Phase one of the study	61
3.4.1.3. Sampling Design and Procedures for phase one of the study.....	61
3.4.1.3.1. Purposive sampling	61
3.4.1.3.2. Sampling frame	61
3.4.1.3.3. Sampling size.....	62
3.4.1.4. Data collection method.....	62
3.4.1.4.1 In-depth Interview Procedure.....	62
3.4.1.5. Reliability and Validity	64
3.4.1.5.1. Reliability.....	64
3.4.1.5.2. Validity	64
3.4.1.6. Method of data analysis	65
3.4.1.6.1. Thematic Analysis.....	65
3.4.2. Phase Two	65
3.4.2.1. Quantitative Research Method	65

3.4.2.2. Population of Phase two of the study	66
3.4.1.7. Sampling Technique and Procedure for phase two of the study	66
3.4.1.7.1. Simple random sampling.....	67
3.4.1.7.2. Sampling frame	67
3.4.1.7.3. Sampling size	68
3.4.1.7.4. Sampling Errors	68
3.4.1.8. Data collection method.....	68
3.4.1.8.1. Questionnaire.....	69
3.4.1.9. Pilot Test.....	69
3.4.1.10. Questionnaire procedure.....	70
3.4.2. Method of Data Analysis.....	70
3.4.3. Time dimension	71
3.4.4. Reliability and Validity.....	71
3.4.4.1. Reliability.....	71
3.4.4.2. Validity	72
3.5. Ethical requirement	73
3.6. Conclusion	74
Chapter 4	75
Data Analysis and Discussion	75
4.1. Introduction	75
4.2. Qualitative Data Analysis (Phase one).....	75
4.2.1. Qualitative Research Objective.....	76
4.2.2. Qualitative Data Analysis	76
4.2.3. Thematic Analysis of the Qualitative Data Collected	77
4.2.3.1. Thematic Analysis of the In-depth Interview.....	77
4.2.3.1.1. Overview of Environmental Health Unit of Raymond Mhlaba Local Municipality	77
4.2.3.1.2. The role of personnel in charge of Water Quality Monitoring in preventing a water-borne disease outbreak.....	78
4.2.3.1.3. Evaluation of communication strategies employed by Raymond Mhlaba Local Municipality	80

4.2.3.1.4. Evaluation of the communication tools used to disseminate message to the public.....	80
4.2.3.1.5. Evaluation of the message disseminated to the community on prevention of water-borne disease	81
4.2.3.1.6. Evaluation of the target audience.....	81
4.2.3.2. Thematic Analysis of the communication tool (Poster).....	82
4.2.3.2.1. Evaluation of the message disseminated through the communication tool (Poster).....	82
4.3. Quantitative Data Analysis (Phase Two).....	84
4.3.1. Quantitative Research Objective	84
4.3.2. Quantitative Data Analysis.....	84
4.3.2.1. Demographic and general information of the respondents.....	85
4.3.2.1.1 Gender of the Respondents	85
4.3.2.1.2. Age of the Respondents	86
4.3.2.1.3. Marital Status.....	87
4.3.2.1.4. Nationality of the Respondents	87
4.3.2.1.5 Educational Status	88
4.3.2.1.6. Respondents' level of education.....	89
4.3.2.2. Understanding peoples view of the concept of water borne diseases	90
4.3.2.2.1. Respondents' understanding of water-borne diseases	90
4.3.2.2.2. Respondents' view of Water-borne disease as a cause of death	93
4.3.2.3. Personal hygiene and Water-borne disease	93
4.3.2.3.1. Respondents view on personal hygiene and waterborne diseases.....	94
4.3.2.3.2. Respondents' practice of personal hygiene.....	96
4.3.2.3. Mediums people have received information about water-borne disease	98
4.3.2.3.1. Mediums respondents received information on water-borne diseases	99
4.3.2.3.2. The percentage of Respondents that has received a message from Raymond Mhlaba Local Municipality about water-borne disease	100
4.3.2.3.3. The medium in which the people who ticked yes from the above question got the messages from.....	101
4.3.2.3.4. How people rated the messages gotten from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on preventive measures that can curb water-borne diseases	102
4.3.2.3.5 How often the respondents practice personal hygiene based on the messages gotten from Raymond Mhlaba Local Municipality	102
4.3.2.3.6. Perception of the communication strategies employed by Raymond Mhlaba Local Municipality in controlling water-borne diseases outbreak.....	103

4.3.3. Reliability and Validity of the Results	104
4.4. Conclusion	104
Chapter 5	105
CONCLUSION AND RECOMMENDATION	105
5.1. Overview	105
5.2. Summary of Key Findings	106
5.2.1. The extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of communication strategies to reduce the risk of water- borne disease outbreak in the community	106
5.2.2. The kind of communication strategies employed by Raymond Mhlaba Local Municipality	107
5.2.3. Effectiveness of the communication strategies employed	108
5.3. Limitations of the Study	108
5.4. Recommendation of the study	109
5.5. Future Research Possible Directions	110
5.6. Conclusion	110
REFERENCES	111
Appendix-1	120
Appendix-2	121
Appendix-3	123
Appendix-4	127

Table of figures

Figure 2-1: Social marketing process (Evans, 2006).....	24
Figure 2-2: Methods in Health Communication (Park, 2013).....	30
Figure 2-3: Elaboration Likelihood Model (Dainton & Zelle, 2015)	52
Figure 4-1: Gender of the respondents	85
Figure 4-2: Age of the respondents	86
Figure 4-3: Marital status of the respondent.....	87
Figure 4-4: graph of other nationality	88
Figure 4-5: Formal education status.....	89
Figure 4-6: Respondents' level of education	89
Figure 4-7: Respondent view of Water-borne disease as a cause of death	93
Figure 4-8: Respondents view on personal hygiene and waterborne diseases.....	94
Figure 4-9: Mediums respondents received information on water-borne diseases ..	99
Figure 4-10: Respondents' response to having received information on water-borne diseases from Raymond Mhlaba Local Municipality.....	100

List of tables

Table 2-2: Water-borne diseases pathogens (Reynolds, et al., 2008)	35
Table 2-3: Types of virus and their related diseases (Reynolds, et al., 2008)	37
Table 2-4: Types of bacteria and their water-borne diseases (Reynolds, et al., 2008)	38
Table 2-5: Types of protozoa and their water-borne diseases (Reynolds, et al., 2008)	39
Table 2-6: Department of Health website (Hemson & Dube, 2004)	41
Table 4-1: Respondent's nationality	87
Table 4-2: Respondents' view of water-borne diseases	92
Table 4-3: Respondents' practice of personal hygiene.....	96
Table 4-4: Mediums respondents have received messages on water-borne diseases from Raymond Mhlaba Local Municipality	101
Table 4-5: Respondents' rating of the information on water-borne disease gotten from Raymond Mhlaba Local Municipality	102
Table 4-6: Respondents practice of personal hygiene based on message on water- borne diseases gotten from Raymond Mhlaba Local Municipality	102
Table 4-7: Respondents's perception of the communication strategies employed by Raymond Mhlaba Local Municipality in controlling water-borne diseases.....	103

Acronyms

ADM-	Amathole District Municipality
CDC-	Centres for Disease Control
CRM-	Customer Relationship Management
DWA -	Department of Water Affairs
EPA-	Environmental Protection Agency
MDGs-	Millennium Development Goals
NGO-	Non-Government Organisation
THC-	Tailored Health Communication
UN-	United Nations
UNICEF –	United Nations Children’s Funds
USEPA –	United State Environmental Protection Agency
WCC –	World Water Council
WHO -	World Health Organisation

CHAPTER 1

INTRODUCTION

1.1. Introduction and Background to the study

Defining health communication is as complex as defining communication because it involves several academic disciplines (Schiavo, 2014). Health communication is an aspect of communication that is gaining grounds and becoming more popular in recent times. It is an aspect of communication that addresses public health issues, health communication researchers help to discover ways that can control public health issues, which would improve the health of the people (Wright, et al., 2013). It also seeks to improve health literacy. Health education/communication has been a fundamental tool to health promotion and diseases prevention (Nutbeam, 2000). Health communication has been identified to be integral to the effective public health response to the continuing health threat posed by communicable diseases (European Centre for Disease Prevention and Control , 2014).

In order to reduce disease rate and improve the health of people globally, health communication must be incorporated in health sustenance strategies because medicine alone cannot ensure health sustainability (Koelen & van den Ban, 2004). From several literature on health communication garnered by the researcher, it can be said that health communication plays a significant role in health sustenance. Predominantly, most diseases with high morbidity and mortality rates (such as cancer, cardio-vascular diseases etc.) have multifactorial cause, but in the occurrence and control of those diseases, human behaviour and their environment play a major role (Koelen & van den Ban, 2004).

Health communication is strategic in nature because it seeks to achieve Public Health goals. Health communication employs communication strategies in executing

its programmes. Communication strategies which are the blueprints for how information will be exchanged (Jeff, 2010) is used to inform and influence individual and community decisions that enhance health (European Centre for Disease Prevention and Control , 2014). Examples of communication strategies are awareness campaigns, tailored health communication, social marketing approach to health issues and persuasion, advertising strategy and the use of new media approach to tackle public health issues. The use of various communication strategies to influence human behaviour can be an “intellectual and practical challenge” (Slater, 1999:336). Identification of issues related to behaviour change and designing of solutions that can ensure behaviour change can be derived from various theories of persuasion and behaviour. For example, persuading people to cultivate the habit of practicing personal hygiene, which is one of the characteristics of health education, can help control occurrence of water- borne diseases which would in turn ensure public’s health sustenance.

Looking at this study, it is important to note that in the South African’s Water Services Act (No. 108 of 1997), there is a set regulation for the National Standards for the Quality of Portable Water. The Drinking Water Specification is a collective guideline, which helps to ensure the bacteriological and chemical qualities of water that would be consumed by human beings in order to achieve sustainable health (Barnard, et al., 2013). The Department of Water Affairs (DWA) ensures the availability of water to the Water Services Authorities and Water Services then ensures that the guidelines set in Water Services Act are adhered to before water is distributed to people for drinking (Barnard, et al., 2013). It must however be noted that clean water can be contaminated through various means, which may cause water-borne disease outbreaks that can claim many lives. The outbreaks of water-borne disease in communities are caused by water-borne pathogens, which are organisms that has the potential of causing diseases (Percival, et al., 2014). Pathogenic microorganisms that have the potential of causing diseases through drinking water are divided into three groups, which includes: protozoans, viruses, and bacteria and the major way through which the pathogens can contaminate water

is through the exposure of water to the atmosphere and to animals (Percival, et al., 2014).

Apart from the water made available by DWA, people also drink and make use of surface water. It is a known fact that surface water is one of the sources of water that is at great risk of being contaminated by pathogens because pathogens from animal faeces used as fertilizers applied to agricultural land and from sewage treatment plant, wash off into surface water (Percival, et al., 2014). All these could lead to the outbreak of a type of water-borne disease in a community. Water-borne diseases are known to pose significant threat to global health, and about 200 million water-related diarrhoea cases, which lead to approximately 2.1 million deaths, are recorded annually (Percival, et al., 2014:537). Statistics from the World Health Organisation (WHO) and World Water Council (WCC) indicated that three to four million people in the world die from water-borne diseases every year (The World Bank, 2001; Cosgrove, 2000). Studies suggest that the high number of deaths in developing countries can be connected to lack of clean water and proper sanitation measures (Gomez & Nakat, 2002). This finding buttresses the point of WHO and UNICEF, which opined that adequate water, and proper sanitation measures are essential necessities of man that ensures sustainable health (World Health Organisation and UNICEF, 2000).

Due to the effect of insufficient clean water and inadequate sanitation measures, environmental sustainability was one of the Millennium Development Goals (MDGs) signed in year 2000. This MDG was concerned with reducing the number of people without access to safe drinking water and proper sanitation measures drastically by half, before year 2015, in order to curb water-borne disease outbreaks (UNICEF and World Health Organization, 2015). Additionally in year 2005, UN launched the “International Decade for Action: Water for Life” campaign to support the 7th MDG (Moe & Rheingans, 2006). In year 2010, five (5) years ahead of the speculated time for the achievement of the goal, safe drinking water target was reached and around 90% of the world’s population was reported to have access to safe drinking water.

However, it has been reported that many people still lack access to proper sanitation measures (UNICEF and World Health Organization, 2015). About 2.4 billion people were said to be lacking proper sanitation measures and the main causes identified by Jan Eliasson, the UN Deputy Secretary-General, was inequality between the urban and rural residents and the persistent exclusion of the poor from water and sanitation services (UNICEF and World Health Organization, 2015). One of the causes mentioned above can be identified in South Africa, as there is still disparity between the rural areas and the urban areas in terms of providing adequate source of clean water and proper sanitation measures (Business Leadership South Africa and The Centre for Development and Enterprise, 2010). In the round table discussion convened by Business Leadership South Africa and The Centre for Development and Enterprise, Gerald Boon who is the Head of Paediatrics and Child Health, East London Hospital Complex, stated in his contribution that there are still people without access to safe drinking water, in many rural places in South Africa. He concluded that both water quality and water quantity are both important factors in curbing outbreaks of water-borne diseases and advised that adequate measures should be taken in order to provide clean water (Business Leadership South Africa and The Centre for Development and Enterprise, 2010).

Drawing on the issue of water quantity as a cause of water-borne disease outbreaks, South Africa has been experiencing dryness for a couple of years (Amathole District Municipality, 2016). Due to the dryness situation, many people might return to the use of surface water (such as rivers, streams etc.) when they do not have access to clean water (Business Leadership South Africa and The Centre for Development and Enterprise, 2010). This puts people at risk of water-borne diseases because as it has been mentioned earlier that surface water is at high risk of being contaminated by water-borne pathogens (Percival, et al., 2014), most especially in developing area like Raymond Mhlaba (formerly Nkonkobe) Local Municipality, where they lack proper sanitation measures (Zamxaka, et al., 2004). To avoid the situation where people would return to using surface water, ADM Executive Mayor Nomasikizi Konza

said that there would be implementation of water restrictions like shutting off water during some periods of the day (Amathole District Municipality, 2016). The shortage of water at some points, may lead people to store clean water when they are available, which is not a bad idea if the containers are properly cleaned.

Gerald Boon, the Head of Paediatrics and Child Health, East London Hospital Complex, Eastern Cape, South Africa advised that proper ways of cleaning water containers and storing of clean water measures should be developed at the household level. He also suggested that water scientist and educationist should help in transmitting the proper storage of water information to people (Business Leadership South Africa and The Centre for Development and Enterprise, 2010). With this advice, it is certain that health sustenance would be achieved through reinforcement of health information. Adding to what Gerald Boon has suggested, Paul Jagals, Professor of Environmental Health in Tshwane University of Technology, also saw a need for communication to educate the public as a strategy to help reduce outbreaks of water-borne diseases. He also noted that he usually encounters billboards that educate people on safe sex but hardly has he seen any on practising safe water. Although, not an easy task but a possible one. He added that the issue of communicating with the public is an important issue because no technology can effectively curb the outbreak of water-borne diseases rather the behaviour of people towards their hygiene can reduce the risk of water-borne disease outbreaks in a community (Business Leadership South Africa and The Centre for Development and Enterprise, 2010).

Therefore, health education, such as personal hygiene promotion, is essential due to the fact, that hand washing with soap and water reduces the transmission of diarrhoeal diseases by “one-third” (World Health Organisation and UNICEF, 2000:1). Consequently, the prevention of diseases and sustenance of health can be achieved through health communication/education. Health communication/education, which could be in form of awareness campaigns, tailored health messages, persuasion television and radio advertisement etc.

1.2. Statement of the Problem

It is a known fact that South Africa has been experiencing dryness for some years now (Amathole District Municipality, 2016), which has been stated by WHO as one of the major factors that contributes immensely to the outbreak of water-borne diseases (World Health Organisation, 2016). In low and medium income settings where they lack proper sanitation measures, insufficient water has a tendency of causing a water-borne disease outbreak because of the use of surface water as alternative. In the year 2012, about 842 000-diarrhoea deaths were recorded due to insufficient water in low and medium income settings (Levy, et al., 2016), because people living in rural areas to utilize unprotected water sources such as surface water as an alternative.

It is important to note that Raymond Mhlaba (formerly Nkonkobe) Local Municipality, is a low and medium income setting and it is at a high risk of being exposed to water-borne disease outbreaks. Educating the people of Raymond Mhlaba Local Municipality on how to guide against the several risks of the outbreak of water-borne disease is very important as failure to do so would constitute a problem (Zamxaka, et al., 2004:334). Although, no record of an outbreak of any of the water-borne diseases has been recorded in Raymond Mhlaba Local Municipality, which gives a sense of security but this could be false. Therefore, it is advisable that Public Health Practitioners, Environmental Health Practitioners, policy makers need to understand the importance of health communication in order for health communication strategies to have an impact in the health behaviours of the public so as to achieve public health sustainability.

This led to this study, which seeks to investigate the role Raymond Mhlaba Local Municipality's communication strategies plays in educating the public about water-borne diseases and how the communication strategies has influenced the people's behaviour towards ensuring they control factors that could possibly lead to water-borne disease outbreaks.

1.3. Aim of the Study

The aim of this study is to evaluate Raymond Mhlaba Local Municipality's communication strategies employed in reducing the risk of water-borne diseases outbreak.

1.4. Objective of the Study

1. To investigate the extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of communication strategies to reduce the risk of water- borne disease outbreaks.
2. To evaluate the kind of communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in reducing the risk of water-borne disease outbreaks.
3. To ascertain the influence of the various communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality on people's behaviour towards controllable factors that could reduce the risk of an outbreak.

1.5. Research Questions

1. To what extent does Raymond Mhlaba (formerly Nkonkobe) Local Municipality make use of communication strategies to curb the outbreak of water-borne diseases?
2. What are the communication strategies employed by the Raymond Mhlaba (formerly Nkonkobe) Local Municipality to reduce the risk of water-borne diseases outbreak?
3. How does the communication strategies influence the behaviour of the people in controlling the factors that can lead to water-borne disease outbreaks?

1.6. Research Methodology

This study intends to make use of the mixed method, which is the combination of qualitative and quantitative research methodology (Clayton, 2010). Mixed methods research is an intellectual and practical synthesis based on qualitative and quantitative research; it can be identified as one of the methodological or research paradigms like qualitative and quantitative research. This paradigm provides a more informative, complete, balanced and useful results as compared to either quantitative or qualitative research. It also acknowledges the importance of the traditional qualitative and quantitative research and merges both in order to achieve unbiased result (Johnson, et al., 2007).

Mixed method is employed in this study in order to achieve a clear understanding of the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to curb the outbreak of water-borne diseases an achieving a clear understanding is one of the major advantages of using mixed method in a research. A detailed discussion on this is in chapter 3.

1.7. Significance of the Study

Little or no information exist concerning the communication strategies employed by Local Municipalities in the fight against water-borne diseases outbreak. Therefore, this study would fill the void by providing information on communication strategies that can be used in curbing the outbreak of water-borne diseases. This study will also enlighten all other Local Municipalities in South Africa and outside the country about how effective communication strategies put in place to curb an outbreak of water-borne diseases can help reduce the rate of water-borne disease outbreaks. In addition, this study will assist Municipalities in redesigning their communication strategies put in place to curb the outbreak of water-borne diseases if what they were using is not efficient enough.

1.8. Scope of the Study

This study is limited to evaluating Raymond Mhlaba (formerly Nkonkobe) Local Municipality communication strategies in reducing water-borne disease outbreak in the community.

1.9. Profile of Raymond Mhlaba Local Municipality

Raymond Mhlaba Local Municipality was established by the amalgamation of Nkonkobe Local Municipality and Nxuba Local Municipality on the 3rd of August 2016. Nkonkobe Local Municipality was formerly under one of the Local Municipalities under Amathole District Municipality (Jari, et al., 2011) but now amalgamated with Nxuba Local Municipality to form Raymond Mhlaba Local Municipality. It is located in the Eastern Cape of South Africa. The Local Municipality consists of disestablished Transitional Local Councils (TLCs) which are Adelaide, Alice, Bedford Middledrift, Fort Beaufort, Hogsback and Seymour/Balfour (Municipalities in South Africa, 2017).

The legislative seat of Raymond Mhlaba Local Municipality is in Alice while the administrative seat is in Fort Beaufort (Nkonkobe Local Municipality, 2013). The people of Ama Gqunukwebe are the majority of people based in the Local Municipalities amalgamated to form Raymond Mhlaba, they speak Xhosa language, about 60% of the people staying in the Local Municipality live in rural areas (Nkonkobe Local Municipality, 2013). Raymond Mhlaba Local Municipality is said to be the largest Local Municipality in the Eastern Cape (Municipalities in South Africa, 2017), over 16 percent of the surface area of Amathole District is occupied by the Local Municipality (Nkonkobe Local Municipality, 2016). The major source of living is derived from general government services, wholesale and retail trade, finance and insurance, business services, construction and farming (Nkonkobe Local Municipality, 2016).

1.10. Conceptual Definition

- Attitude - an individual's belief towards performing a particular behaviour (Bhattacharjee, 2012).
- Behaviour - is the way an individual react to a particular issues; the attitude of an individual towards an issue that prompt the behaviour of the person towards the issue (Martin & Pear, 2016).
- Communication strategies - Communication strategies are the blueprints for how information will be exchanged (Jeff, 2010)
- Endemic diseases - a disease that is constantly present to a greater or lesser degree in people of a certain class or in people living in a particular location (Payment, 2009).
- Epidemic diseases - a disease outbreak that occurs at a rate greater than expected (Cohen, 2004).
- Health communication - is a crucial act that increases people's understanding of healthy living (Nutbeam, 2000).
- Health education - rendering assistance to individuals to make informed decisions about their personal health or about health issues that may be detrimental to others (Glanz, et al., 2008)
- Health promotion - is about enabling people to take control over their health and its determinants, and thereby improve their health. It includes interventions at the personal, organizational, social and political levels to facilitate adaptations (lifestyle, environmental, etc.) conducive to improving or protecting health (Kumar & Preetha, 2012)
- Outbreak - an unexpected high number of cases of a disease or syndrome (Dworkin, 2010)
- Pandemics - the spread of a new disease worldwide, which people do not have immunity against (World Health Organisation, 2010)
- Pathogenic microorganism - microorganism that are capable of causing diseases (World Health Organization, 2003).

- Persuasion - the involvement of one or more persons who are engaged in the activity of creating, reinforcing, modifying, or extinguishing beliefs, attitudes, intentions, motivations, and/or behaviours within the constraints of a given communication context (Gass & Seiter, 2015)
- Strategic communication - Strategic communication can be defined as an intentional use of communication to change a particular behaviour or reach one's goal (Hallahan, et al., 2007).
- Target audience - the individuals the health communicator intends to influence to change their behaviour towards the issue of interest (Nicols, 2016).
- Water-borne diseases - diseases associated with the consumption of water containing pathogens gotten from human or animal faeces (Grabow, 2009).

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter seeks to review literature related to this study and elaborates more on concepts that are associated with this research. It also gives details of research that were done previously by various scholars on the concept of communication, strategic communication, health communication, and the communication strategies employed in health communication. This chapter also discusses water-borne diseases and its occurrence as well as the theoretical framework that underpins this study.

In this chapter, health communication, which is also known as health education and promotion, would be discussed below. The role health communication plays in ensuring health sustainability against communicable diseases would be discussed in details. Communication strategies, like awareness campaigns, behavioural change research, which enables tailored health communication, social marketing approach to health issues and persuasion, advertising strategy, use of new media approach to tackle public health issues, would be adequately discussed below.

2.2. Defining the concept “Communication”

Communication is essential in our human day-to-day activities because everyone uses it every day (Littlejohn & Foss, 2011). Communication is identified as a “universal human experience” which does not have a specific definition (Littlejohn & Foss, 2011). Various scholars in the past have tried to narrow communication down to a particular definition but all have been a failed attempt. In order to have a better understanding of the concept “Communication” would be looking at old and recent sources from scholars that have tried to define communication.

In the year 1970, Frank Dance wrote an article on the concept of communication and identified three different approaches to understanding the concept “communication” due to the term’s complexity. The first approach to defining the concept “Communication” as stated by Frank Dance describes communication through the “level of observation”. He explained that if through this approach one should narrow the concept of communication, based on humans, communication can be perceived as a “conscious interaction” between humans, which is “meaningful” and “purposive”; it mainly focuses on human behaviour in communication (Dance, 1970:208). Therefore, all communication definitions that has to do with the interaction between or among individuals fall under this approach to communication. The second approach to understanding the concept of “Communication” propounded by Frank Dance is the “level of intent on the part of the sender”. The level of “intentionality” in communication focuses more on “range” and “power” rather than “human behaviour”. The act of communication under this approach to communication focuses on the sender and the instruction given which would affect the receiver. This category of definitions perceives communication by the reason communication was used (Dance, 1970:209). All communication definitions that focus on intention falls under this category. The third approach to understanding the concept of communication is through “normative Judgement”. This category of definition defines communication as the successful exchange of idea or thought. This approach notes the difference between passing information and the information being understood (Dance, 1970:209). This approach focuses on the “effectiveness” of the message (Littlejohn & Foss, 2011:4). All communication definition that focuses on successful exchange of information fall under this definition.

Although some definitions cut across all the three approaches but these are the best approaches that could best encompass all communications definitions (Dance, 1970). This study focuses on communication that cut across the three approach because it is a **purposive** use of communication in which the sender **intends** to pass an information and looks forward to the message being **understood and effected** in people’s lives in order to achieve health sustainability. Due to these

various approaches to the understanding of communication, Frank Dance concluded that communication should not be defined in a particular sense rather should be understood as a collective understanding of the various different approaches to the understanding of the term communication (Dance, 1970). Littlejohn and Foss also supported Frank Dance's conclusion by stating that the research question should be the determinant to the concept of communication that would be made use of in a study (Littlejohn & Foss, 2011).

One important thing to note about communication is the fact that it always has a purpose; there is always a reason for the use of communication (Koelen & Van den Ban, 2004: 95). The purpose of communication in this study is strategic in the sense that communication is planned and used to change people's behaviour towards a phenomenon that would result in achieving public's health sustenance.

2.3. Contexts of Communication

As it has been earlier mentioned, that communication does not have a specific definition but a number of contexts of communication can be identified (Dainton & Zelley, 2015). There are various contexts of communication and theories related to them. The most appropriate context of communication that applies to this study is persuasive and the related theory is Elaboration likelihood model. This is because health communication is based majorly on persuasion. Persuasion can be said to be the key to influencing another person decision. The researcher is of the view that there is no way one can sustainably influence another person without being persuasive. Coercion can be said to achieve a change but not sustain a change. Therefore, for a change to be sustainable, persuasion must be occur.

2.4. Strategic Communication

In the words of Jakki Mohr and John Nevin (1990), “Communication can be described as the glue that holds together a channel of distribution” (Mohr & Nevin 1990:36). In marketing, persuasive messages can be conveyed through communication; communication has the ability of encouraging participation of an audience in decision making and ensuring efficient programs are implemented (Mohr & Nevin, 1990). Communication can therefore be seen as strategic because it can be employed as an approach in achieving a set goal. When communication is utilized for a particular reason, it can bring about a positive change in the mind of the target audience. This is the reason why the term “strategic communication” exist in the study of communication.

Strategic communication can be defined as an intentional use of communication to change a particular behaviour or reach one’s goal (Hallahan, et al., 2007). Strategic communication is said to be very vital before embarking on any program in an organisation or a body in order to design the appropriate communication approaches to be employed. Effective and efficient communication approaches can only be designed for a particular program, if strategic communication is used beforehand. Without strategic communication put in place in an organisation or a body, the body or organisation is at the verge of falling into crisis or conflict with the target audience (Mohr & Nevin, 1990). Conflict, between an organisation or an NGO and their target audience, is majorly caused by ineffective communication, which usually leads to “misunderstandings, incorrect strategies, mutual feelings of frustration and, distrust” (Mohr & Nevin 1990:36). Strategic communication helps to build trust between the target audience and the message sender (which could be the organisation or an NGO) which would limit the risk of the NGO or organisation being in a conflict with their target audience (Mohr & Nevin, 1990).

Fulfilment of one’s organisation or NGO mission can be achieved through the use of strategic communication because it purposefully utilize communication to achieve its aim. In addition, in order to develop a good communication strategy, six (6)

significant disciplines has to be involved in the “development, implementation, and assessment of communications of the organisation or NGO’s communications; they include management, marketing, public relations, technical communication, political communication, and information/social marketing campaigns” (Hallahan, et al., 2007). Designing of the communication strategy that would be employed by an organisation or NGO is not just limited to management, marketing, advertising and public relations, other various disciplines have to be involved in the development, implementation and assessment process (Hallahan, et al., 2007). This is because the collective effort of all unit helps to ensure that the mission, vision and social movement of the organisation is properly portrayed to the target audience. This is the crux of strategic communication. The involvement of all other discipline in designing communication strategy further points towards the fact that everyone is consciously working together on the communication strategy, causes and social movements on behalf of the organisation (Hallahan, et al., 2007:4).

The target audience has also grown increasingly with the recent trends in the corporate world. This has led to organisations and various bodies always competing for their target audience. Target audience most times consist of “customers, employees, investors and donors, government officials, special interest group leaders, and the public at large” (Hallahan, et al., 2007:4). Therefore, organisations and other bodies have to make calculated decisions on the level and nature of resources that would be allocated to each target audience (Hallahan, et al., 2007).

According to Hallahan et al (2007), strategic communication seeks to “examine organisational communication from an integrated, multidisciplinary perspective by extending ideas and issues grounded in various traditional communication disciplines” (Hallahan, et al., 2007:4). The traditional communication disciplines, which are management, marketing, public relations, technical communications, political communication, information/social marketing campaigns, were working independently before the evolution of strategic communication. Presently, with the establishment of strategic communication, the abovementioned autonomous disciplines work together and exchange ideas that would help portray a good identity

of the organisation in order to create a positive image in the mind of the target audience (Hallahan, et al., 2007).

The six (6) autonomous disciplines that make up strategic communication have different staff personnel and purposes. Their personnel and purposes are identified below:

Management Communication

Personnel: The personnel under this department are in charge of the Managerial/administrative work in the organisation (Hallahan, et al., 2007:5).

Purpose: They ensure orderliness in the organisation operations. In addition to that, they foster people's understanding of the organisation's mission, vision, and their goals. They also provide information for the day-to-day transactions of the organisation, which includes customer and merchant dealings and also customer and employee training (Hallahan, et al., 2007:5).

Marketing Communication

Personnel: The personnel under this department are in charge of marketing and advertising in the organisation (Hallahan, et al., 2007:6).

Purpose: Awareness creation and promotion of sales of the organisation's products and services. In addition, they entice new customers and maintain their relationship with their old customers and intermediaries in their channel chains. In NGOs and other non-profit bodies, the purpose of marketing communications also includes fundraising and development communications (Hallahan, et al., 2007:6).

Public Relations

Personnel: The personnel under this department are in charge of Public Relations/publicity, human resources, media, finance, and government relations (Hallahan, et al., 2007).

Purpose: Beneficial relationship establishment and maintenance with target audience, which includes consumers and customers, investors and shareholders,

employees and volunteers, community leaders, government officials and publics at large (Hallahan, et al., 2007).

Technical Communication

Personnel: The personnel under this department are in charge of giving engineering support, training employees and technical aspect of the organisation (Hallahan, et al., 2007).

Purposes: Improvement of the organisation efficiency through educating of employees, customers and relevant people. In addition, they see to the fact that errors in the activities of the organisation are reduced to the minimal effect through the promotion of employing effective use of technology in the organisation's day-to-day transactions (Hallahan, et al., 2007).

Political communication

Personnel: The personnel under this department are in charge of attending to any communication the concerns Government affairs, which includes politicians, and advocacy groups (Hallahan, et al., 2007).

Purposes: Building of beneficial political consensus between the organisation and the government on important issues that involves the exercise of political power with allocating resources in the community (Hallahan, et al., 2007).

Information/Social Marketing Campaigns

Personnel: The personnel under this department are mostly under NGOs, non-profit organisations; corporate organisations also have this department but not all (Hallahan, et al., 2007).

Purposes: To work towards reduction of risky behaviours from the target audience towards the organisation. In addition, this department also executes social change promotion for the good of the community (Hallahan, et al., 2007).

Responsibilities of the collective autonomous disciplines

Audience analysis, goal setting, message strategy, channel choice and program assessment are some of the duties the autonomous disciplines execute together in order to relate or achieve the mission of the organisation or activist groups or NGO they work for. This tends to improve the organisation performance, increase the product sale, encourage donors to invest, and builds the relationships between the organisations or bodies and their target audience (Hallahan, et al., 2007).

Therefore, it should be understood that the strategic application of communication and portraying an organisation as a social actor in order to fulfil its goal is what strategic communication is based on. The focus of strategic communication is on the presentation and promotion of the organisation to its stakeholders through deliberate actions by the organisations employers, employees and communication specialist (Hallahan, et al., 2007:7). The use of strategic communication is very essential (Hallahan, et al., 2007). Strategic communication is also perceived as a means to promote environmental activism (Health Communication Patnrnership, 2006a). The main idea behind strategic communication is persuasion and persuasion is done in order to change people's behaviour, which would lead to social change (Hallahan, et al., 2007). Therefore, health communication can be said to employ strategic communication because it seeks to change people's behaviour and achieve public's health sustainability.

2.5. Health Communication

Defining health communication is as complex as defining communication because it involves several academic disciplines; both do not have a precise meaning (Schiavo, 2014). One major characteristic of health communication that is collectively agreed upon is that "health communication can play (a role) in influencing, supporting and empowering individuals, communities, health care professionals, policymakers, or special groups to adopt and sustain a behaviour or a social, organisational and policy change that will ultimately improve individual, community, and public health

outcomes” (Schiavo, 2014:3). Health communication involves the combination of theory and practice in order to understand communication processes and changeable human behaviour (Rimal & Lapinski, 2009). Health communication is one of the prominent emerging fields in public health, health care and Non-Government Organisations (NGOs) (Schiavo, 2014:3). In the United States of America (USA)’s healthy people 2010 objectives, a chapter is been apportioned for health communication; this shows the relevance of health communication in disease prevention, health promotion and sustainability of the quality of life. Health communication has been said to be relevant in this period that human behaviour has been recognized as threat to global public (Rimal & Lapinski, 2009:247).

In order to reduce diseases rate and improve the health of people globally, health communication must be incorporated in health sustenance strategies because medicine alone cannot ensure that (Koelen & van den Ban, 2004). Basically, most diseases with high morbidity and mortality rates (such as cancer, cardio-vascular diseases etc.) are caused by multifactorial causes, but in the occurrence and control of those diseases, human behaviour and their environment play a major role (Koelen & Van den Ban, 2004:20). Persuading people to cultivate the habit of practicing personal hygiene is one of the characteristics of health education that can help control occurrence of diseases (Koelen & van den Ban, 2004).

The researcher is of the view that water-borne disease outbreaks can be prevented if health communication is taken seriously and added to public’s health sustenance strategies. With the help of Health Educators on prevention on water-borne diseases and Water Scientists to ensure that safe drinking water is coming from people’s tap, there is a high possibility that water-borne disease outbreaks can stop occurring in South Africa and in the world at large.

2.5.1. Purpose of Health Communication

Health communication can be used for three major purposes: to inform, to persuade and to educate. “Informational Communication” helps the receiver to decide on ideal health decisions (Koelen & Van den Ban, 2004:95). With adequate information on healthy lifestyle, an individual can decide to cut down one’s intake of sugar (glucose) and watch one’s weight in order to reduce the risk of being diabetic. Unlike informational communication, “Persuasive Communication” focuses on communication that is strategically designed to influence the behaviour, attitudes or goals of the receiver in order to achieve the desired outcome - could be concerning an individual or the community’s health (Koelen & van den Ban, 2004). Most health communications are mostly persuasive in nature and most times touches on sensitive topics like practising safe sex, personal hygiene etc. It is important to note that the beneficiary from a “persuasive health communication” is always the receiver and the effect of the messages is to achieve a “collective good” rather than a normal persuasive message that the aim is majorly for the benefit of the sender (Koelen & Van den Ban, 2004:96). Persuasive health communication is defined as “a professional communication intervention to induce a change in a voluntary behaviour with a presumed individual, public or collective utility” (Koelen & Van den Ban, 2004:96).

Educational Communication, unlike persuasive communication, does not focus on individual / communities “wrong attitudes” or “wrong practices” rather on people’s needs; how they can identify their needs, how they can help improve their problem-solving capacity and assist them to acquire expertise that would give them confidence in order to be able to work on their needs. The proverb “it is better to teach someone how to catch fish than to provide him with fish every day” is what educational communication is based on (Koelen & Van den Ban, 2004:96). Educational communication is similar to participatory approach as its health promotions purpose is majorly empowerment (Koelen & van den Ban, 2004).

It is essential to note that the above-mentioned purposes of health communication can occur simultaneously in a health promotion in practice ; they are not mutually exclusive. For instance in a persuasive health communication, information to help individuals make choices are incorporated into the activity as well as in educational health communication, some persuasive elements are found in the messages that are being designed and in some cases all the purposes of health communication are being fused into one program. It usually starts with persuasive health communication, especially in the cases of HIV/AIDS epidemic communication, in order to persuade people about the benefit of preventive behaviour. Then, the informative aspect of health communication comes in so as to give information on how the diseases can be prevented, after, how to educate people on the different ways on how to practice safe sex (Koelen & Van den Ban, 2004:96).

For this study, the researcher is of the view that Local Municipalities are to be involved in persuasive health communication and Informative health communication. By sending Health Educators into low and medium income settings to persuade them not drink directly from surface water such as rivers and streams, outbreaks risk would be minimized because they are higher risk of being infected by water-borne diseases. The Local Municipalities should also ensure that they inform people of the benefit of practicing safe water so they would understand that the illness could kill if not treated on time.

2.6. Communication Strategies Employed in Health Communication

Communication strategies are the blueprints for how information will be exchanged (Jeff, 2010). The use of various communication strategies to influence human behaviour can be an “intellectual and practical challenge” (Slater, 1999:336). Identification of issues related to behaviour change and designing of solutions that can ensure behaviour change can be derived from various theories of persuasion and behaviour. It should be understood that the various theories of persuasion and behaviour identify different problems and suggest various specific interventions that

can facilitate behaviour change. Therefore, it can be said that various theories of persuasion and behaviour change came about due to the need to intervene in specific issues relating to behaviour change (Slater, 1999).

2.6.1. Social Marketing Approach and Persuasion

An example of an approach/strategy used in health communication is social marketing approach. In a health communication setting, social marketing approach can be defined as the use of marketing techniques to achieve a sustainably social change (Jeff, 2010). Social Marketing focuses on behavioural change in order to facilitate change in the society. Social marketing approach in development focuses on understanding the stakeholders involved and investigating the best way to find a sustainable solution to the social problem (Jeff, 2010). Influencing people to adopt and sustain healthy behaviour towards a certain phenomenon can be very difficult. Commercial strategies has been seen as one of the means of achieving a success (Evans, 2006). In Douglas Evans words, “social marketing applies commercial marketing strategies to promote public health” (Evans, 2006:1207). Social marketing employs various health communication approaches based on mass media, interpersonal communication (one-on-one) and mediated communication (information through a healthcare provider) and other mediums. Social marketing also make use of a wide range of marketing methods, like, message placement (posters around the clinic), (health) promotion, (health messages) dissemination, community level outreach (e.g. awareness campaigns) (Evans, 2006).

The key stage of social marketing entails six (6) processes, namely, planning strategy, which is based on behavioural theory; the selection of communication materials and channel, which is based on the target’s audience and the behaviour change intended. The development of communication materials and pretesting of those materials on a small group of people that are also among the target audience is the third stage; the fourth stage focuses on implementation of the strategies early planned (which could be a campaign or dissemination of the message through mass

media). The fifth stage assess the effectiveness of messages received by the target audience, this stage seeks to evaluate how the message sent has influenced the behaviour of the target audience towards the phenomenon of interest. Finally, the collection of feedback to refine the ongoing programme for future purposes, the last stage gives feedback to the first, which makes the process continuous (Evans, 2006).

The figure below outlines the key stages of social marketing:

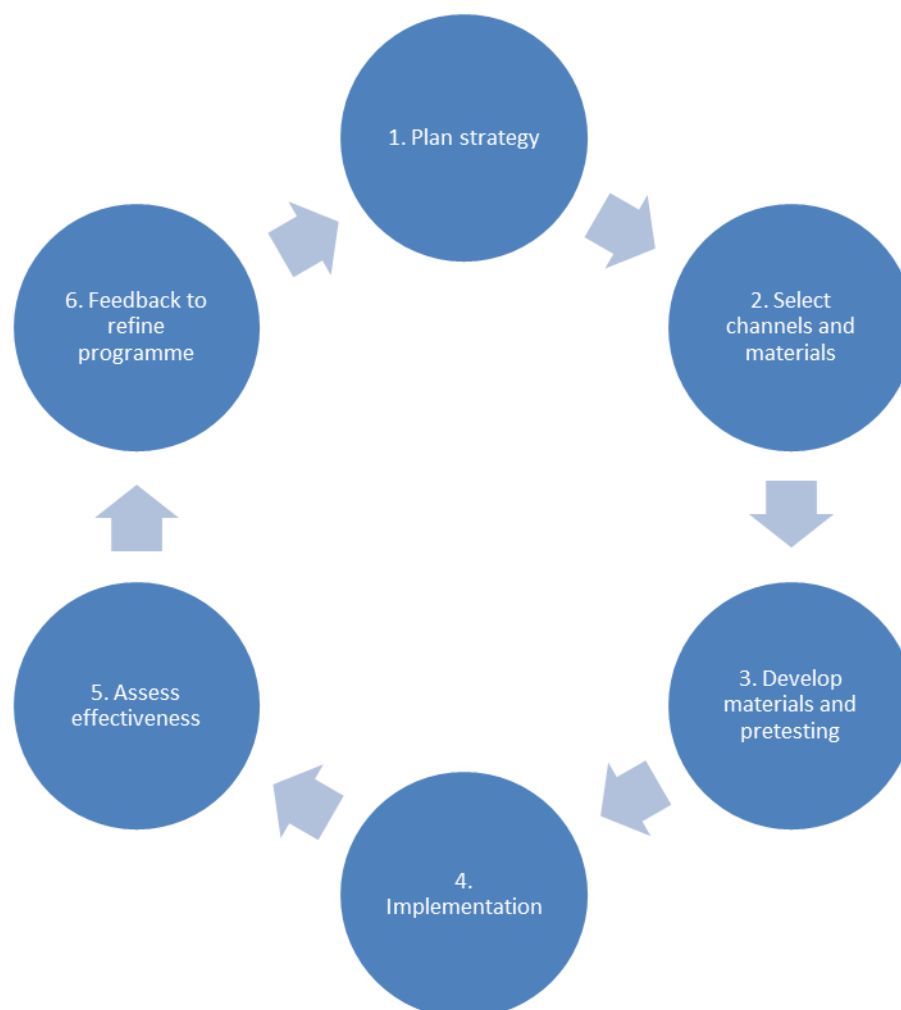


Figure 2-1: Social marketing process (Evans, 2006)

2.6.2. Tailoring health communication messages

Tailored Health Communications (THCs) is another strategy that can be used to influence people's behaviour towards a phenomenon of interest. A tailored health communication (THC) is the fusion of health information and behaviour change strategies designed for a particular person. The composition of the THC is drawn from the findings gotten from the individual's assessment. The THC is unique to that individual of interest (Rimer & Kreuter, 2006). THCs has contributed to the relevance and prominence of health communication. This kind of messages increases the possibility of message acceptance, information processing and behaviour change.

THCs has the possibility of motivating the target audience to process the customized health information in at least four ways:

- The target audience's interest and information needs are *matched* to the tailored health information.
- The tailored health information are *meaningful* to the target audience.
- The design and production elements *entices and captures* the target audience attention.
- The amount, type of health information *suits* the target audience needs and the channel of communication must be *liked* by the target audience in order to avoid the risk of target audience being exposed to communication intervention that are long and stressful for the target audience (Rimer & Kreuter, 2006:S188).

2.6.2.1. Emergence of Tailored Health Communication

Before 1980s, target audience for health information were not segmented, the information were printed and disseminated through brochures, pamphlets and booklets. Due to the high cost of printing, health communicator printed a large number of materials that they suppose would be adequate for their target audience and neglected diversity within the target audience (Rimer & Kreuter, 2006). Later,

behaviour scientist started to research on behaviours and noted the diversity among people. This gave a rise to various persuasive messages that suits various group of people. This type of health communication focuses on target audience segmentation before designing a health message. Target audience segmentation is a known concept but was used in advertising and marketing but now behaviour scientist has seen segmentation importance in persuasive messages. Tailored health communication emerged from the approach of customizing health information for a particular person or group of people that share the same belief and act almost alike (Rimer & Kreuter, 2006: S186).

2.6.3. Advertising Approach to Public Health Issues

The dormant force in marketing used by most health communicators before the existence of media fragmentation, electronic technology and database management was Advertising. Advertising made it possible to target one's audience specifically using mass media, although was quiet expensive (Kitchen & de Pelsmacker, 2004). The high cost of advertising, which were based on mass media was efficient enough but was threaten after the raise of media fragmentation, electronic technology and database management (Hadji, 2012:38).

Advertisement can be delivered in different ways through various mediums such as, newspapers, television, radio, billboard and recently, internet (Hadji, 2012). Advertising can be defined as dissemination of messages through mass channels of communication in order to promote/publicize the acceptance of a new/existing goods, services, persons or ideas (Hadji, 2012). Advertising has been said to have four (4) main purposes, namely, to attract attention, to inform, to persuade and to remind. It has been noted that the ability for advertising to cover a large target audience makes it efficient (Hadji, 2012).

Development of media-planning when dealing with advertising is very essential. To develop media planning there are two sub-component; namely, (1) selection of

communication channels and media mix and (2) decision on the reach, frequency and time (Barker & Angelopulo, 2006). Media planning is essential because of the appropriateness of media; the goal of the organisation/body determines the kind of media that would be used. Media such as broadcast media are highly appropriate for short, relatively low information density repetitive messages, while on the other hand; print media can handle a higher information density, which the reader can control at his/her own pace but it does not have a powerful reach into the target audience home like the broadcast media (Hadji, 2012).

Development of media mix is essential when planning health communication campaigns. The use of various media to promote and publicize a goal or mission is known as media mix (Hadji, 2012:39). Solomon and Cardillo (1985) opined that the combination of various media like broadcast and print media to promote and publicize a goal or mission generates an overall synergistic effect, which would initiate a much greater acceptance from the part of the target audience than employing one type of communication channel (Solomon & Cardillo, 1985). Thornson and Moore (1996) also emphasized this statement suggesting that there is a greater impact when a target audience receives the same messages from two mediums rather than the same message twice from the same medium (Thornson & Moore, 1996). Thornson and Moore opined that it is important to understand the effects of simple repetition; it should be understood that a message processed from one medium is somehow transformed by the fact that messages from other media have been or will be processed (Thornson & Moore, 1996:61).

Repetition has been stated to be the basis of learning and memory, in research. "The more repetition of information, the greater the likelihood that an individual will be able to recognise or recall the information" (Cassell, et al., 1998). Therefore, it can be said that dissemination of a message through two channel of communication has a greater impact than having the same message repeated on one channel of communication.

Mentioned below are some of the popular media mixes employed in health communication campaigns in South Africa:

- Local mass media
- Face-to-face contact
- Brochures
- Media advisories
- Annual reports
- Backgrounders
- Actualities
- Interviews
- Position papers
- Direct mail
- Advertisements
- Public service announcements (PSAs)
- Faxes
- Email
- Pitches
- Instant messaging
- Video news releases
- News releases
- Social media (Newsom & Haynes, 2011; Guth & Marsh, 2006)

A health communicator should be given the privilege to select the most suitable media mixes out of his/her own discretion (Narasimba, 2009). The researcher is also of the view that health communicators are well placed and knowledgeable to know and select media mixes that is suitable to reach out to the target population. This is mostly because they do continuous research to know their environment and its demographics and the best way to communicate with them. Therefore, the researcher supports the idea of allowing health communicators use their discretion in selecting suitable media mixes. Therefore it can be said that when planning a health communication strategies, the organisation should allow a health communicator

guide them on the strategies to use and not base the strategy to be employed on how much the organisation is willing to let go if they want to achieve a sustainable change.

2.6.4. New Media approach to Public Health Issues

The advent of new media has also provided health communicators with a new and fast way of communicating messages for some time now. New media has therefore been a new addition to the promotion mix. Examples of new media include the internet, e-mail and mobile technology (Koekemoer 2004:15). According to Smith and Taylor (2004), E-marketing is the anticipation, identification and satisfaction of customers' needs online (Smith & Taylor, 2004:620). The benefit of offering customers a platform for feedback and the enhancement of Customer Relationship Management (CRM) is achieved through this medium (Hadji, 2012). Websites role has been changed significantly since the inception of the internet; websites are now used for the promotion of brand images, promotion and sales of products and services online (Belch & Belch, 2004:490).

Other tools of communication can be employed alongside with new media such as; banners and sponsorships; sales promotion, which is usually implemented online through websites; e-mail; cyber-dialogs; blogs SMS, can also go alongside public relations through online news media and press offices; and lastly through direct marketing by means of mass e-mails (Hadji, 2012). The researcher is of the view that most people are now into the use of new media most especially the youths. Raymond Mhlaba (formerly Nkonkobe) Local Municipality should key into this and educate the public on platforms available on social media as it can be seen as a form of reinforcing health information. To achieve health behaviour change among the youth the best approach to use is through the new media.

2.7. Methods in Health Communication

Methods in health communication can be grouped into the categories below:

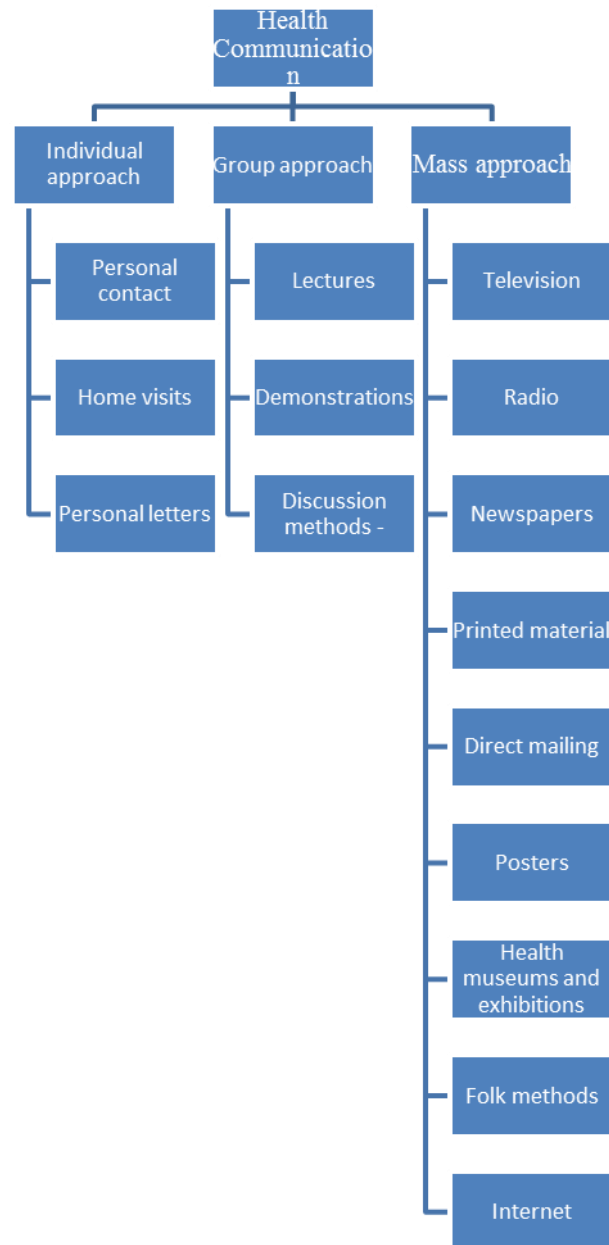


Figure 2-2: Methods in Health Communication (Park, 2013)

The above-mentioned categories can be used independently or alternatively depending on the objectives aimed to be achieved and the funds available. This therefore means that health communicators need to be familiar with the various methods of communication in order to know the most suitable approach to be used

when executing any health education programme, as each of the approaches have various advantages. It is advised for health educators to have adequate knowledge of the methods of health communication in order to effect a sustainable change in the minds of the target audience.

2.7.1. Individual approach

There are many opportunities to execute the individual approach to health communication. Individual health education can be done during consultation with a doctor, or during visit to health centre or in people's home. The major problem with this approach is the low number of people reached (Park, 2013). But, with this approach, the health communicator would most likely achieve his/her goal because this approach provides opportunity for the target audience to be involved, thereby giving room for questions, expression of fears and understanding the health communicator more (Park, 2013:806). The researcher is of the view that the individual approach would have more impact on people in changing their daily habits and would have a more long lasting effect on the target audience.

2.7.2. Group approach

Before any health campaign can be embarked on, it is important to note that the target audience has to be defined. There are various groups of people in the society; schoolchildren, workers, mothers, patient etc. the health communicator cannot appeal to everyone, so has to target a group of people. Group approach to health communication can be said to be an effective way to educate the public (Park, 2013). It is important to note that whatever topic would be discussed during a group approach must be of interest to that selected target audience (Park, 2013). This approach is similar to the individual approach because of the personal contact with the target audience, unlike the Mass media approach. The researcher is of the view that this approach would also have more impact on the target audience because of the room for questioning, expression of fear of the target audience and adequate explanation from the health educator but this can only happen if the target audience

motivation is high. The major way that could make the target audience motivation high is if the topic been discussed is of importance to the target audience. Other minor ways for the target motivation to be high are provision of snacks/food for the target audience during the talk, delivering an interesting health talk, use of illustrations and many more depending on the target audience preference. Therefore, before using the group approach, one has to research well about one's target audience because they are key to this approach being successful.

2.7.3. Mass Media

Mass Media can be described as a one-way communication; it can be used to disseminate information to people, even people in locals. If one is planning to design a health education programme for the whole community, mass media is an effective approach (Park, 2013). Although this approach would reach a wide population, the researcher is of the view that most people this approach would have an impact on are mostly people that have an education of some sort. This set of people would easily understand the message and pick the health information and most likely effect a change in their day-to-day life. For this approach, it is advised that the information passed through mass media should be repeated quite often for it to make an impact on the target audience.

2.8. Health Communication and Communicable Diseases

Communicable diseases are infectious diseases transmissible (as from person to person) by direct contact with an affected individual or the individual discharges or by indirect means (as by infector). Socio-economic, environmental and behavioral factors, as well as international travel and migration, foster and increase the spread of communicable diseases. Health communication plays a key role in health sustenance against communicable diseases. Health communication plays a role in influencing, supporting and empowering individuals, communities, health care professionals, policymakers, or special groups to adopt and sustain a behaviour that

will ultimately improve individual, community, and public health outcomes (Schiavo, 2014:3). Water-borne diseases are classified under communicable disease, which can be prevented with the aid of health communication. Water-borne diseases would be discussed in details in the next section.

2.8.1. Overview of Water- Borne Diseases

It has been discussed earlier that water-borne diseases pose a severe health threat to the world. In the year 2012, about 842 000-diarrhoea deaths were recorded due to insufficient water in low and medium income setting (Levy, et al., 2016). WHO pinpointed the various ways water-related diseases could occur. This included microorganisms and chemicals in drinking water. Some of the microorganisms have part of their lifecycle is in water (e.g schistosomiasis). Water-related diseases can also occur through water-related vectors, water-related injuries, and others such as aerosols, which is known to spread legionellosis (World Health Organisation, 2016). Infections that can be caused through faecal polluted water are known as water-borne infections (Institute Water for Africa, 2016). Microorganisms, biotoxins and toxic contaminants are the causes of water-borne diseases. Water-borne diseases are very harmful to humans; they lead to gastrointestinal problems, schistosomiasis, cholera etc, that can lead to death if not properly treated (National Institute of Environmental Health Sciences, 2013).

Water-borne pathogens are one of the causes of water-borne diseases; they have the capability of causing diseases in humans and animals when ingested. Pathogens are microorganism, which have the ability of causing a disease. Pathogens are found in human faeces and can be transmitted through consumption of contaminated water (Reynolds, et al., 2008:118). Pathogens have been said to alter human history repeatedly, from time past to date because it has influenced the social and political development of man (World Health Organization, 2003:5). This is because it has cause quiet a large number of deaths in human history. From 1817 to date, a minimum of seven (7) cholera (a type of water-borne diseases) pandemics has been

recorded which has influenced the global health reforms (World Health Organization, 2003:6). Over 140 microorganisms have been recognised as water-borne pathogens and these include viruses, bacteria, protozoa, helminths and blue-green algae (Reynolds, et al., 2008:121).

The table below outlines the water-borne disease pathogens and categorizes them in its various types.

Category	Pathogen
Bacteria	<ul style="list-style-type: none"> • <i>Vibro cholerae</i> • <i>Salmonella spp.</i> • <i>Shigella spp.</i> • <i>Toxigenic Escherichia coli</i> • <i>Campylobacter spp.</i> • <i>Yersinia enterocolitica</i> • <i>Plesiomonas shigelloides</i> • <i>Legionella</i> • <i>Helicobacter pylori</i>
Protozoa	<ul style="list-style-type: none"> • <i>Giardia lamblia</i> • <i>Cryptosporidium parvum</i> • <i>Entamoeba histolitica</i> • <i>Cyclospora cayetanensis</i> • <i>Isospora belli</i> • Microsporidia • <i>Ballantidium coli</i> • <i>Toxoplasma gondii</i>

	<ul style="list-style-type: none"> • <i>Naegleria fowleri</i>
Viruses	<ul style="list-style-type: none"> • Norovirus • Sapovirus • Poliovirus • Coxsackievirus • Echovirus • Paraechovirus • Enteroviruses 69-91 • Reovirus • Adenovirus • Hepatitis A • Hepatitis E • Rotavirus • Picobirnavirus • Coronavirus

Table 2-1: Water-borne diseases pathogens (Reynolds, et al., 2008)

Agents of Water-borne diseases

As earlier mentioned, the agent of water-borne diseases can be categorized into three main groups, namely:

- Viruses
- Bacteria
- Protozoa

2.8.1.1. Viruses

The size of a virus is said to range from 0.01-0.1µm (Reynolds, et al., 2008:122). A virus can be described as an obligatory intracellular parasite that solely depends on its host for feeding and survival. A virus has the ability to survive for a long period either in an active or inactive state however, its active state depends on certain conditions that are favourable like water and as such, the aquatic environment is viable for the spread of viral infections (Reynolds, et al., 2008).

Compared to other categories of water-borne diseases, viruses require the fewest number in order to infect its host; hence, viruses can be considered to have the greatest infectivity. The survival period of viruses in water is long and it has proven difficult to be removed by conventional filtration processes. Unlike bacteria, viruses are more resistant to antimicrobial agents. Viruses are of great concern in groundwater because of their small size, which helps them to be easily transported without been noticed (Reynolds, et al., 2008:123).

The type of viruses that are of great concern in water and their water-borne diseases are listed in Table 2-3 below:

Viruses	Diseases
Enteroviruses	<ul style="list-style-type: none">• Diarrhea• Meningitis• Myocarditis• Fever• Respiratory diseases• Nervous system disorders• Birth defects

Hepatitis A virus	<ul style="list-style-type: none"> • Hepatitis • Liver damage
Noroviruses	<ul style="list-style-type: none"> • Diarrhea
Astrovirus	<ul style="list-style-type: none"> • Diarrhea
Adenovirus	<ul style="list-style-type: none"> • Diarrhea • Respiratory disease • Eye infections • Heart disease
Rotavirus	<ul style="list-style-type: none"> • Diarrhea

Table 2-2: Types of virus and their related diseases (Reynolds, et al., 2008)

2.8.1.2. Bacteria

Bacteria are single-celled microorganisms that belong to the “Prokaryotes” (i.e. organisms that lack true nucleus). The cell organelles of the bacteria are surrounded by a membrane and cell wall. The size ranges from 0.1 to 10µm and can be seen with the help of a microscope. Bacteria that have the ability to colonize the human intestinal and gastrointestinal tract are enteric bacteria; these microorganisms do not survive long in the environment. Although, some of the bacteria can aid their survival by having resistant spores, they can also aid their survival by being in their dormant stage (Reynolds, et al., 2008:123).

Types of bacteria and their related diseases:

Bacteria	Diseases
Salmonella	<ul style="list-style-type: none">• Typhoid• Diarrhea
Shigella	<ul style="list-style-type: none">• Diarrhea
Campylobacter	<ul style="list-style-type: none">• Diarrhea• Nervous system disorder
Vibrio cholera	<ul style="list-style-type: none">• Diarrhea
Escherichia coli	<ul style="list-style-type: none">• Certain strains• Diarrhea• Hemorrhagic colitis
Legionella	<ul style="list-style-type: none">• Pneumonia• Respiratory infection

Table 2-3: Types of bacteria and their water-borne diseases (Reynolds, et al., 2008)

2.8.1.3. Protozoa

Protozoan parasites are single-celled organisms and can survive in the gastrointestinal tract of infected humans. Their sizes range from about 1 to 100µm and can be pathogenic. Protozoans exist in the environment in a stable form known as cyst during the oocyst stage. Due to the thick cyst (also oocyst walls), these microorganisms possess the ability to be resistant to disinfectants used in conventional water treatment (Reynolds, et al., 2008).

Types of protozoa and their water-borne diseases:

Protozoa	Diseases
<i>Cryptosporidium</i>	<ul style="list-style-type: none">• Diarrhea
<i>Giardia lamblia</i>	<ul style="list-style-type: none">• Diarrhea

Table 2-4: Types of protozoa and their water-borne diseases (Reynolds, et al., 2008)

2.8.2. Causes of water-borne diseases

In the United States, Centers for Disease Control (CDC), USEPA and other disease control agencies have been documenting instances of water-borne diseases outbreak and information about the cause of the various outbreaks from year 1971-2002. During that period, 764 records of water-borne diseases outbreak related with drinking water were documented (Henshaw, 2014). WHO also identified scarcity of clean drinking water and hygiene has one of the causes of waterborne diseases. WHO (2014) identified that about 842 000 deaths per year can be linked to waterborne diseases because of the scarcity of adequate clean drinking water.

2.8.3. Record of Water-borne Disease Internationally

In the United States, although water-borne disease outbreaks occurs periodically, it still poses a threat to the United States. In reference to the Environmental Protection Agency (EPA) in the United States, 22.5 water-borne disease outbreaks occur per year and an average of 4,640 – 9,331 people are infected per year. Unlike less developed countries, the death rate in the United States is low. According to the EPA, an average of six (6) people are reported to die annually from a water-borne disease in the United States. Presently, giardiasis and cryptosporidiosis are the most common types of water-borne diseases that are occurring in the United States. These two types of water-borne diseases have been proving difficult for researchers to permanently have a solution for because they survive in cold water, requires a low

amount of microorganism for an infection to occur, and they are also resistant to a number of conventional water treatment that are used presently (Henshaw, 2014).

WHO reported that cholera cases in a year are estimated to be about 1.3 to 4million cases and about 21 000 to 143 000 deaths are reported globally by researchers (World Health Organisation, 2017). From about January to June 2006, about 16 187 Cholera cases were recorded in Southern Sudan and 476 deaths were recorded. A severe cholera outbreak also hit Angola in 2006, 70 000 cholera cases were recorded and 2760 deaths. In August 2007, 30 000 cases were recorded in Northern Iraq (Health 24, 2008). On the 27th of July 2017, WHO in its weekly report of cholera outbreaks reported that 1068 cholera cases and 3 deaths were recorded in Somalia between 10-16 July 2017, which was the 28th week the disease has been present in the country. In Yemen also about 408 583 suspected cholera cases and 1885 deaths were recorded as of 26 July since the outbreak started in October 2016 (WHO, 2017).

2.8.4. Record of Water-borne Disease in South Africa from year 2000

Water-borne disease outbreak can be documented when two or more people have the same symptoms and suffer from the same water-related ailment (Craun, et al., 2006). In the past, it has been documented that South Africa has experienced a number of water-borne disease outbreaks, particularly cholera outbreaks. In August 2000, a cholera outbreak was documented in KwaZulu-Natal Province, which was documented to have lasted until the year 2003 (Hemson & Dube, 2004:7). Apart from KwaZulu-Natal province, cholera outbreaks were reported in seven other provinces like Limpopo and Eastern Cape, which has led to arguments about cholera being endemic to South Africa rather than an epidemic (Hemson & Dube, 2004).

In year 2003, an outbreak was reported by the Department of Health to have occurred in Mpumalanga region. From April 26th- May 18th, there was a record of 3 deaths and 174 suspected and confirmed cases of Cholera in the region (World

Health Organisation, 2003). In year 2004, an outbreak was also reported in Eastern Cape, 4 deaths was recorded and 738 were infected with Cholera (Health 24, 2008). Between December 2008- March 2009, 6,278 confirmed cases of cholera and 30 deaths was reported in Mpumalanga region (Sigudu, et al., 2015).

2.8.4.1. Cases of Cholera Epidemic in South Africa in Year 2000-2003

Period	Provinces affected	Number of cases reported	Number of death reported	Rate
15 August 2000 - 31 July 2001	8	106,389	229	0.2
01 August 2001 - 13 December 2002	6	18,224	122	0.7
01 January 2003 - 5 December 2003	5	3,855	44	1.1
Total		128,468	395	0.3

Table 2-5: Department of Health website (Hemson & Dube, 2004)

Since then little or no information has been available on outbreak of water-borne diseases in South Africa. This lack of information tends to give a false sense of security (Brett , et al., 2009).

2.8.5. Review of Public Health Campaigns on Water-borne Diseases

Successful public health solutions that were carried out by Diseases Control and Prevention Bodies are discussed below;

Rain Harvesting in the Maldives

Through health promotion, the Maldives adopted a national control programme using chlorination in wells and oral rehydration salts for the treatment of diarrhoea, as well as use of rainwater for drinking. About 20 years later, all the islands in the country were reported to be self-sufficient with their own community rainwater collection

system tanks. Through this public health solution, deaths caused by diarrhoea have been eradicated (WHO, 2001).

Sodis: Solar Water Disinfection

In the 1980s, Sodis was initiated in Lebanon. Sodis is a simple water-treatment method that makes use the sun, disposed soft-drink plastic bottles and a black surface. The Swiss Federal Institute for Environmental Science and Technology on Sodis carried out further research on Sodis and promoted the initiative (WHO, 2001). For about five hours, transparent bottles filled with water were placed on a flat surface horizontally in sunlight. The effect of the ultraviolet light in the solar radiation exterminate the pathogens causing illness. The process is enhanced when the solar water disinfection is combined with a “solar thermal water treatment” which makes use of the fact that the colour black absorbs light. This is accomplished by painting the bottom half of the bottle black or placing it on black-painted corrugated iron or plastic sheets. Field studies carried out in Bolivia, Burkina Faso, China, Colombia, Indonesia, Lebanon, Morocco, Thailand and Togo shows that this public health solution works (WHO, 2001).

Changing Health Behaviour

Valerie Curtis, a Lecturer in Hygiene Promotion at the London School of Hygiene and Tropical Medicine suggested that washing of hands with soap could reduce deaths caused by diarrhoeal diseases. He opined that all that is required is soap and motivation. He added that getting people to change their habits is a big task for health promoters (WHO, 2001).

For three years, in India, the Netherlands, the United Kingdom and West Africa, Curtis carried out a research, in order to learn what motivates good hygiene practices and the results were unexpected. He noted that although Hygiene is a common value around the world, people are uninterested by dire warnings that they will face disease and death if they do not change, “their filthy ways”. For example,

people in Brazil refused to collaborate in a cholera prevention program because they felt they were being accused of being “filthy dogs”.

Research has shown that positive messages are more successful than negative ones in producing behaviour change. A three-year study in Bobo-Dioulasso (Burkina Faso) used positive messages to change old entrenched habits and at the end of that period, the people in the study had tripled their use of soap. Curtis’ research shows that the money spent on the intervention for buying extra soap, was less than what families and health agencies had been spending on treating childhood disease. He further added that cases of diarrhoea were cut an average of 35% by the simple act of washing hands with soap and water (WHO, 2001).

2.8.6. Preventive Measures

- **Drinking treated water-** Drinking directly from surface water is not healthy (SteriPEN Marketing team, 2013). One should also take note of bottle water because they expire. Therefore, before one drinks bottled water, it should be ascertained that the bottled water has not yet expired. In addition, exposure of bottled water to direct sunlight should be avoided (Henshaw, 2014).
- **Avoid eating raw food without cleaning them-** avoiding eating raw foods like vegetables, fruits without cleaning them, because they might have been contaminated (SteriPEN Marketing team, 2013).
- **Practicing good hygiene** - Better hygiene behaviour especially hand washing has been identified as one of the key factors that could help reduce the risk of cholera outbreak, which is one of the types of water-borne diseases usually occurring in South Africa (Hemson & Dube, 2004).
- **Be vigilant** - Be update about news on water quality in your area. It is the duty of water companies to alert the people about the quality of water when it is contaminated (Henshaw, 2014). Therefore, it is important for people to be up to date about information about their water quality at all time.

- **Boil water** – When tap water, which has been guaranteed to be clean by the authority in charge of water quality, tends to look unclean, one should ensure to boil the water in order to avoid the risk of being infected by a water-borne diseases pathogen. This should be done until one has been assured the water quality meets the set guidelines of the authority (Henshaw, 2014).

2.9. Theoretical Framework

It has been established that whenever a research is being done, one or more theories should be the framework, which the research would be based on. This helps the researcher to understand his/her work and serves as a guideline. Elaboration Likelihood Model (ELM) is the main theory that this study would be based on. Below, would be discussing some related study that also shed light on the study.

2.9.1. Theories associated to Behaviour Change

Persuasion is the key to behaviour change. In the book *Applying Communication Theory for Professional Life* by Dainton and Zelley (2015), persuasion was explained as “human communication that is designed to influence others by modifying their beliefs, values, or attitudes” (Simons, 1976). In Dainton and Zelley (2015) the requirement of persuasion were outlined; firstly, the message sender should intend to achieve a specific goal. Secondly, the means to achieve that specific goal should be communication. Finally, the message receiver should not be under any obligation or be forced into doing what is expected to achieve the specific goal because when the message receiver does not do what is expected to achieve the specific action out of his/her own volition then that would be called force not persuasion. Persuasion can therefore be perceived as “premediated” rather than unintentional. It should also be noted that an essential hidden factor of persuasion is communication (persuasion is inherently communicational) (Dainton & Zelley, 2015:118).

From the understanding of the requirements needed for persuasion, the identification of issues related to behaviour change and designing of solutions that can ensure behaviour change can be derived from various theories of persuasion and behaviour change. It should be understood that the various theories of persuasion and behaviour change identify different problems and suggest various specific interventions that can facilitate behaviour change. Therefore, it can be said that various theories of persuasion and behaviour change came about due to the need to intervene in specific issues relating to behaviour change (Slater, 1999). Most of these theories undergo various research procedures before they can be validated as a theory.

The Theory of Reasoned Action (TRA) is one of the theories of persuasion and behaviour change, this theory associates individuals attitude toward a particular subject with the norm or beliefs of the society towards the subject to predict the reaction or the individual's behaviour towards the subject. This theory ignores or hardly sheds light on the campaigns faults, which gives room for other theories to be used to elaborate more on the ignored aspects (Slater, 1999). Another theory of persuasion and behaviour change is the theory of planned behaviour. The theory of planned behaviour, which was, proposed Ajzen in 1991, opines that an individual's behaviour is an effect of reasoning or thinking about it; a person's intention is what brings about an action (Bhattacharjee, 2012).

Considering that, what each theory focuses on varies from one problem to the other; therefore, more than one theory of behaviour change can be used in proposing a campaign. Therefore, it can be said that the theories of persuasion or behaviour change are "potentially complementary" (Slater, 1999). This study focuses on how best to influence people in order to achieve a behavior change, to achieve this; one has to understand the recipient of the messages. Therefore, the most appropriate theory of persuasion for this study is Elaboration Likelihood Model (ELM) because of the fact that it seeks to understand the message recipient before the act of persuasion is being put into action.

2.9.2. Elaboration Likelihood Model

Elaborated Likelihood Model (ELM) seeks to explain how people's attitude are influenced towards a phenomenon, events or behaviour and evaluates the various change strategies employed (Bhattacharjee, 2012). Elaboration Likelihood Model (ELM) portrays persuasion as "a process in which the success of influence depends largely on the way the receiver makes sense of the message" (Dainton & Z Kelley, 2015:119). The Model was propounded in mid 1970s by Richard Petty and John Cacioppo (Van Lange, et al., 2011). The ELM is based on how likely persuasive information can influence behaviour and motivate people at a point in time. While behaviour change can result from a number of things, persuasion is a primary source (Van Lange, et al., 2011).

The Elaboration Likelihood Model analyse how people consider persuasive arguments and how message senders should present their arguments in order for it to be effective. It addresses factors that explain why and when messages and self-motivated efforts are more or less likely to lead to behaviour change (Van Lange, et al., 2011). Therefore, it can be said that ELM focuses on analysing the message receivers and understand them firstly before designing communication strategies to influence their behaviours (Dainton & Z Kelley, 2015:119). ELM proposes that people have two different methods or routes of influence, namely, central route and peripheral route to persuasion.

2.9.2.1. The Central Route to Persuasion

The central route to persuasion can also be known as the elaborated route to persuasion. It takes a "slow and steady" route to persuasion (Dainton & Z Kelley, 2015:119). Centrally routed messages are accumulation of important and adequate information, reasonable opinions and facts that supports a specific belief (Dainton & Z Kelley, 2015). For example, during campaigns, like behaviour change towards bipolar people, several seminars are held to educate people about the disease and the harm of segregation of the people with the ailment. Edutainment is also a means

that can be employed by the organisers, which would air on various mass media and social media platforms, thereby stating their arguments in various ways and by various routes to reach their message receivers. The essence of this is to influence people's behaviour against segregation of bipolar people, so they could see the harm their previous behaviour has caused.

Unlike peripheral routed messages, the central routed message is more likely to affect behaviour change that would last long. Although, ELM states that central routed messages cannot be comprehended or received by everyone. ELM states that before a centrally route of persuasion can be achieved two essential requirements have to be met, which are, extremely motivated message receiver that would be able to comprehend the information communicated and the message receiver should be able to process the message cognitively (Dainton & Zalley, 2015:119). For instance, if the bipolar campaign is to last for 1 hour and one of message receiver does not want to wait for 1 hour, then the person is not highly motivated to comprehend the "elaborated messages" that would be communicated in the seminar. In addition, the message receiver could be motivated but the speaker might be using complex medical terms that the message receiver cannot comprehend. In this scenario, as much as the message receiver is extremely motivated, the message receiver does not have the ability to comprehend the complex terms. Due to this, the central routed message is ineffective if motivation and ability is not available.

2.9.2.1.1. Types of Elaborated Arguments

The message receiver should be the main factor to determine the most effective route to persuasion; therefore, it is important to understand the message receiver before designing the elaborate argument (Petty & Cacioppo, 1986). As earlier mentioned, before an elaborate argument can be presented, the motivation of the message receiver must be high and ability for the message receiver to comprehend the message must be ensured. In addition, the quality and arrangement of the message must also be taken into consideration because the reaction of the message

receiver to the elaborate argument determines how the argument would be perceived. An Elaborate argument can be perceived as strong, neutral or weak (Dainton & Z Kelley, 2015).

Strong elaborated arguments produces a favourable cognitive response from the message receiver thereby the message sender is confident about achieving his/her goal(s) of influencing the behaviour of the message receiver towards the message senders beliefs (Petty & Cacioppo, 1986). Most times, long –term behaviour change are achieved with a strong elaborate argument. The message sender is rest assured that the message receiver would have no doubt about following his/her beliefs after a strong elaborate argument has been presented. Repetition is helpful during the process of presenting a strong elaborate argument but the message sender should be aware that any interruption encountered during the repetition process could reduce the effect of the message (Dainton & Z Kelley, 2015). As for neutral arguments, the message receiver has no opinion/preference about the elaborate argument. The message receiver tends to produce a non-committed cognitive response to the elaborated argument presented. Most likely, neutral arguments do not achieve behaviour change unless the message receiver also uses a peripheral route to persuasion. Lastly, weak elaborated argument, this kind of arguments produce negative cognitive response in the mind of the message receiver. The negative cognitive response does not just prevent behaviour change but reinforces the point of view of the opposition (Dainton & Z Kelley,2015:120).

2.9.2.2 The Peripheral Route to Persuasion

The Peripheral route to persuasion can be perceived as taking a shortcut route to persuasion. In most cases, the persuasive messages focus on the emotions of the receiver. Unlike the elaborated arguments, which are carefully presented with robust information, the peripheral messages employ on the surface means to behaviour change. It targets what attracts the message receiver and uses the messages receiver attraction their influence the behaviour (Dainton & Z Kelley, 2015). The

attraction could be human like a movie star, or the president of the nation, could be an event like soccer, rugby, could be a brand or clothing line.

In other words, it could be said that peripheral messages are strategically designed to interest the message receivers by playing on their emotions in order to achieve behaviour change. This route to behaviour change is not as structured as the central route but is also carefully thought of. In most cases, the peripheral messages results are always short-termed unlike elaborated arguments but when it comes to instant change, this route to persuasion is the fastest and poses less difficulty when advocating behaviour change (Dainton & Zelle, 2015).

2.9.2.2.1 Types of Peripheral Cues

According to Cialdini (1993, 1994), “Authority, Commitment, Contrast, Liking, Reciprocity, Scarcity, and Social Proof” has been outlined as the seven common pointers that can be used to identify a peripheral message (Dainton & Zelle 2015:120). Authority, which is the first pointer identified by Cialdini, is used by the persuader to influence the receiver’s behaviour on the message presented. Parents most times make use of “authority” to influence their children’s behaviour (Dainton & Zelle, 2015). For example, a mother could tell her son not to go close to a beach because the child might drown and die, the child might grow up with the mind-set that the beach is dangerous but with time and the influence of his friends, the child might still go to the beach. Therefore, can be noted that peripheral route to persuasion can be effective for a short period after a while the message receiver would think the message through and might not follow that line of action anymore.

The second pointer to identify a peripheral message is Commitment. This is the act of showing allegiance to a course of action. In this case, people publicly declare their allegiance by going for awareness campaigns, put on shirts or attach various symbols that associates them to party, association or cause (Canary, et al.,2003:369). The message sender influences the receiver bit by bit, by requesting for minimum allegiance until the message receiver becomes actively involved in the

cause. The tactics is described as foot-in-the-door tactic (Dainton & Zelley, 2015:121).

The use of contrast results to influence the message receiver's behaviour is the third pointer that can be used to identify a peripheral message. This has to do with comparison (Dainton & Zelley, 2015). For instance, when we go to spar and items are on sale due to the drop in price of these items, one tends to buy them quickly; most times more than we budgeted for because of the comparison in prices of how much it actually worth and how much it goes for at that period of sales. Therefore, the peripheral message, which is based on contrast, influenced our behaviour to buy that particular brand. This drop in price attracts a lot of customer to buy that product at that period, when the price goes back to the normal price, the demand most likely drops.

Liking is another pointer that enables use identify peripheral messages. Peripheral messages, which are based on liking, focus on the interest and attraction of the message (Dainton & Zelley, 2015). It is a known fact that many of these organisations/brands make use of celebrities their ambassador in order to sell their product. For instance, David Beckham is a brand ambassador for Adidas, which many men like and women are attracted to, this strategy thereby, lures the customers to want to associate with the brand.

Peripheral messages, which are based on reciprocity, are about a relationship of give and take. This type of message influences the message receivers by saying do this or buy this and get something free. This tends to lure the message receiver to do what the message sender wants (Dainton & Zelley, 2015). For instance, I once met a marketer that sells pots that goes for about R15, 000, the marketer after saying all the incredible features of the pots added that once I place an order for the pots, I get free delivery, and would also get to pick one free kitchen utensils from the company. The peripheral message employed by the marketer was based on reciprocity.

The peripheral messages based on scarcity focuses on people's anxiety on missing an offer. A sense of urgency is created in the mind of the message receiver in this approach (Dainton & Zelle, 2015:121). The message sender makes use of words like "limited stock available", "grab fast before stock runs out". Finally, the social proof pointer is based on peer pressure, not only teenagers succumb to peer pressure, adults also do. Everyone wants to be associated with something, even organisations; brands want to be known for something.

2.9.2.2.2 Types of Peripheral Messages

The peripheral messages can be examined as positive, neutral or negative as that of the centrally routed agreements. The positive peripheral messages achieve a positive response in the mind of the message receiver. Although the responses are positive but in some cases, they are weak positive response in the sense that they may agree on the message but they might not necessarily do it (Dainton & Zelle, 2015). For instance, if a celebrity you like endorses a political candidate for a post. The message receiver might agree does not mean he would go and vote on the Election Day.

The neutral peripheral messages do not really influence the message receiver. Firstly, because the peripheral message pointer might not lure the message receiver because the person is indifferent about the persuasive message but might still achieve its purpose. Then, the negative peripheral messages do not achieve a favourable response for the message sender. The message receiver is most times infuriated by the peripheral message if the message pointer used annoys them on a normal day.

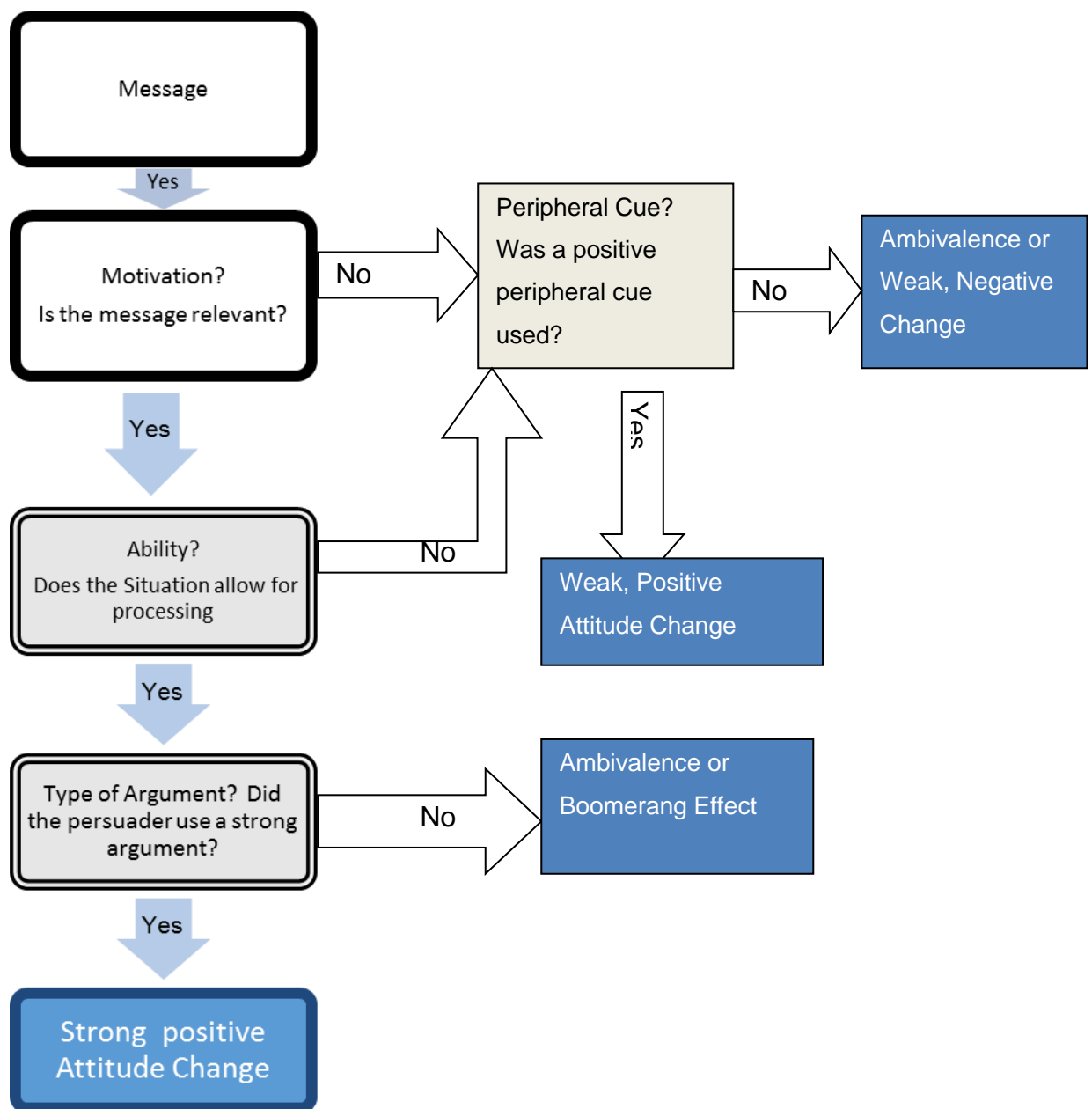


Figure 2-3: Elaboration Likelihood Model (Dainton & Zelle, 2015)

The reason I am employing the use of this theory is because it views communication strategies as a way to influence people either through thinking deeply about it or not. This therefore relates to this research because this study seeks to evaluate the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to achieve health sustenance in regards to water-borne diseases.

2.10. Conclusion

The literature examined the relationship between communication and health. The purposes of health communication were examined. The role health communication plays in educating people about water-borne diseases and how an outbreak can be prevented were explained. The literature also identifies health communication as an emerging field that has contributed largely to the prevention of diseases.

This Chapter also examines Elaboration likelihood model and explained how the theory serves as framework to this study.

In addition, causes and preventive measures that can be taken to avoid outbreak of water-borne diseases was discussed. This chapter also presents the record of water-borne diseases internationally and in South Africa.

Chapter 3

Research Methodology

3.1. Introduction

The chapters prior to this, which is the literature review on health communication and overview of water-borne diseases, adequately documented researches from other scholars that are relevant to this study. This chapter examined the research method or design employed in this research. This chapter illustrated how both qualitative and quantitative research design were used in this study and the relationship between the research method and the objectives of the research. This chapter encompassed the method used: the research design, population, sampling methods, instrumentation, data collection tools and analysis thereof. The ethical consideration was also adequately discussed in this chapter as well as issues related to reliability and validity.

Due to the fact, this research made use of Mixed method design, the research methods was discussed in two different phases. Phase 1 data collection was done through an in-depth interview with personnel working in Raymond Mhlaba Local Municipality (formerly known as Nkonkobe Local Municipality) and Phase 2 data collection was done through a questionnaire, which was filled by inhabitants of Alice Community.

3.2. Research Design

A research design is the systematic and sequential technique(s) or method(s) employed by a research scholar for data collection, data analysis, and data interpretation (Du Plooy, 2009). The objective(s) of a research determines the kind of research design it would use (Du Plooy, 2009). According to Du Plooy (2009), research has been established to have two types: the **basic communication**

research and the **applied communication research**. Basic communication research has been identified as a research with the objective(s) of investigating and developing of theories to explicate on an aspect of communication or any controversy revolving around the concept of communication, while, applied communication research focuses on communication problems in practice. Basic communication research seeks to expand the science of communication while applied communication research seeks to find solution for communication problem encountered in science (Du Plooy, 2009).

This research seeks to explore and investigate communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in educating the community about Water-borne diseases and preventive measures that can help reduce the risk of an outbreak. This research is aimed at investigating the health communication method used and provides recommendations to the strategies employed by Raymond Mhlaba Local Municipality to avoid a water-borne disease outbreak in the community. Therefore, this research design is said to take **the** shape of an applied communication research.

The research objective of this study:

1. To investigate the extent to which Raymond Mhlaba Local Municipality makes use of communication strategies to reduce the risk of water- borne diseases outbreak (exploratory objective).
2. To evaluate the kind of communication strategies employed by Raymond Mhlaba Local Municipality in reducing the risk of water-borne diseases outbreak (descriptive objective).
3. To ascertain the influence of the various communication strategies employed by Raymond Mhlaba Local Municipality on people's attitude towards controllable factors that could reduce the risk of an outbreak (exploratory objective).

From the abovementioned objective, it can be said that this research has taken the shape of a **descriptive exploratory design** because this research has more than one objective.

3.2.1. Descriptive Exploratory Research Design

According to Du Ploy (2009), a research can have more than one type of objective; objectives are not mutually exclusive. There are four types of objective, namely, **exploratory**, **descriptive**, **explanatory**, and/or **predictive** objectives (Du Plooy, 2009:50).

A descriptive exploratory research design is a research design that its objective nature is both descriptive and exploratory. **Descriptive objective(s)** seeks to describe the characteristics of a process or a specific case study. This kind of objective seeks to find out “what is happening somewhere? Or what some people are doing?” (Du Plooy, 2009:51). Descriptive research aims at having a comprehensive understanding about a particular phenomenon of interest through careful observations and detailed documentation, which are done by trained professionals (Bhattacharjee, 2012). One of the objectives of the research seeks to understand the kind of communication strategies employed by Raymond Mhlaba Local Municipality in reducing the risk of water-borne diseases outbreak, which is descriptive in nature. This research can be said to have a descriptive objective because the study focused on understand the communication strategies used to ensure that the people of the community avoid being infected by any type of water-borne disease.

Exploratory objective(s) seeks to investigate an obscure aspect of a research with the aim of obtaining new understanding. This kind of objective seeks to understand key concepts, pinpoint key stakeholders, identify important social needs, distinguish communication problem consequences and understand human behavior (Du Plooy, 2009). Exploratory research seeks to inquire into new phenomenon; the expected

outcome of an exploratory research could seek either to evaluate the degree of an issue / behavior change, or, to propose some ideas that can help develop a new phenomenon, or, to examine the possibility of further venturing into a new phenomenon (Bhattacharjee, 2012). Two of these research objectives are exploratory in nature. One of the objectives of this research which investigated the extent to which Raymond Mhlaba Local Municipality makes use of communication strategies to reduce the risk of water- borne diseases outbreak. This objective seeks to have a new understanding about the role Raymond Mhlaba (formerly Nkonkobe) Local Municipality places in educating the people about controllable factors that can help reduce the risk of water-borne diseases. The other research objective which is also exploratory seeks to ascertain the influence of the (various) communication strategy(s) employed by Raymond Mhlaba Local Municipality on people's attitude towards controllable factors that could reduce the risk of an outbreak. With this objective, the research wanted to evaluate the impact the Local Municipality message has had on its people. Due to the fact that this research investigate the extent in which communication strategies is being used to curb an outbreak in the community and the evaluation of the influence the communication strategies has had on the people of Raymond Mhlaba Community, this thereby makes this research take an descriptive exploratory research design form.

The difference between the descriptive objective and exploratory objective is that descriptive objective focus on giving description through observation, the description could be on how an organization runs its communication department? Or how a campaign office disseminates their messages? Or what are the proactive or reactive measures taken by an organization before or during crisis? While, exploratory objective focus on investigation. The investigation could be on how proactive health communication can help reduce death rate or how stakeholders communication can help provide a long-term relationship between the stakeholder and the organization. As it would appear that studies have not previously been carried out on the communication strategies employed by Raymond Mhlaba Local Municipality in reducing the risk of water-borne diseases; this research seeks to investigate the

extent in which the Local Municipality makes use of proactive health communication to curb the risk of an outbreak. The measure taken by the Local Municipality is being described and investigation is been carried out on how the measures taken has influenced the behavior of the people towards prevention of an outbreak in the municipality. Therefore, this study takes the shape of a descriptive exploratory research design.

3.3. Research Methodology

An essential means of discovering new ideas and proffering solutions to a problem or answers to a question is what a research entails (Senam & Akpan, 2014:461). An applied communication research is defined as an academic research that scientifically examines practical issues in order to find relevant solutions to the issues at hand. In an applied communication research the researcher focus and carefully identify and analyze communication related issues in our present day and tries to work out or propose a solution that would not just be relevant theoretically but also in practice (Du Plooy, 2009). This research falls in this category because it seeks to understand the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in reducing the risk of a water-borne diseases outbreak in the community and provide recommendations if need be. This research also seeks to enlighten local municipalities in South Africa and outside the country about how effective communication strategies put in place to curb an outbreak of water-borne diseases can help reduce the rate of water-borne diseases outbreaks.

In research, three research approaches can be identified, namely, quantitative approach, qualitative approach and mixed method approach. Mixed method approach is said to combine both the approach of a quantitative research and a qualitative research. It is neither strictly qualitative nor strictly quantitative (Creswell, 2014:3). This study intends to make use of the mixed method, which is the combination of qualitative and quantitative research methodology (Clayton, 2010).

3.3.1. Mixed Method

Mixed methods research is an intellectual and practical synthesis based on qualitative and quantitative research; it is the third methodological or research paradigm (along with qualitative and quantitative research). It recognizes the importance of traditional quantitative and qualitative research but also offers a powerful third paradigm choice that often will provide the most informative, complete, balanced, and useful research results (Johnson, et al., 2007). According to Valerie Caracelli, when the two traditional research method are systematically juxtaposed in order to achieve a more detailed understanding of a study and also have confidence in the outcome of the research, that kind of research is known as a mixed method research (Johnson, et al., 2007).

Mixed method is employed in this study in order to achieve a clear understanding about the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to curb the outbreak of water-borne diseases and achieving a clear understanding is one of the major advantages of using mixed method in a research.

3.4. Organization of the Study

The research methods used in this study are discussed in two different phases.

3.4.1. Phase One

3.4.1.1. Qualitative Research Method

Qualitative research means different things to different people. A qualitative research does not use a monolithic concept like statistics. No one has “codified” the process for qualitative analysis and it is not likely someone will do. Qualitative data is not after standardization; its basic focus is on making sense of a narrative data (Tesch, 2002). Denzin and Lincoln (2000) defined qualitative research as a system of

acquiring knowledge that requires thinking on the fly rather than acquiring and storing knowledge. It simply means knowledge cannot be separated from activity, context, people, culture and language; it views learning as increasing performance effectively rather than accumulating knowledge. This type of research involves interpretive and material practices that make the world visible. Representations of the world are derived from these practices (which includes field notes, interviews, conversations, photographs, recordings and memos). A qualitative research views the world as interpretive and naturalistic (Denzin & Lincoln, 2000). Basically, a qualitative research interprets the world the way people see it.

Denzin and Lincoln (2000) identified key characteristics of qualitative research as opposed to quantitative research, which includes the importance of the participants' perception of the world, the flexible nature of its design of research, and the volume and richness of qualitative data. Other important characteristics of qualitative research as identified by Denzin and Lincoln (2000) are its peculiar nature and approach to analysis, its interpretation of data and the research outcome. The qualitative researcher points out the fact that we all see things from different angles and whichever angle they use they make it known that it is just a way of doing it, which others can adopt or find other ways. The only common ideology qualitative researchers share is that a qualitative research makes sense of narrative data.

Due to the following distinctive characteristics, qualitative research methodology was employed in this study because it is the best approach to collect and analyze the data gotten about the communication strategies employed by Raymond Mhlaba Local Municipality in reducing the risk of an outbreak. Using this research method, the researcher was therefore able to make sense of data collected through in-depth interview with Environmental Health Personnel working in Raymond Mhlaba Local Municipality.

3.4.1.2. Population of Phase one of the study

The population of the phase one of this study is the entire employees at Raymond Mhlaba (formerly Nkonkobe) Local municipality.

3.4.1.3. Sampling Design and Procedures for phase one of the study

Sampling involves following a rigorous procedure when selecting units of analysis from a target or accessible population. Due to the constraint of time, costs and geographic distance data cannot be collected from all the members of a target population that is why sampling is carried out (Du Plooy, 2009). For this phase of the research, purposive sampling technique was employed in selecting the sample for this research.

3.4.1.3.1. Purposive sampling

Purposive sampling was used for the qualitative aspect of this study. Purposive sampling is done when the researcher uses his or her judgment to select a sample (Du Plooy, 2009). Two personnel in charge of health communication working under Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) were selected as my sample. The reason for selecting them was that they were in the best position to give a detailed account about the strategies employed by the municipality in reducing the risk of water-borne diseases in the communities situated under Raymond Mhlaba Local Municipality. This is so because they are the people in charge of performing the duties related to health and education in the Local Municipality.

3.4.1.3.2. Sampling frame

The sampling frame is the entire employee in Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality).

3.4.1.3.3. Sampling size

Due to the constraint of time and considering the fact that, Raymond Mhlaba Local Municipality consists of quite a number of workers. My sample size was drawn from the personnel in charge of health communication working under Raymond Mhlaba Local Municipality. They were selected as my sample size because they are in the best position to give a detailed account about the strategies employed by the municipality in reducing the risk of water-borne diseases in the communities situated under Raymond Mhlaba Local Municipality.

3.4.1.4. Data collection method

The data collection method that was used in this phase was in-depth interview. The researcher went to Raymond Mhlaba Local Municipality office to find health communicators/educators that could help with the research. The interview took place in their office. The data collection method for this phase was designed in the proposal stage and evaluated in order to ensure that the objectives of this study were achieved.

3.4.1.4.1 In-depth Interview Procedure

According to Du Plooy (2009), an interview is defined as a short interactive process between the interviewer and the interviewee. It is termed as a short interactive process based on the time spent with each other, which depends on how the interview has been structured by the interviewer. The conversation exchange is a question and answer type. The interviewer could make use of an audio or videotape or even make some notes from the interview to record the events of the interview (Du Plooy, 2009). The way the interviewer and the interview interact and the type of questions asked differentiates the three forms of interviews, which are structured and standardized interviews, partially structured interviews and unstructured interviews (Du Plooy, 2009). A structured and standardized interview follows a standardized process, whereby the interviewer organizes the interview setting; the interviewer also follows the interview guide or schedule, prepared earlier, line by line. The interview

guide has all the questions the interviewer wants to ask the interviewee and the interviewer uses the precise words in the guide (Du Plooy, 2009).

Partially structured interviews also follow a standardized process but the interviewer is allowed to deviate and ask other related questions based on the reply of the interviewee. This type of interview makes the interviewee a lot freer with the interviewer (Du Plooy, 2009). Unstructured interview is a type of interview, which the interviewer tries to create a relaxed environment whereby the interviewee feels comfortable, trusts the interviewer, and feels free to divulge any information the interviewer wants him/her to talk about. Even though, this type of interview is termed as an unstructured interview, it is known that there is no interview that occurs without an expected outcome. This type of interview is time consuming but helps the interviewer to understand and decipher the interviewee's ideologies, perceptions, propositions and complaints (Du Plooy, 2009).

The in-depth interview was carried out with open-ended questions in a partially structured way. My questions were based on the set interview guide that was based on the research question but was not followed word for word. The interview guide helped to guide the interview so it can be in line with the research aim and objectives. I made use of a tape recorder to record the interview and I wrote down some major points in order not to miss any important data and be accurate. The reason for using in-depth interview as one of my data collection technique is to find out the extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of communication strategies to reduce the risk of water- borne diseases outbreak. This study also seeks to understand the various communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in reducing the risk of water-borne diseases outbreak. This method would allow the researcher meet major personnel in the health communication sector, which would help the researcher, understand the reasons behind the choice of communication strategies employed by the health communicators.

3.4.1.5. Reliability and Validity

The measurement of the quality of the data collection technique and the data collected are measured in terms of reliability and validity. Both reliability and validity ensures that the results gotten from the research is true. The researcher ensured to follow the right step in order to ensure that the research design and measurement tools are valid and reliable.

3.4.1.5.1. Reliability

A study passes the test of reliability when the same answer is obtained consistently when researched at different points in time (Du Plooy, 2009). A major factor that might affect the reliability of the output of a data analysis is the respondent. A respondent could be tired, thereby not giving a true answer. If the respondent has emotional or health problems, memory fluctuations, the environmental condition could also affect the respondent, and this may affect his/her response (Du Plooy, 2009). The researcher ensured that the Environmental Health Practitioners, working with Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) were adequately informed about the research and they chose the venue of the interview, which was in their office.

3.4.1.5.2. Validity

For a study to be valid, the result of the study must represent what the study is based on in the real world (Du Plooy, 2009). For the qualitative aspect of this research, the sample size was purposively drawn out of the sample frame. The Environmental Health Practitioners were in the best position to give a detailed account about the strategies employed by the municipality in reducing the risk of water-borne diseases in the communities situated under Raymond Mhlaba Local Municipality. This is so because they are the people in charge of performing the duties related to health and education in the Local Municipality.

3.4.1.6. Method of data analysis

The method of data analysis for this phase is qualitative in nature. This study made use of thematic analysis to code the data collected through in-depth interview with the employee of Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality).

3.4.1.6.1. Thematic Analysis

A thematic analysis can be defined as the coding of data into themes. It critically examines the data collected and draws on important recurrent issues or codes appearing in the data collected. It carefully codes data into categories to understand the main idea associated with the research aims and objective. A theme pinpoints the important and the relevant information derived from the whole data being collected that answers the research questions (Braun & Clarke, 2006). The researcher was therefore able to use thematic analyses to categorize various related themes from the data collected through the in-depth interview with the personnel working under Raymond Mhlaba Local Municipality to ensure there is no outbreak of water-borne disease in the community.

3.4.2. Phase Two

3.4.2.1. Quantitative Research Method

Quantitative research is statistics driven and the opinion of the researcher is not present in the data analysis; the research does not depend on the researcher's intuition (Bhattacharjee, 2012). In quantitative research, data collected are numeric and analysed quantitatively using statistical tools (Bhattacharjee, 2012). Unlike qualitative research, quantitative research focuses mainly on the surface meaning which studies phenomenon that varies in size, length, amount and so on that is called a variable (Denzin & Lincoln, 2000). Quantitative data is analysed statistically (numbers and percentage) and has a rigid design nature. Quantitative researcher believe in standardization, which means getting a uniformed outcome from a set data

is proper research, while qualitative researchers object to the notion of “standardization” (Denzin & Lincoln, 2000). In a quantitative research, relationship between variables is examined in order to achieve an objective (Creswell, 2014:4). Therefore can be said that when a research is focused on measuring a particular quantity or amount, it is term as a qualitative research (Kothari, 2004:3)

3.4.2.2. Population of Phase two of the study

The target population of the Phase two of this study is the people in Alice Community. Approximately, 15,143 people live in Alice community (Statistics South Africa, 2011).

3.4.1.7. Sampling Technique and Procedure for phase two of the study

The proper representation of a target population is dependent on the sample frame, sample size and the sampling procedure(s) used in a research (Fowler, 2014:14). In the case of quantitative research, it has been noted that the larger the sample size the more accurate the result of a research is while in qualitative research, a large amount of sample size is not needed before a result can be produced (Du Plooy, 2009). In this phase, the target population which is Alice has approximately 15 143 people living in the community. In order to get accurate result, one would have to make the 15 143 people the sample but due to time and money limitation. The sample size consisted of 205 people that was randomly selected from locations in Alice in order to get a result of 85% level of confidence and 5% error margin.

As earlier said, sampling involves following a rigorous procedure when selecting units of analysis from a target or accessible population. Due to the constraint of time, costs and geographic distance data cannot be collected from all the members of a target population that is why sampling is carried out (Du Plooy, 2009). The sampling technique that was employed for the quantitative phase of this study is simple random sampling procedure.

3.4.1.7.1. Simple random sampling

Simple random sampling frame was used in the quantitative aspect of this research. Simple random sampling frame is a type of probability sampling which allows for each unit of analysis of the target population to have an equal chance of being selected as a sample (Du Plooy, 2009). This sampling procedure ensures that a sample is selected once. Simple random sampling can be said to be “drawing a sample out of a hat” (Fowler, 2014:18).

For this research, the researcher went from one UFH residence to another and houses around Ntselamanzi and Golf course location. The researcher numbers the house and UFH residence where the questionnaires were distributed, then randomly picked the house/ UFH residence where the researcher shared the questionnaire. The simple random sampling frame was used in this study so that every member of the target population would have equal chance of being selected and the possibility of selection bias would be eliminated.

3.4.1.7.2. Sampling frame

The sampling frame is the group of people that have the probability of been selected for a research. A sample can be seen as a representative of the population of a sampling frame (Fowler, 2014). Sampling frame can be defined as the total population of the people that are about to be studied (Fowler, 2014). Fowler identified three features a researcher should evaluate when selecting a sample size from a sampling frame. One, Comprehensiveness, the sample size must adequately represent the target population which is the sampling frame. The second feature to evaluate is if the probability of selection of a sample can be calculated and lastly, efficiency, which was described as how the target population is reflected in the sample size (Fowler, 2014:18).

The sampling frame for the quantitative aspect of this research is the population of Alice Community, which consist approximately 15,143 people. This research sample

size consist of 205 people which were randomly selected from locations in Alice, the research sample size gives a result of 85% level of confidence and 5% error margin. The researcher ensured to follow the three guideline given by Fowler (2014) when drawing out a sample size from a sample frame.

3.4.1.7.3. Sampling size

After considering all the characteristics mentioned above, the sample size drawn from my sample frame consists of 205 people. The 205 people were selected from various locations in Alice in order to achieve a result of 85% level of confidence and 5% error margin.

3.4.1.7.4. Sampling Errors

Sampling error is the deviation of the selected sample from the true characteristics, traits, behaviours, qualities or figures of the entire population. It is essential to note that sampling error gets smaller as the sample size increased because the more the sample size is, the more it accurately represented the population (Sedgwick, 2015). Through an online sample size calculator, a sample size of 205 was taken out of the target population of 15,143 people with an 85% confidence level and 5% margin of error. The confidence level indicates a degree of certainty that the study meets some values.

3.4.1.8. Data collection method

Data was collected from various respondents through questionnaire. The questionnaires was administered to the respondents in their residence. The data collection method for this phase has been designed in the proposal stage and evaluated in order to ensure that the objective of this study would be achieved. The means in which data would be collected for this phase is through questionnaire.

3.4.1.8.1. Questionnaire

A survey has been seen as a way of collecting a robust amount of data about a particular variable, a variable such as people behaviour towards a phenomenon, lifestyle etc. (Du Plooy, 2009). The survey tool that was used to collect data in the second phase of this research is questionnaire. Survey has been identified to be the most economical way and fastest way of collecting data on participant's knowledge, attitudes or behavior about a phenomenon of interest. In addition to this, survey helps the researcher to get adequate personal data about the participant, like, their sex, name, educational background, place of residence and many more (Babbie, 2005). Attached in appendix 3 is a copy of the questionnaire.

3.4.1.9. Pilot Test

A pilot test is defined as “a trial run conducted on a small scale” (Du Plooy, 2009:99). When carrying out a research, it is advisable to carry out a pilot study in order to ensure that the research method that would be employed for the research is relevant, reliable and valid (Du Plooy, 2009). Welman et al (2005) explains that in order to pinpoint unclear idea or faults in the measurement procedure, a pilot test should be carried out. (Welman, et al., 2005)

A pilot study was carried out by the researcher on 15 people, the 15 people filled the questionnaire and gave their opinion about some of the questions that were irrelevant and identified some of the questions that seemed like I was repeating my questions in another way. From their observations, few changes were made to the questionnaire. In addition, from the pilot study carried out, the researcher could predict the average time that a respondent would use in filling the questionnaire. So, the goal of the pilot study that was to ascertain that the respondent understood all the questions in the questionnaire was achieved.

3.4.1.10. Questionnaire procedure

The questionnaire was developed based on some comprehensive literature review on health communication, health promotion, health education, water-borne diseases and personal hygiene. All the questions in the questionnaire were derived from the above-mentioned concepts by carefully reading them and drawing out relevant points that can be of help to the research. The questionnaire consists of Eighteen (18) questions, which consists of one (1) open- ended question and seventeen (17) closed ended questions. A closed ended question is a question that has a fixed category of answers of which the respondent has to select from (Du Plooy, 2009), while, an opened ended question is a question that is expected to be answered by the respondent in his/her own word (Du Plooy, 2009).

The questionnaire was divided into four sections: section A focused on the personal information of the respondents, section B focused on understanding people's view of the concept of water-borne diseases, section C focused on personal hygiene and the control of water-borne diseases outbreak and section D focused on mediums people have received information about water-borne diseases.

3.4.2. Method of Data Analysis

SPSS statistical software program was used to analyze data collected for this phase. SPSS is a Windows based program that can be used to perform data entry and analysis and to create tables and graphs. SPSS is capable of handling large amounts of data and can perform all of the analyses covered in the text and much more (Field , 2009). The data analysis tool that was used in this quantitative aspect of this research is SPSS and data was analysed and presented through graphs, charts, tables and simple percentages.

3.4.3. Time dimension

One of the factors that can pose a threat to the validity of a research is the time dimension. The period of time in which data was collected from a sample is what is known as time dimension in research (Du Plooy, 2009). In Du ploy (2009), two types of time dimension were mentioned, namely, **cross-sectional** and **longitudinal**. The cross sectional design means the collection of data from a sample in a short period like a day or in a few weeks. The Longitudinal Design means the collection data at “different points” over a “long period of time” like for over two (2) years.

The time dimension design used for this research is cross-sectional design in order to avoid using a particular person in the sample size more than once. The questionnaire was distributed within two (2) weeks and was distributed in three different locations in Alice namely, Ntselamanzi location, within Alice Campus and Golf course area.

3.4.4. Reliability and Validity

The measurement of the quality of the data collection technique and the data collected are measured in terms of reliability and validity. Both reliability and validity ensures that the results gotten from the research is true. The researcher ensured to follow the right step in order to ensure that the research design and measurement tools are valid and reliable.

3.4.4.1. Reliability

When a study is said to pass the test of reliability, the same answer is being obtained consistently when researched at different points in time (Du Plooy, 2009). According to Barbie (2005), a survey can be said to have a high percentage of reliability result because research as shown that respondents have the same standardized reaction or feedbacks (Babbie, 2005). When a study does not pass the reliability test, it might be because the items used for the measurement are “vague, confusing or simply irrelevant to common concepts” (Reinard, 2001:202). Another factor that might affect the reliability of the output of a data analysis is the respondent. The respondent

could be tired, thereby not giving a true answer or the respondent could have emotional or health problems, memory fluctuations, the environmental condition could also affect the respondent, and this may affect his/her response (Du Plooy, 2009).

The reliability test for this research was carried out through the pilot study in order to understand people's reaction and observation to the questions and understand how well they understood the questions. From this pilot study, few changes were made to the questionnaire due to the reason of tautology.

3.4.4.2. Validity

The degree in which a study can adequately reflect the information the research aims at measuring is what called validity (Babbie, 2005). For a study to be valid, the result of the study must represent what the study is based on in the real world (Du Plooy, 2009). Test of validity could either be done on the research design or the measuring instrument. The threats to the validity of a research design could be either internal or external. The internal validity of a research design focuses on "the extent to which the design (used for the study) can account for all the factors that would affect the result of the research" (Du Plooy, 2009).

To ensure that the research design is valid, it was ensured that the research design was critically examined. For the qualitative aspect of this research, the sample size was purposively drawn out of the sample frame. For the quantitative aspect of this research, the sample size of 205 people was drawn from the target population of 15 143 people that are said to be living in Alice. Although, this would not give an accurate result, but the result that would be gotten from the sample size has 85% level of confidence and 5% error margin.

The external validity of a research design focuses on "the extent to which findings can be generalised to the target or accessible population in the real world" (Du Plooy, 2009:90). The time dimension could influence some factors that might

threaten the external validity of a research design; this has been adequately discussed above. For this research, the time dimension design used for this research is cross-sectional design in order to avoid using a particular person in the sample size more than once. The questionnaire was distributed within two (2) weeks and was distributed in three different locations in Alice namely, Ntselamanzi location, within Alice Campus and Golf course area.

Measurement validity is “the degree to which a test (or measuring instrument) actually tests (measures) what it purports to test (measure) (Du Plooy, 2009:135). According to Reinard (2001), “validity is the consistency of a measure with some outside criterion or standard by which to judge the test”. The understanding of how closely the overlap of the operational definitions with the theoretical definitions of the phenomenon of interest is what a measurement validity depends on (Du Plooy, 2009:135). Therefore, by confirming that a measure is valid, the reliability of the measure is also guaranteed. The validity of the measurement tool can be seen in the next chapter under reliability and validity. The validity of the measurement tool was done through SPSS.

3.5. Ethical requirement

The way this research was carried out, it seeks to achieve credibility. For the interview, the researcher contacted the personnel in charge of health communication in the Raymond Mhlaba Local Municipality, Alice office, and briefly explained what this study entails and asked for their consent after presenting the ethical clearance certificate to them.

For the questionnaire distribution, a consent letter from the researcher was addressed to the participants briefly explaining what the study is about and the result the researcher seeks to achieve from the distribution of the questionnaire. The researcher ensured to inform the participants that participation in the study was voluntary and at any point, they can withdraw from the survey. The researcher ensured that no participant is discriminated against and any party relevant to this

study is given equal chance at been selected for the survey. The researcher also added that anonymity of the participant were been ensured and all information were been treated as strictly confidential. The researcher also ensured that no harm would befall any participant in any way during the data collection period and after. Attached in Appendix 4 is a copy of my ethical clearance certificate.

3.6. Conclusion

In this chapter, the research methodology was adequately discussed; the use of mixed method. This chapter illustrates how both qualitative and quantitative research design was used for this study and how it relates to the objectives of the research. This chapter also discussed the data collection technique that was used, the target population, the sample size, the sample procedure and data analysis. The ethical requirement undertaken was adequately explained and the reliability and validity of the study was discussed in this chapter.

Chapter 4

Data Analysis and Discussion

4.1. Introduction

In this chapter, the data analysis of the in-depth interview with the Environmental Health Practitioners, working with Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality), on communication strategies employed in their Municipality would be discussed in phase one. In phase two, the data analysis of the questionnaire distributed would be presented making use of percentages, graphs and tables.

4.2. Qualitative Data Analysis (Phase one)

From the in-depth interview had with the Environmental Health Practitioners, working with Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality), on communication strategies employed in their Municipality, they gave an in-depth analysis of the communication strategies employed to prevent the risk of an outbreak in the local Municipality. A poster, which is one of the communication tools been used during water-borne disease awareness campaigns, was also given to me for better understanding of the message Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) disseminate on how to prevent a water-borne disease outbreak.

The in-depth interview was carried out with open-ended questions in a partially structured way. My questions were based on the set interview guide that was based on the research question but was not followed word for word. The interview guide helped to guide the interview so it can be in line with the research aim and objectives. I made use of a tape recorder to record the interview and I wrote down some major points in order not to miss any important data and be accurate. English

was the language of communication used for the in-depth interview. As earlier mentioned in Chapter 3 (research methodology), the in-depth interview was conducted with personnel working under Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) dealing with water-borne diseases prevention. Two of the personnel working in the Environmental Health department were willing and available to grant the interview.

I carefully categorised the main idea gotten from both the in-depth interview with the Environmental Health Practitioners of the Raymond Mhlaba Local Municipality and the poster given to me. This section therefore presents the analysis from the data collected through the in-depth interview and the communication tool (poster) given. Attached in appendix 1 is a copy of the Interview Guide.

4.2.1. Qualitative Research Objective

The following objectives were what the in-depth interview guide was based on:

1. To investigate the extent to which Raymond Mhlaba Local Municipality makes use of communication strategies to reduce the risk of water- borne diseases outbreak
2. To evaluate the kind of communication strategies employed by Raymond Mhlaba Local Municipality in reducing the risk of water-borne diseases outbreak.

4.2.2. Qualitative Data Analysis

In this section, the qualitative data collected from the partially structured interview with the Environmental Health Personnel working under Raymond Mhlaba Local Municipality, Alice. The data was analysed through thematic analysis. The thematic analysis was done through coding of data into different related themes that achieved the abovementioned objectives.

4.2.3. Thematic Analysis of the Qualitative Data Collected

The qualitative data collected for this research was through in-depth interview with the Environmental Health Practitioners working in Raymond Mhlaba (formerly Nkonkobe) Local Municipality, Alice and the communication tool (poster) given to me by the Environmental Health Practitioners to help the research.

4.2.3.1. Thematic Analysis of the In-depth Interview

From the in-depth interview with the Environmental Health practitioners working under Raymond Mhlaba Local Municipality, Alice, a number of themes were derived. Two Environmental Health Practitioner (EHP) were interviewed and to ensure anonymity, the first person would be referred to as EHP 1 and the second person would be referred as EHP 2.

The data collected from the in-depth interview was analysed below.

4.2.3.1.1. Overview of Environmental Health Unit of Raymond Mhlaba Local Municipality

The first question was based on the overview of the Environmental Health Unit of Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality). EHP 1 gave a brief summary of the Environmental Health Unit in Raymond Mhlaba Local Municipality. According to EHP 1,

“The Environmental Health unit is under Community department at Amathole District Municipality” (the District Municipality which Raymond Mhlaba Local Municipality is under).

EHP 1 further expatiated on role of the Environmental Health Unit,

“The Environmental Health Unit deals with municipal health services; they have the scope of service, food safety monitoring, water quality monitoring, air quality monitoring, proper handling of human remains, surveillance of health services and other more”.

EHP 1 highlighted that,

“The prevention of water-borne diseases outbreak is one of the programs under Water Quality Monitoring”.

4.2.3.1.2. The role of personnel in charge of Water Quality Monitoring in preventing a water-borne disease outbreak

The second question seeks to investigate the extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality prevents a water-borne disease outbreak in the community. According to EHP 1,

“The unit in charge of water quality monitoring identify the community where there is either a problem with scarcity of water or where there is no purified water like tap water, most times people in those areas are dependent on rivers and dams”.

In addition, EHP 1 and EHP 2 both noted that the water quality-monitoring unit embark on awareness programs to educate the public on water-borne diseases especially in places where they survive on surface water. According to EHP 1,

“Awareness on prevention of water-borne disease outbreak is also embarked on if a tap water sample from a location comes back infected with E.Coli or a high number of caliphur”.

EHP 2 added that,

“The unit warns the community about the water if infected so they do not drink it”.

Another role of the Water Quality Monitoring Unit is to run test on the quality of water samples collected in laboratory in order to ensure the tap water being released are up to standard. Both of the participant noted that the unit takes samples of water from different points and if there is one sample that does not comply then they go there and do a resampling. In the words EHP 1,

“Where there is tap water, when we hear that the quality of water is not up to standard, we take a sample to the laboratory and run tests”.

Another responsibility of the Water Quality Monitoring Unit is supplying water to places where there is insufficiency. EHP 2 indicated locations where they rely on surface water as alternative when they are short of water. According to EHP 2,

“Vulnerable communities are towards hogsback (namely) Khayaletu community, Sompondo and Giltoni community”

EHP 2 added that,

“The Unit supply water with tankers to the locations”

Another role played by the Water Quality Monitoring Unit is providing general information on water-borne diseases to the community. According to EHP 2,

“We have proactive and reactive strategy, we do not wait for outbreak before we do awareness, we go to communities where they are likely to have shortage of clean water and we also go during an outbreak”.

EHP 1 also added that less than a week ago from the period of the interview, the unit went on a proactive measure in Lovedale College, Alice, Eastern Cape in order to educate the student on the preventive measures that can be used to curb water-borne disease outbreak.

Another role played by the Water Quality Monitoring Unit is collection of domestic waste to help reduce the risk of a water-borne disease in the community.

According to EHP 1,

“We usually collect domestic waste like paper, plastic etc”

4.2.3.1.3. Evaluation of communication strategies employed by Raymond Mhlaba Local Municipality

The communication strategy majorly employed by the Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) to disseminate messages on prevention of water-borne disease outbreak is awareness campaigns. According to EHP 1,

“The only way we have been doing it here is through awareness, we have been calling them to one place and we educate them”

Both participants are of the view that awareness campaigns are more effective because you get to meet the people physically and questions can be easily answered if there is any. Awareness Campaigns is under the group approach to health communication, which was earlier said to have a lasting impact on the target audience, because there is a personal contact with the target audience and room for questioning, expression of fear and many more by the target audience. Therefore, there is a probability that the health messages on Water-borne diseases would influence the people on the community.

4.2.3.1.4. Evaluation of the communication tools used to disseminate message to the public

According to EHP 1,

“We use pamphlet and posters which describes the preventive measures that could be taken to avoid any form of water-borne disease outbreak especially Cholera”.

Communication tools such as pamphlets and posters are used to educate the public during the awareness programs carried out by the Environmental Health Practitioners of Raymond Mhlaba Local Municipality, Alice. These tools would help provide visual images during the group approach to health communication, therefore helping the health information have a lasting image in the mind of the target audience.

4.2.3.1.5. Evaluation of the message disseminated to the community on prevention of water-borne disease

According to EHP 1,

“Before going on an awareness campaign we usually select/identify a certain type of disease that are common that are usually transmitted through water like cholera, typhoid. So we only mention those diseases when we go to those communities in our awareness, we try to show them how to get water, where to get water from, how important for them to preserve water, how to protect water from contamination”.

For this question, I was referred to the poster given to me. The poster focuses on how cholera is spread, how to prevent cholera by boil water, disposing human waste properly, ensuring sanitation habits are good. Analysis of the communication tool would be discussed later in this chapter. According to EHP 1,

“We teach them about personal hygiene... washing their hands and so on”.

EHP 2 added that

“They (EHPs working under Raymond Mhlaba Local Municipality) educate people during the awareness programmes on the best means to get water from, and how treat water if it is gotten from unreliable source and how to protect water from not being contaminated”.

4.2.3.1.6. Evaluation of the target audience

From the interview with the participants these set of people were identified as the key target audience to message on prevention of water-borne disease:

- People in communities where there is scarcity of tap water
- People in communities where they rely on surface water
- People where the tap water has been identified as infected
- Students in schools

4.2.3.2. Thematic Analysis of the communication tool (Poster)

A communication tool (poster) was given to me during my in-depth interview with the personnel working in the Water Monitoring Unit of Raymond Mhlaba Local Municipality (formerly Nkonkobe). The communication tool used in message dissemination (the poster) gives graphical explanation on how Cholera can be prevented and first aid treatment that should be given to another having symptoms of Cholera.

4.2.3.2.1. Evaluation of the message disseminated through the communication tool (Poster)

The poster focuses on how cholera is spread, how to prevent cholera by boil water, disposing human waste properly, ensuring sanitation habits are good. The poster also enlightens people on how to give first aid treatment for people stooling possibly due to being infected with cholera and advises them to take such person to the hospital as soon as they possibly. The poster is written in two languages: English language and Xhosa language. This would have been done so that the information can reach almost everyone- educated and uneducated.

The researcher is of the view that the way the poster is designed; it is self-explanatory without any of the Environmental Health practitioners giving much information. The Poster, if seen by someone that cannot read would still get the message that is intended to be passed. Picture 1-3 describes how Cholera is being spread. The first picture shows women with children making use of surface water for their domestic chores, the water flows to somewhere else, and a child is seen playing in the water, which is also dangerous because the child can swallow the water and get infected with Cholera. The next picture shows woman, who has fetched from the surface water, given a child drinking water from the fetched surface water and using the water to wash food. Picture 4 describes how the surface water can be purified. The picture shows a woman boiling water. It was written under that picture that the water should be allowed to boil until bubbles appear for a while on the water. That way, it said that the water has been adequately purified.

Picture 5 describes the first aid treatment that should be given to anybody suspected to have cholera. The picture shows a bucket of water, a jar that water from the bucket is being poured, the plus sign, which indicates the people should add, then a sugar pack then 8 spoons, which indicates 8 spoons of sugar should be added to the water in the jar and a spoon of salt. This mixture should be given to anyone suspected to be infected with Cholera. Picture 6 shows a picture of a woman giving a child the mixture, which indicates that the mixture should be taken often even if the child is not willing, which most likely indicates the taste is not so nice, the mother should ensure the child takes the mixture. Picture 7 shows a Cholera Clinic with Nurses and Doctors that can treat the patient. From this picture, it is obvious the health educator is trying to advise the people that the best place to treat Cholera is in a Cholera Clinic not at home.

Picture 8 – 10 describes ways in which Cholera can be prevented. Picture 8 shows a man washing his hand, which is one of the controllable factors that can help reduce the risk of a water-borne disease outbreak. Another person fetching water and the other cleaning the containers. Picture 9 shows a clean toilet and a woman standing beside a bucket of water, which she intends to use to clean the toilet, in order to ensure a clean environment. Picture 10 show a water container being cleaned. These are all controlling factors that can help reduce the risk of an outbreak.

Attached in Appendix 2 is a copy of the poster.

4.3. Quantitative Data Analysis (Phase Two)

In this section, the data collected through the questionnaire distributed would be analysed below making use of graphs and tables.

4.3.1. Quantitative Research Objective

- 1) To ascertain the influence of the various communication strategies employed by Raymond Mhlaba Local Municipality on people's behaviour towards controllable factors that can reduce the risk of an outbreak.

4.3.2. Quantitative Data Analysis

The sample size used for this phase of the research consist of 205 people. 205 questionnaires were distributed to respondents and 205 questionnaires were received back. The questionnaire consists of Eighteen (18) questions, which consists of one (1) open- ended question and Seventeen (17) closed ended questions. The demographic and general information of the respondent were focused on in the section A of the questionnaire. In the section B, the focus was based of people's perception of the concept of water-borne disease; section C focused on personal hygiene as a means to control water-borne disease outbreak. Section D focused on the mediums people have received information about water-borne diseases and their perception on the messages and means in which Raymond Mhlaba Local Municipality (formerly Nkonkobe local Municipality) water-borne diseases outbreak. The main findings of data collected would be presented in tables or graphs and would be adequately discussed for easy understanding. The statistics that would be given for all the questions are based on a valid percentage.

4.3.2.1. Demographic and general information of the respondents

Section A focused on the demographic and general information of the respondents, this section is based on the respondent's gender, age grade, marital status, nationality, residence, formal education status, and level of education.

4.3.2.1.1 Gender of the Respondents

A total of 203 respondents responded to this question out of 205 people that participated in the survey. 109 (53.2%) of the respondents are male while 94 (45.9%) of the respondents are female and 2 (0.9%) of the respondents did not tick a gender. Below is the graphical representation of the 203 respondents that responded to this question.

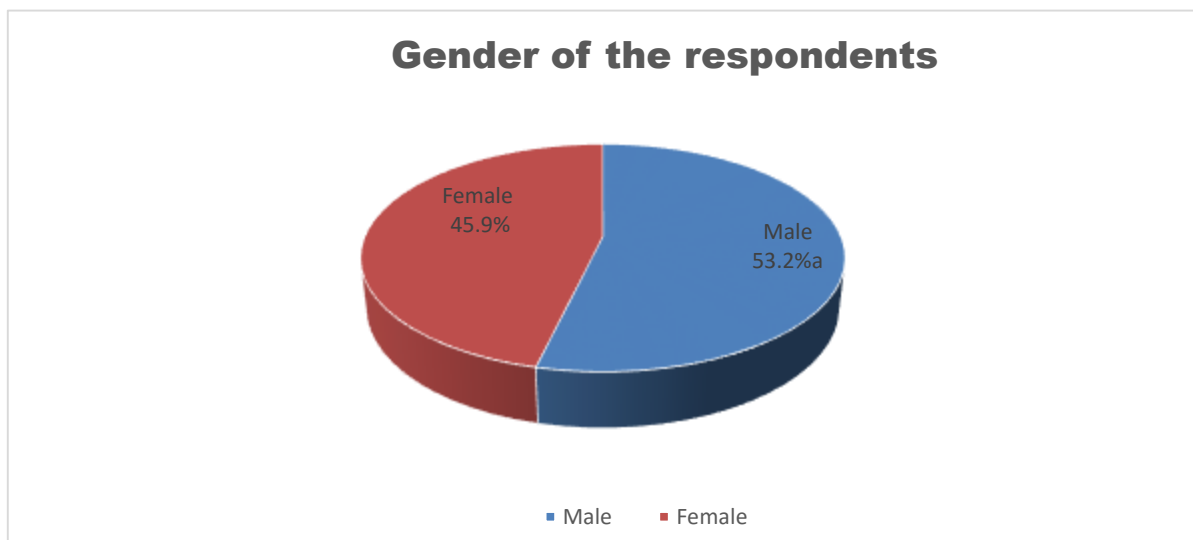


Figure 4-1: Gender of the respondents

The figure above shows the distribution of respondents' gender, it was revealed that 109 (53.2%) of the respondents were male and female were 94 (45.9%) in number. This indicates that the percentage of the respondents that evaluated the communication strategies employed by the Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) in educating people about controllable factors that can reduce the risk of water-borne disease outbreak were more of male compared to their female counterparts.

4.3.2.1.2. Age of the Respondents

A total of 203 respondents responded to this question out of 205 people that participated in the survey. 2 (1.0%) people did not respond to this question. Below is the graphical representation of the 203 respondents that responded to this question.

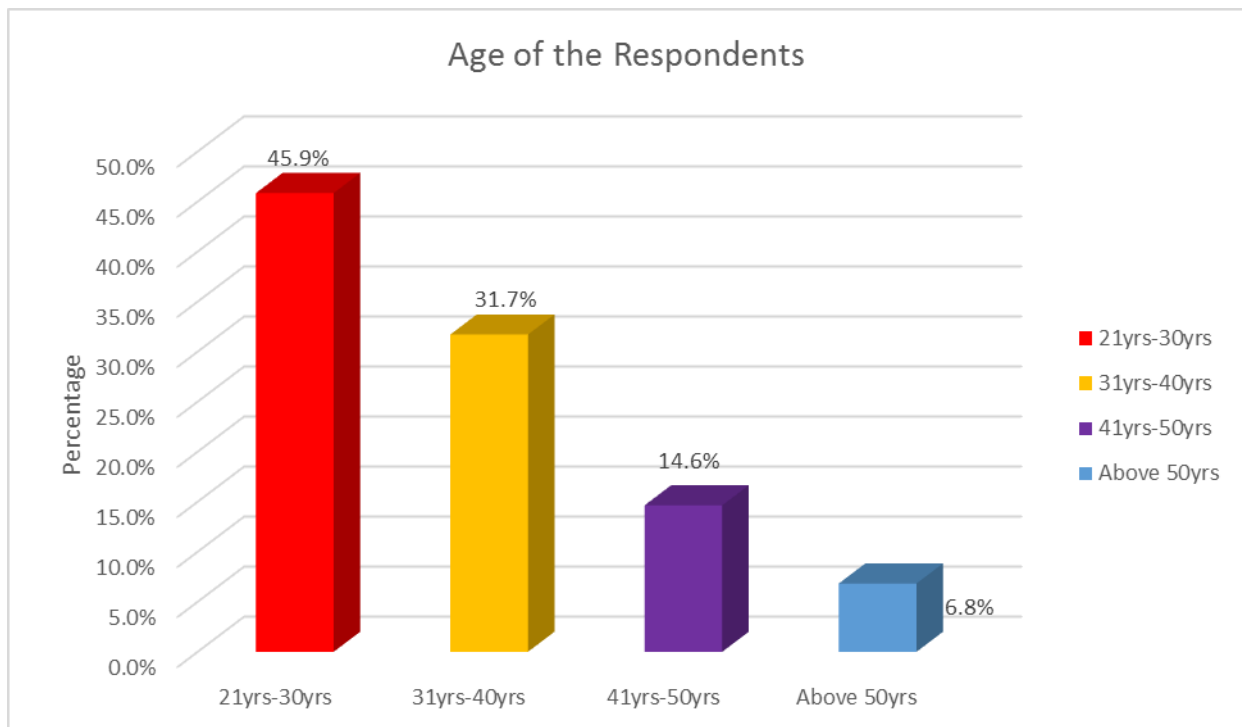


Figure 4-2: Age of the respondents

The Figure above shows the age distribution of the respondents of the survey carried out to evaluate the communication strategies employed by the Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) in educating people about controllable factors that can reduce the risk of water-borne disease outbreak. The graph shows that 94 (45.9%) respondents were between the ages of 21-30 years; 65 (31.7%) respondents were within the age of 31-40 years; 30 (14.6%) respondents were within the age of 41-50 years and 14 (6.8%) respondents were above age 50 years. From the graph above, it indicates that most of the respondents come from the age bracket of 21years - 30years and 31years - 40 years.

4.3.2.1.3. Marital Status

A total of 204 respondents responded to this question out of 205 people that participated in the survey. 1 (0.5%) person did not respond to this question. Below is the graphical representation of the 204 people that responded to this question.

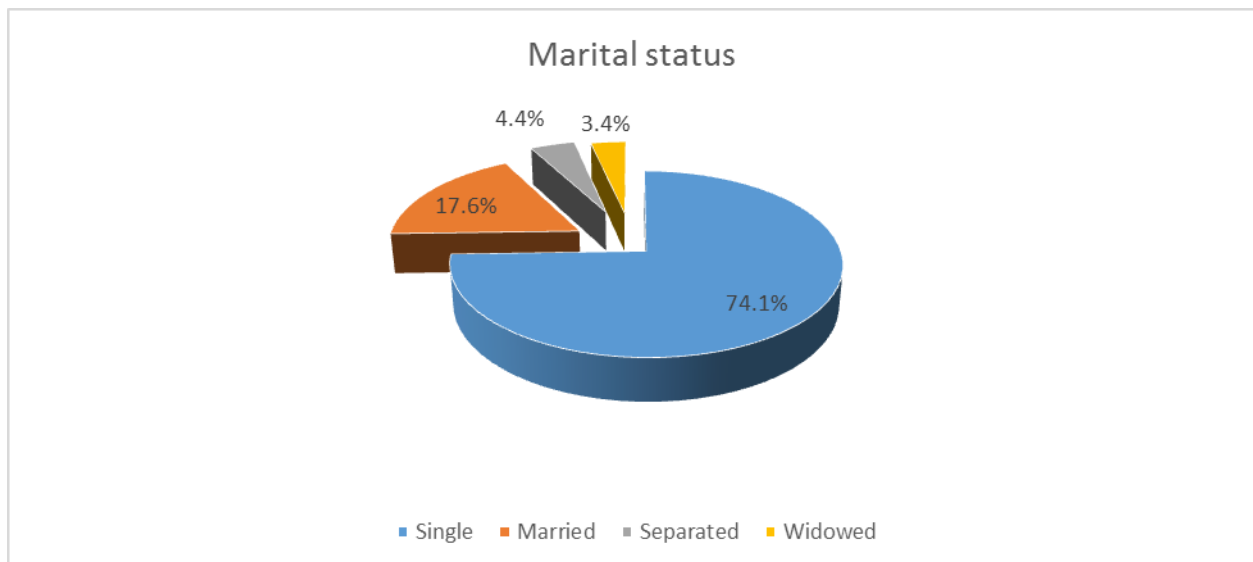


Figure 4-3: Marital status of the respondent

The figure above shows the marital status of the respondents of which, 152 (74.1%) respondents were single; 36 (17.6%) respondents were married; 9 (4.4%) respondents were separated and 7 (3.4%) respondents were widowed. This indicated that most of the respondents in this study are single.

4.3.2.1.4. Nationality of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
South African	145	70.7	70.7	70.7
Valid Others	60	29.3	29.3	100.0
Total	205	100.0	100.0	

Table 4-1: Respondent's nationality

The table above indicates that more than 145 (70.7%) respondents were national of this country (South Africa) and the respondents 60 (29.3%) respondents were nationals from other countries. This indicates 145 (70.7%) of the respondents of the questionnaire are nationals of South Africa.

If nationality is others

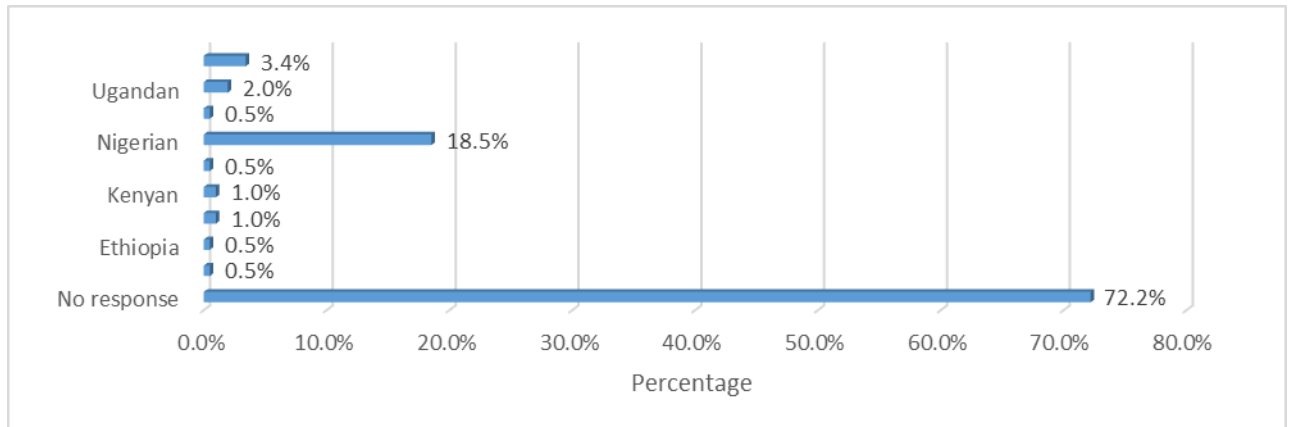


Figure 4-4: graph of other nationality

From the above graph, 1 (0.5%) respondent is from Cameroon, 1 (0.5%) respondent is from Ethiopia, 2 (1.0%) respondents are from Ghana, 2 (1.0%) respondents from Kenya, 1 (0.5%) respondent is from Lesotho, (38) 18.5% respondents are from Nigeria, 1 (0.5%) respondent is from Tanzania, 4 (2.0%) respondents from Uganda, 7 (3.4%) respondents are from Zimbabwe. Out of the 72.2% with no response above, 70.7% in table 4-1 indicated that they are South Africans.

This indicates that most of the respondents are South Africans from the table 4-1 above and the Nigerians are the highest number of foreigners that participated in the survey from the graph above.

4.3.2.1.5 Educational Status

A total of 204 respondents responded to this question out of 205 people that participated in the survey. 1 (0.4%) person did not respond to this question. Below is the graphical representation of the 204 people that responded to this question.

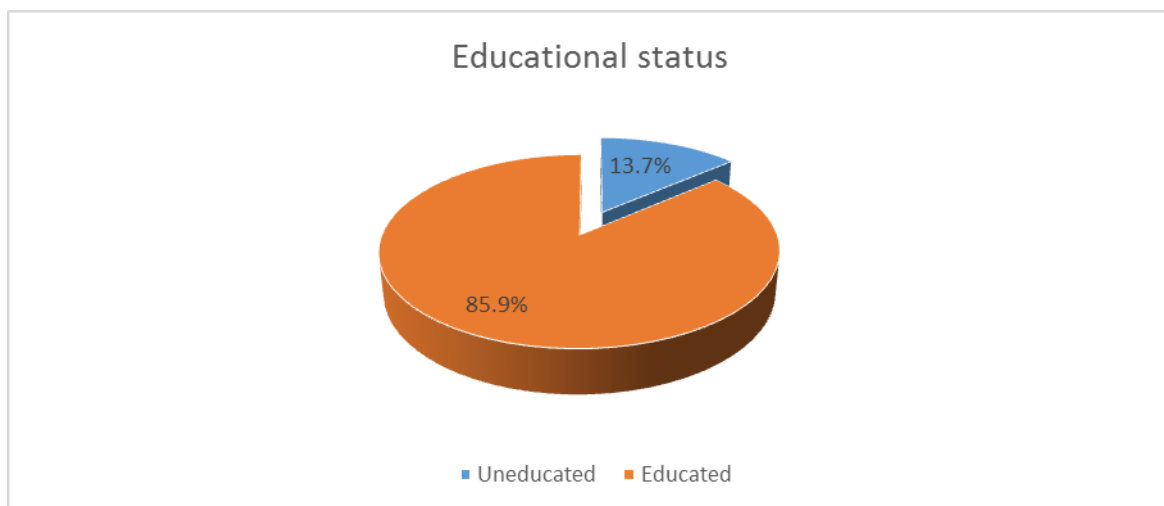


Figure 4-5: Formal education status

From the figure above, it indicates that 176 (85.9%) respondents were educated and the remaining respondents 28 (13.7%) were not. Therefore, most of the people that participated in this survey can be said to be educated.

4.3.2.1.6. Respondents' level of education

A total of 178 people responded to this question out of 205 people that participated in the survey. 27 (13.2%) people did not respond to this question. Below is the graphical representation of the 178 people that responded to this question.

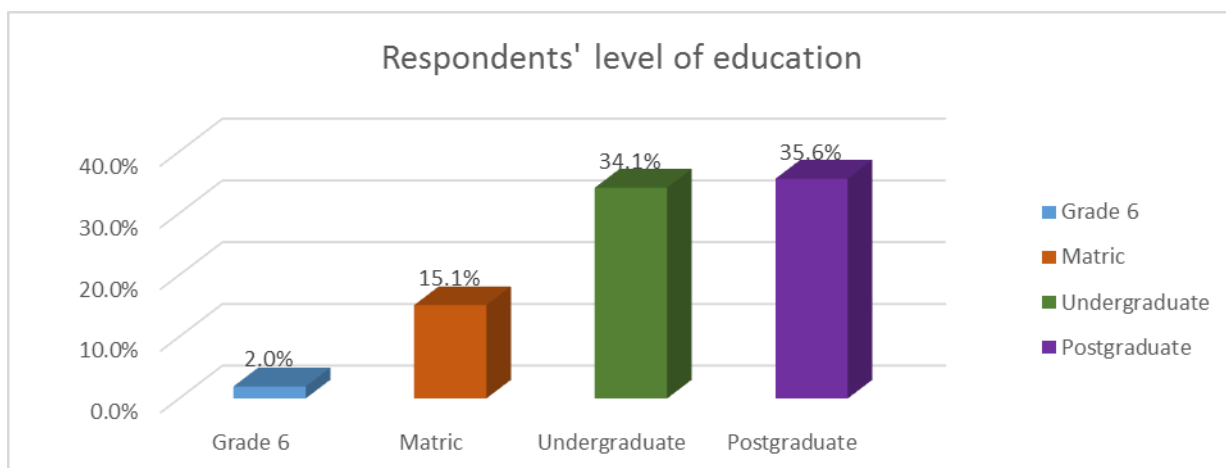


Figure 4-6: Respondents' level of education

The figure above shows the respondents' level of education. It shows that 4 (2.0%) of the respondents were having Grade 6 as their highest level of education; 31 (15.1%) respondents were having Matric as their highest qualification; 70 (34.1%) respondents were undergraduates' students and 73 (35.6%) of the respondents were postgraduate Students. From the graph above, it indicates that most of the respondents were undergraduates and postgraduates.

4.3.2.2. Understanding peoples view of the concept of water borne diseases

Before going into communication strategies employed by Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) in educating people about controllable factors that can reduce the risk of water-borne disease outbreak, had to find out if they understand what water-borne disease is about.

Section B focuses on people's perception of the disease.

4.3.2.2.1. Respondents' understanding of water-borne diseases

This question is an open-ended question. A total of 186 people responded to this question out of 205 people that participated in the survey. 19 (9.3%) people did not respond to this question. Presentation of the analysed data are in the table below.

	Frequency	Percent	Valid Percent	Cumulative Percent
No response	19	9.3	9.3	9.3
Cholera	7	3.4	3.4	12.7
Cholera and diarrhoea.	2	1.0	1.0	13.7
Cholera from water.	1	.5	.5	14.1
Dirty environment water that can kill.	1	.5	.5	14.6
Dirty water diseases like cholera.	1	.5	.5	15.1
Disease developed by littering on water.	1	.5	.5	15.6
Diseases caused by pathogenic microorganisms.	5	2.4	2.4	18.0

Diseases from unclean water and dirty environment.	1	.5	.5	18.5
Diseases from unclean water supply.	2	1.0	1.0	19.5
Diseases from unclean water.	108	52.7	52.7	72.2
Diseases from water during domestic use.	1	.5	.5	72.7
Diseases influenced by stagnant water and lack of sanitation.	1	.5	.5	73.2
Diseases like cholera and typhoid.	1	.5	.5	73.7
Diseases like cholera.	4	2.0	2.0	75.6
Diseases that are water related.	1	.5	.5	76.1
Diseases that can kill.	1	.5	.5	76.6
Drinking untreated water.	1	.5	.5	77.1
Illness transmitted via polluted water.	1	.5	.5	77.6
Infected water that cause deadly disease.	1	.5	.5	78.0
It affects healthy living.	1	.5	.5	78.5
It can cause diarrhoea and intestinal diseases	5	2.4	2.4	81.0
It is a deadly disease.	1	.5	.5	81.5
It is very dangerous.	5	2.4	2.4	83.9
Kills people in rural areas.	1	.5	.5	84.4
Malaria, which can lead to death.	1	.5	.5	84.9
Not much understanding.	11	5.4	5.4	90.2
Pollution of water that causes diseases.	1	.5	.5	90.7
Waste of water.	1	.5	.5	91.2
Water borne disease that makes people sick.	3	1.5	1.5	92.7
Water sickness that kills.	12	5.9	5.9	98.5

Water that is not clean.	2	1.0	1.0	99.5
Water that is not good and healthy for humans.	1	.5	.5	100.0
Total	205	100.0	100.0	

Table 4-2: Respondents' view of water-borne diseases

As earlier mentioned, this question is an open-ended question, which allows the respondents to express themselves in their own words, which would enable the researcher understand the respondents' feelings and perceptions better. From the table above, 186 (90.7%) respondents gave responded to this question, while 9.3% did not respond which might mean either they have no idea or they did not want to write much.

Respondents with limited or no understanding of water-borne diseases

Out of the 186 (90.7%) of the respondents, from the table above, 11 (5.4%) indicated that they did not have much understanding of water-borne diseases. This set of people can be said to have limited/no understanding about water borne disease. 2(1.0%) of the respondents view did not correlate with the concept of water-borne diseases. 1 (0.5%) of the respondent wrote that water-borne diseases is waste of water and another 1 (0.5%) respondent wrote that water-borne diseases is Malaria which can lead to death.

Respondents with adequate understanding of water-borne diseases

173 (84.3%) of the respondents in the above table can be said to have adequate understanding of water-borne diseases. This is so because the respondents either expressed their understanding of water-borne diseases by identifying a particular type of water-borne diseases or they associated water-borne diseases to death, which happens if infected persons are not treated immediately or ways in which water can be infected.

4.3.2.2.2. Respondents' view of Water-borne disease as a cause of death

A total of 197 respondents responded to this question out of 205 people that participated in the survey. 8 (3.9%) people did not respond to this question. Below is the graphical representation of the 197 (96.1%) people that responded to this question.

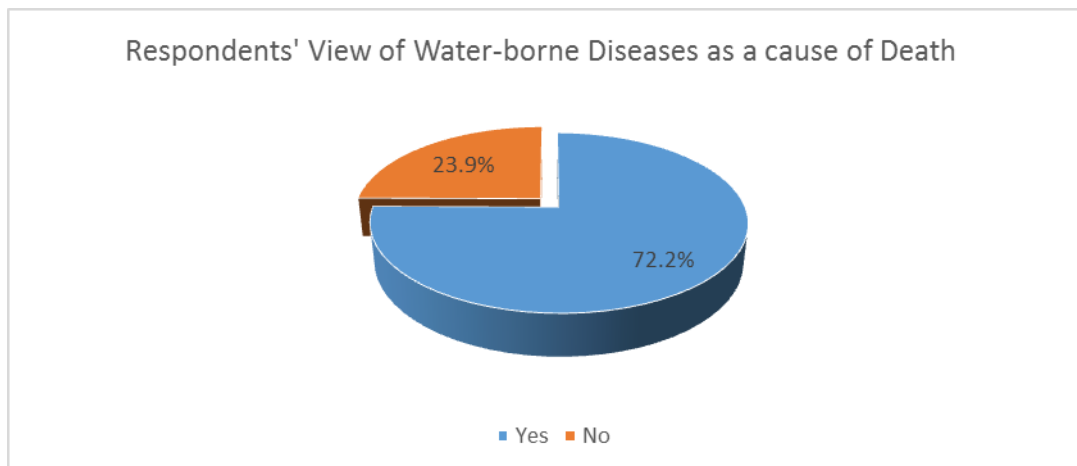


Figure 4-7: Respondent view of Water-borne disease as a cause of death

The figure above indicates 148 (72.2%) respondents have the knowledge and understanding that water borne diseases could be seen as the leading cause of death in all age groups while 49 (23.9%) respondents are not of the view that water-borne diseases can be a leading cause of death.

4.3.2.3. Personal hygiene and Water-borne disease

Section C focuses on controllable factors that can curb outbreak of water-borne disease.

4.3.2.3.1. Respondents view on personal hygiene and waterborne diseases

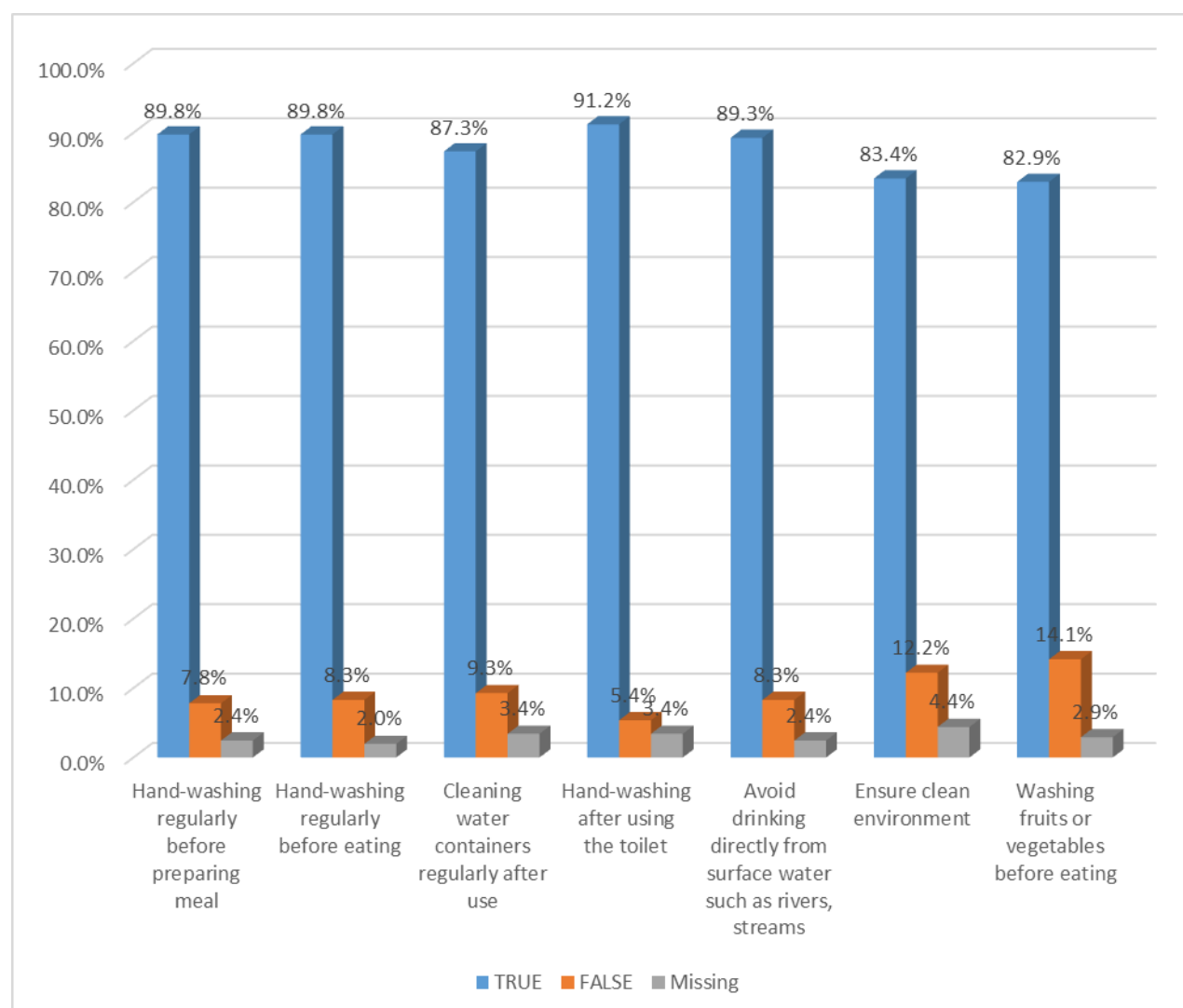


Figure 4-8: Respondents view on personal hygiene and waterborne diseases

The figure above shows some factors that control water borne outbreak. The analysis would be discussed under different sub-heading for better understanding.

Respondents' View on Hand washing Before Preparing Meal

A total of 200 (97.6%) respondents responded to this question. The results from the data collected indicates that 184 (89.8%) respondents agreed that Hand-washing regularly before preparing meal can reduce the risk of an outbreak by ticking true, while 16 (7.8%) respondents ticked false to this question. 5 (2.4%) respondents neither ticked true nor false.

Respondents' view on Hand Washing Regularly before Eating

A total of 201 (98.1%) respondents responded to this question. The result from the data collected indicates that 184 (89.8%) respondents agreed that hand-washing regularly before eating is a factor that can control water borne outbreak by ticking true. While 17 (8.3%) respondents are of the view that hand washing before eating does not control water-borne disease outbreak by ticking false to this question. 4 (2.0%) respondents neither ticked true nor false to this question.

Respondents' View on Cleaning Water Containers regularly after Use

A total of 198 (96.6%) respondents responded to this question. The result from the data collected indicates that 179 (87.3%) respondents agreed that cleaning water containers regularly after use could curb an outbreak by ticking true to this question and 19 (9.3%) ticked false to this question. 7 (3.4%) respondents neither ticked true nor false.

Respondents' View on Hand Washing After using the Toilet

A total of 198 (96.6%) respondents responded to the question. The result from the data collected indicates that 187 (91.2%) respondents agreed that hand washing after the toilet can reduce the risk of a water-borne diseases outbreak by ticking true while, 11 (5.4%) ticked false to this question. 7 (3.4%) respondents neither ticked true nor false to this question.

Respondents' View on avoiding drinking water directly from surface water

A total of 200 (97.6%) respondents responded to the question. The result from the data collected indicates that 183 (89.3%) respondents agreed that by avoiding drinking water directly from surface water such as rivers and streams could help reduce the risk of an outbreak by ticking true while, 17 (8.3%) respondents ticked false to this question. 5 (2.4%) respondents neither ticked true nor false.

Respondents' View on Ensuring Clean Environment

A total of 196 (95.6%) respondents responded to the question. The result from the data collected indicates that 171 (83.4%) respondents agreed that by ensuring a clean environment would help control the risk of a water-borne diseases outbreak by ticking true while, 25 (12.2%) respondents ticked false to this question. 9 (4.4%) respondents neither ticked true nor false.

Respondents' View on Washing Fruits or Vegetables before Eating

A total of 199 (97%) respondents responded to the question. The result from the data collected indicates that 170 (82.9%) respondents agreed that by washing fruits and vegetables before eating could control the risk of a water-borne diseases outbreak while, 29 (14.2%) respondents ticked false to this question. 6 (2.9%) respondents neither picked true nor false.

4.3.2.3.2. Respondents' practice of personal hygiene

How often do you practice the below	Always		Sometimes		Never	
	N	%	N	%	N	%
Hand-washing regularly before preparing meal	125	61.0	77	37.5	1	.5
Hand-washing regularly before eating	119	58.0	82	40.0	2	1.0
Cleaning water containers regularly after use	118	57.6	70	34.1	14	6.8
Hand-washing after using the toilet	159	77.6	42	20.5	2	1.0
Use of water from treated sources	113	55.1	80	39.0	8	3.9
Proper sanitation measures in the home	128	62.4	63	30.7	8	3.9
Washing fruits or vegetables before eating	113	55.1	74	36.1	16	7.8
Ensure drinking treated water	137	66.8	59	28.8	8	3.9

Table 4-3: Respondents' practice of personal hygiene

The table above shows how often the respondents practice some factors that could control water borne disease outbreak. Below, the analysis of the table has been categorized into subheading for better understanding.

How often Respondents' Practice Hand-washing Regularly before Preparing Meal

The result indicates that 125 (61.0%) respondents always practice hand washing regularly, while 77 (37.5%) respondents sometimes practice hand-washing regularly before preparing meal and 1 (0.5) respondent never practice hand-washing. 2 (1.0%) respondents did not respond to this question.

How often Respondents' Practice Hand-washing Regularly before Eating

The result indicates that 119 (58.0%) respondents always practice hand washing before eating and 82 (40.0%) sometimes practice hand-washing regularly before eating while 2 (1.0%) respondents indicated that they never practice hand washing regularly. 2 (1.0%) respondents did not respond to this question.

How often Respondents' Practice Cleaning Water Containers Regularly After use

The result from the data collected indicates that 118 (57.6%) respondents always clean their water containers after use while, 70 (34.1%) sometimes clean their water containers regularly after use and 14 (6.8%) respondents never practice cleaning water containers regularly after use. 3 (1.5%) respondents did not respond to this question.

How often Respondents' Practice Hand-washing after Using the Toilet

The result from the data collected indicates that 159 (77.6%) respondents always practice hand washing after using the toilet while, 42 (20.5%) respondents sometimes practice hand-washing after using the toilet and 2 (1.0%) never practice hand-washing after using the toilet. 2 (1.0%) respondents did not respond to this question.

How often Respondents' Practice Habit of Using of Water from treated source

From the table above, A total number of 113 (55.1%) respondents always make use of water from treated source while, 80 (39.0%) respondents sometimes makes the use of water from treated sources and 8 (3.9%) respondents never make use of water from treated source. 4 (2.0%) respondents did not respond to this question.

How often Respondents' Practice Proper Sanitation Measures in the Home

A total number of 128 (62.4%) respondents always practice proper sanitation measures in the home while, 63 (30.7%) respondents sometimes practice proper sanitation measures in the home and 8 (3.9%) respondents never practice the proper sanitation measures in the home. 6 (3.0%) respondents did not respond to this question.

How often Respondents' Practice Washing of Fruits or Vegetables before Eating

A total of 113 (55.1%) respondents always practice washing fruits or vegetables before eating while, 74 (36.1%) respondents sometimes practice washing fruits or vegetables before eating and 16 (7.8%) never practice washing of fruits or vegetables before eating. 2 (1.0%) respondents did not respond to this question.

How often Respondents' Practice Habit of Ensuring Drinking Treated Water

A total of 137 (66.8%) respondents always practice the habit of ensuring drinking treated water while, 59 (28.8%) sometimes ensure to drink treated water and 8 (3.9%) never ensure to drink treated water. 1 (0.5%) respondent did not respond to this question.

4.3.2.3. Mediums people have received information about water-borne disease

Section D focuses on mediums people have received information about water-borne disease

4.3.2.3.1. Mediums respondents received information on water-borne diseases

A total of 201 respondents responded to this question out of 205 people that participated in the survey. 4 (1.9%) of the respondents did not respond to this question. Below is the graphical representation of the 201 people that responded to this question.

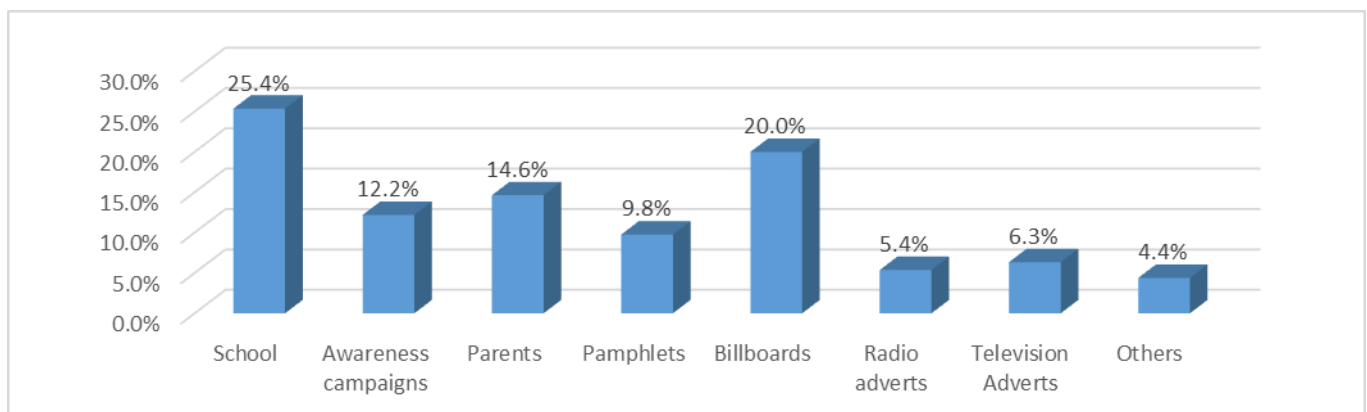


Figure 4-9: Mediums respondents received information on water-borne diseases

From the graph above, it shows that 52 (25.4%) respondents got their knowledge of water-borne diseases from their school while 25 (12.2%) respondents got the knowledge from awareness campaigns; 30 (14.6%) respondents also got the knowledge from their parents. In addition, 20 (9.8%) respondents got the knowledge from pamphlets; 41 (20.0%) respondents got their knowledge from billboards; 11 (5.4%) respondents got their knowledge from radio adverts; 13 (6.3%) respondents got it from television adverts and 9 (4.4%) respondents got their knowledge from other sources. 4 (1.9%) respondents did not respond to this question.

This analysis indicates that the school and through billboard is where most people got their knowledge of water-borne disease.

4.3.2.3.2. The percentage of Respondents that has received a message from Raymond Mhlaba Local Municipality about water-borne disease

A total of 201 respondents responded to this question out of 205 respondents that participated in the survey. Below is the graphical representation of the 201 people that responded to this question.

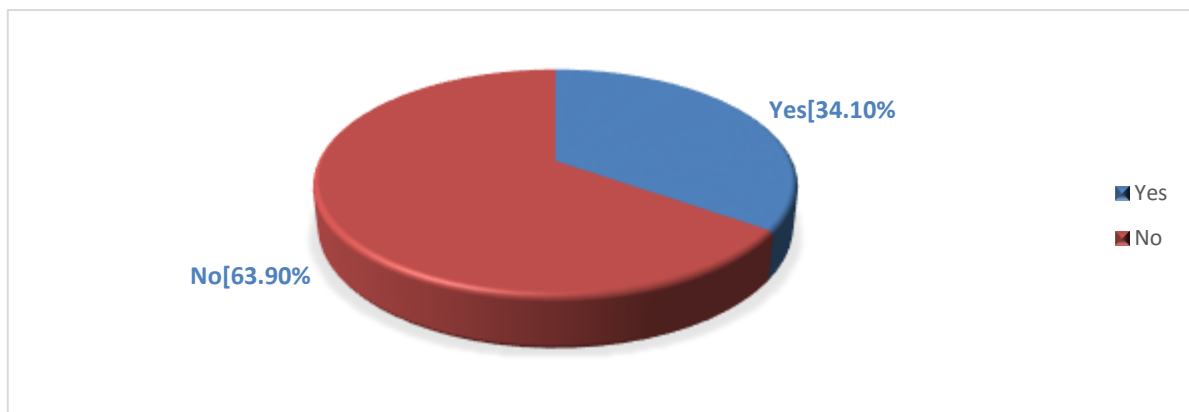


Figure 4-10: Respondents' response to having received information on water-borne diseases from Raymond Mhlaba Local Municipality

The table above indicates that only 70 (34.1%) respondents have received messages from Raymond Mhlaba (formerly Nkonkobe) communication department about water borne diseases and 131 (63.9%) respondents have not received any message from the municipality. 4 (2.0%) respondents did not respond to this question. This indicates that although most people have not gotten any message related to water-borne disease from Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality), the Municipality sends out messages related to water-borne disease.

4.3.2.3.3. The medium in which the people who ticked yes from the above question got the messages from

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Through television adverts	35	17.1	47.9	47.9
Through radio adverts	12	5.9	16.4	64.4
Through newspapers	18	8.8	24.7	89.0
Through adverts on billboards	2	1.0	2.7	91.8
Through awareness campaigns	3	1.5	4.1	95.9
Through pamphlets	2	1.0	2.7	98.6
Others	1	.5	1.4	100.0
Total	73	35.6	100.0	
Missing System	132	64.4		
Total	205	100.0		

Table 4-4: Mediums respondents have received messages on water-borne diseases from Raymond Mhlaba Local Municipality

From the analysis in the table above 35 (17.1%) respondents who have received messages from Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality) on prevention of water-borne diseases outbreak indicated they received the message through television adverts, while 12 (5.9%) respondents received the message through radio adverts. In addition, 18 (8.8%) through newspaper adverts, 2 (1.0%) respondents got the message through adverts on billboard, 3 (1.5%) respondents got the through awareness campaigns while 2 (1.0%) respondents got the messages through pamphlets.

4.3.2.3.4. How people rated the messages gotten from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on preventive measures that can curb water-borne diseases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No opinion	68	33.2	43.9	43.9
	Adequate	76	37.1	49.0	92.9
	Inadequate	11	5.4	7.1	100.0
	Total	155	75.6	100.0	
Missing	System	50	24.4		
Total		205	100.0		

Table 4-5: Respondents' rating of the information on water-borne disease gotten from Raymond Mhlaba Local Municipality

The table above indicates that 68 (33.2%) respondents had no opinion about the messages gotten from Raymond Mhlaba Local Municipality while 76(37.1%) respondents are of the view that the messages are adequate and 11(5.4%) are of the view that the messages sent are inadequate. 50 (24.4%) respondents did not respond to this question.

4.3.2.3.5 How often the respondents practice personal hygiene based on the messages gotten from Raymond Mhlaba Local Municipality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	57	27.8	45.2	45.2
	Sometimes	50	24.4	39.7	84.9
	Never	19	9.3	15.1	100.0
	Total	126	61.5	100.0	
Missing	System	79	38.5		
Total		205	100.0		

Table 4-6: Respondents practice of personal hygiene based on message on water-borne diseases gotten from Raymond Mhlaba Local Municipality

Based on the message gotten from Raymond Mhlaba Local Municipality related to water-borne diseases, 57(27.8%) respondents are of the view that the message gotten has always influenced their view of practicing personal hygiene. While 50(24.4%) respondents are of the view that because of the message received from Raymond Mhlaba Local Municipality concerning water-borne disease, they sometimes practice personal hygiene to curb the risk of an outbreak. In addition, 19(9.3%) respondents are of the view that Raymond Mhlaba Local Municipality message on Water-borne diseases has never influenced their decision to practice personal hygiene. 79 (38.5%) respondents did not respond to this question.

4.3.2.3.6. Perception of the communication strategies employed by Raymond Mhlaba Local Municipality in controlling water-borne diseases outbreak

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	42	20.5	29.8	29.8
	Good	53	25.9	37.6	67.4
	Fair	16	7.8	11.3	78.7
	Poor	30	14.6	21.3	100.0
	Total	141	68.8	100.0	
Missing	System	64	31.2		
Total		205	100.0		

Table 4-7: Respondents's perception of the communication strategies employed by Raymond Mhlaba Local Municipality in controlling water-borne diseases

A total of 42 (20.5%) respondents view the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in controlling water-borne diseases outbreak as excellent; 53(25.9%) respondents view the communication strategies as good; 16(7.8%) respondents view the communication strategies as fair ; while 30(14.6%) see the communication strategies as poor. 64 (31.2%) did not respond to this question.

4.3.3. Reliability and Validity of the Results

Cronbach alpha values were calculated to determine the reliability of the data. The Cronbach's alpha coefficient for all the items is 0.568, suggesting that the items have relatively high internal consistency among the items. Essentially this means that respondents who tends to select high scores for one scale item also tends to select high scores for the others scale items; similarly, respondents who selected a low scores for one item tend to select low scores for the other scale items. Thus, knowing the score for one scale item would enable one to predict with some accuracy the possible scores for the other two scale items. Had alpha been low, this ability to predict scores from one item would not be possible. Therefore, it can be said that the tool used to measure the impact of the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to reduce water-borne disease outbreak in the community is reliable.

Reliability test for all variables

Reliability Statistics	
Cronbach's Alpha	N of Items
.568	29

4.4. Conclusion

In this chapter, the data analysis of the in-depth interview with the Environmental Health Practitioners, working with Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality), on communication strategies employed in their Municipality was thematised and discussed. The results of the findings based on 205 questionnaires were also discussed in this chapter. The chapter shows the representation of data collected in tables and graphs and were followed by discussions that expatiated on the result. An overall summary of the data were calculated through descriptive statistics. The reliability of the questionnaire was also discussed in this chapter.

Chapter 5

CONCLUSION AND RECOMMENDATION

5.1. Overview

This research focused on the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in educating people about controllable factors that can reduce the risk of water-borne disease outbreak in the community. This research investigated the extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of communication strategies to curb the outbreak of water-borne, evaluated the kind of communication strategies employed and understood how the communication strategies has been effective in influencing people's behaviour.

Water-borne diseases has been said to pose a significant threat to global health, about 200 million water-related diarrhoea cases which lead to approximately 2.1 million deaths are recorded annually (Percival, et al., 2014:537). Studies suggest that the high number of deaths in developing countries can be connected to lack of clean water and proper sanitation measures (Gomez & Nakat, 2002). Drawing on the issue of water quantity as a cause of water-borne disease, South Africa has been experiencing dryness for a couple of years (Amathole District Municipality, 2016). Due to the dryness situation, many people might return to the use of surface water (such as rivers, streams etc.) which are untreated when they do not have access to clean water (Business Leadership South Africa and The Centre for Development and Enterprise, 2010). This would put people at risk of being infected by water-borne diseases because surface water is at high risk of being contaminated by water-borne pathogens (Percival, et al., 2014), most especially in developing area like Raymond Mhlaba (formerly Nkonkobe) Local Municipality, where farming is the major livelihood of the people in the community and lacks proper sanitation measures.

As previously discussed in earlier chapters, a need for communication to educate the public as a strategy to help reduce outbreaks of water-borne diseases is essential, as it can help reduce the risk of an outbreak occurrence. From the in-depth interview carried out, this study has found the type of communication strategy being employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to educate its public on the prevention of water-borne disease outbreak, the communication strategy is awareness campaign and they employ this method because they perceive it to be the most effective method for the community.

In this chapter, the summary of the key findings is presented as well as major conclusions. From the research findings, the conclusions were derived. This chapter also highlighted recommendations for health communicators in Raymond Mhlaba (formerly Nkonkobe) Local Municipality and in other Municipality. Future Research possible directions is also highlighted in this chapter and the limitations of the study.

5.2. Summary of Key Findings

The key findings derived from the both the qualitative and quantitative phase of this research would be discussed in this section.

5.2.1. The extent to which Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of communication strategies to reduce the risk of water-borne disease outbreak in the community

From the in-depth interview had with the Environmental Health Personnel in Water Monitoring Unit under Raymond Mhlaba Local Municipality (formerly Nkonkobe Local Municipality), the research findings show that Raymond Mhlaba Local Municipality makes use of a communication strategy to reduce the risk of water-borne disease outbreaks in the community. The Local Municipality employs the use of awareness campaigns to educate the community about water-borne diseases in order to reduce the risk of an outbreak in the community. This awareness campaigns are carried out

in various communities under Raymond Mhlaba Local Municipalities especially the vulnerable communities with water scarcity.

Research findings from the questionnaire also showed a few respondents have received messages through awareness campaigns from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on water borne diseases. This indicates that the municipality sends out messages related to water-borne diseases although majority of the respondents have not received any message related to prevention water-borne diseases from Raymond Mhlaba (formerly Nkonkobe) Local Municipality. Therefore, it can be inferred from the research findings that Raymond Mhlaba (formerly Nkonkobe) Local Municipality makes use of awareness campaigns to educate its public about the prevention of water-borne disease outbreaks but it is limited in its reach.

5.2.2. The kind of communication strategies employed by Raymond Mhlaba

Local Municipality

From the research findings, it can be deduced that the communication strategy made use of by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to send out message on the prevention of water-borne diseases is awareness campaigns. Raymond Mhlaba (formerly Nkonkobe) Local Municipality is of the view that awareness campaigns are more effective because you get to meet the people physically and questions can be easily answered if there is any, which is one of the advantages of the group approach to health communication.

This study found out that other communication tools employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality to educate the community are pamphlet and posters, which describes the preventive measures that could be taken to avoid any type of water-borne diseases.

5.2.3. Effectiveness of the communication strategies employed

Looking at the effectiveness of communication strategies, the research findings show that majority of the respondents have not received information from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on preventive measure that can reduce an occurrence of a water-borne diseases outbreak, which infers that the communication strategy employed is ineffective because of the limited people the message has reached. The conclusion deduced through the reach of the message shows that the effectiveness of the communication strategy employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in reducing the risk of water-borne disease outbreak is limited and therefore does not have much impact on the community.

Research findings show that a few number of respondents rated the messages gotten from Raymond Mhlaba Local Municipality as adequate. However, a higher number of respondents had no opinion about the Health messages. Therefore, it can be inferred that most of the respondents have not been influenced by the messages on water-borne diseases received from Raymond Mhlaba (formerly Nkonkobe) Local Municipality and this is because of the limited number of people that the message has reached.

5.3. Limitations of the Study

The following limitations were identified for this study:

- Due to the constraints of time, costs and geographic distance, simple-random sampling was used for the qualitative aspect of this research and purposive sampling was used for the qualitative aspect of this research. Consequently, the results were not representative of the entire population.
- The results of this study were only limited to the population of Alice and cannot be generalized anywhere else.

- This study relied on a relatively small, but statistically acceptable sample due to budget and time constraints.

5.4. Recommendation of the study

- From the research findings, it can be inferred that the water-borne diseases awareness campaigns is limited in its reach to the people of Raymond Mhlaba (formerly Nkonkobe) Local Municipality. Therefore, it is recommended that these awareness campaigns should not only be frequently embarked on in vulnerable communities like Khayaletu, Sompondo and Giltoni communities, but should be frequently done in every community under Raymond Mhlaba Local Municipality.
- From the research findings, it can be deduced that the awareness programs on water-borne disease outbreaks carried out by Raymond Mhlaba (formerly Nkonkobe) Local Municipality are not done frequently. Therefore, awareness campaign should be embarked on more frequently because the more the messages are reinforced for a long time, the more the people in the community are able to remember and the greater the likelihood that they will act upon the message.
- Raymond Mhlaba (formerly Nkonkobe) Local Municipality should carry out evaluations like this research at least quarterly in order to assess the impact of the awareness campaigns on the community and can also be used as a tool to educate the people of Raymond Mhlaba (formerly Nkonkobe) Local Municipality about water-borne diseases.
- Social media is a new trend that most people are now into most especially the youths. Raymond Mhlaba (formerly Nkonkobe) Local Municipality should key into this and educate the public on platforms available on social media as it can be seen as a form of reinforcing health information.

5.5. Future Research Possible Directions

- The role of health communication in reducing the risk of water-borne disease outbreak.
- Social media as a tool to reducing the risk of water-borne disease outbreak.
- Reinforcement of health information on water-borne disease can effectively curb water-borne disease outbreak in a community.
- The impact of health Communication in health sustenance.

5.6. Conclusion

In this chapter, a brief overview of what this research was highlighted, summary of key finding were also adequately discussed. This chapter also indicated the limitations of this study and recommendation of the study, future research possible directions were also mentioned in this chapter.

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Appendix-1

University of Fort Hare
Faculty of Social Science and Humanities
Department of Communication

Dear Sir/Ma,

A research is being carried out on **the communication strategies employed by the Raymond Mhlaba (formerly Nkonkobe) Local Municipality in educating people about controllable factors that can reduce the risk of water-borne diseases outbreak**. The aim of the interview is to find out the kind of communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in reducing the risk of water-borne diseases outbreak. Please be assured that this study is for academic purposes only.

Interview Guide

1. What does Raymond Mhlaba (formerly Nkonkobe) Local Municipality as a whole feel about educating its community about water-borne diseases?
2. Do you feel educating the people on water-borne diseases would help reduce the risk of an outbreak in the community?
3. Do you feel promoting the habit of personal hygiene would help reduce the risk of a water-borne diseases outbreak?
4. Does the communication department of Raymond Mhlaba (formerly Nkonkobe) Local Municipality have communication programs in place to educate its people about water-borne diseases and controllable factors that can reduce the risk of an outbreak?
5. What are the Communication mediums employed by the Communication Department of Raymond Mhlaba (formerly Nkonkobe) Local Municipality in educating the people about water-borne diseases?

Appendix-2

A communication tool (Poster) used by Raymond Mhlaba (formerly Nkonkobe) Local Municipality during their awareness campaign to educate the people of the community given to me by the Environmental Health Personnel working under the Water Monitoring Unit to help my research. The communication poster is written in English language and Xhosa language.



Appendix-3

University of Fort Hare
Faculty of Social Science and Humanities
Department of Communication

Dear respondent

A research is being carried out on **the communication strategies employed by the Raymond Mhlaba (formerly Nkonkobe) Local Municipality in educating people about controllable factors that can reduce the risk of water-borne disease outbreak**. The aim of this questionnaire is to ascertain the influence of the various communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality on people's attitude towards controllable factors that could reduce the risk of an outbreak. All information will be treated as **STRICTLY CONFIDENTIAL**. Names are not required. Please be assured that this study is for academic purpose only. Please answer the questionnaire as sincerely as possible because the research findings would be beneficial to you and the society.

Section A: Personal Information (Please tick appropriate box)

1. Gender: Male ☐ Female ☐

2. Age:

16yrs-20yrs	21yrs-30yrs	31yrs-40yrs	41yrs-50yrs	Above 50yrs
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Marital Status

Single	Married	Divorced	Separated	Widowed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Nationality: South African ☐ Others ☐

5. If answer to number 4 is others. Please specify

6. Formal education status Uneducated ☐ Educated ☐

7. Level of Education

Grade 6	Matric	Undergraduate	Postgraduate

Section B: Understanding people's view of the concept of water-borne diseases

8. What is your understanding of water-borne diseases?

9. From your understanding of water borne diseases, could it be seen as one of the leading cause of death in all age groups?

Yes

☐

No

☐

Section C: Personal Hygiene and the control of water-borne disease(s) outbreak

10. Factors that can control a water-borne outbreak. Please tick option(s) that you feel are appropriate

Factors	True	False
Hand-washing regularly before preparing meal		
Hand-washing regularly before eating		
Cleaning water containers regularly after use		
Hand-washing after using the toilet		
Avoid drinking directly from surface water such as rivers, streams		
Ensure clean environment		
Washing fruits or vegetables before eating		

11. Please indicate if there are other controllable factors known that could reduce the risk water-borne disease outbreak

12. How often do you practice the below. Please tick appropriately

Factors	Always	Sometimes	Never
Hand-washing regularly before preparing meal			
Hand-washing regularly before eating			

Cleaning water containers regularly after use			
Hand-washing after using the toilet			
Use of water from treated sources			
Proper sanitation measures in the home			
Washing fruits or vegetables before eating			
Ensure drinking treated water			

Section D: mediums people have received information about water-borne diseases. (Please tick appropriately)

13. Your knowledge of water-borne diseases has been gotten from

School	
Awareness campaigns	
Parents	
Pamphlets	
Billboards	
Radio adverts	
Television Adverts	
Others	

If others, please specify _____

14. Have you ever received any message from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on Water-borne diseases?

Yes ☐

No ☐

15. If yes, via which medium?

Through television adverts	
Through radio adverts	
Through newspapers	
Through adverts on billboards	
Through awareness campaigns	
Through pamphlets	
Others	

If others, please specify_____

16. How can you rate the messages you got from Raymond Mhlaba (formerly Nkonkobe) Local Municipality on preventive measures that can curb water-borne diseases?

No opinion ☐ Adequate ☐ Inadequate ☐

17. If you have received information from Raymond Mhlaba (formerly Nkonkobe) local municipality, how often do you practice personal hygiene based on the messages you have gotten from Nkonkobe Local Municipality?

Always ☐ Sometimes ☐ Never ☐

18. What do you think about the communication strategies employed by Raymond Mhlaba (formerly Nkonkobe) Local Municipality in controlling water-borne diseases outbreak?

Excellent ☐ good ☐ fair ☐ poor ☐

Thank You for Your Valuable Time

Appendix-4

Ethical clearance



University of Fort Hare
Together in Excellence

ETHICAL CLEARANCE CERTIFICATE REC-270710-028-RA Level 01

Certificate Reference Number: OSU271SANI01

Project title: **Evaluation of Nkonkobe Local Municipality Communication Strategies in Reducing the Risk of Water-borne Disease Outbreak.**

Nature of Project: Masters

Principal Researcher: Oluwatosin Tolulope Animawun

Supervisor: Dr O.O Osunkunle

Co-supervisor: N/A

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instrument(s). Should any other instruments be used, these require separate authorization. The Researcher may therefore commence with the research as from the date of this certificate, using the reference number indicated above.

Please note that the UREC must be informed immediately of

- Any material change in the conditions or undertakings mentioned in the document
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research

The Principal Researcher must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

Special conditions: Research that includes children as per the official regulations of the act must take the following into account:


Note: The UREC is aware of the provisions of s71 of the National Health Act 61 of 2003 and that matters pertaining to obtaining the Minister's consent are under discussion and remain unresolved. Nonetheless, as was decided at a meeting between the National Health Research Ethics Committee and stakeholders on 6 June 2013, university ethics committees may continue to grant ethical clearance for research involving children without the Minister's consent, provided that the prescripts of the previous rules have been met. This certificate is granted in terms of this agreement.

The UREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
 - Any unethical principal or practices are revealed or suspected
 - Relevant information has been withheld or misrepresented
 - Regulatory changes of whatsoever nature so require
 - The conditions contained in the Certificate have not been adhered to
- Request access to any information or data at any time during the course or after completion of the project.
- In addition to the need to comply with the highest level of ethical conduct principle investigators must report back annually as an evaluation and monitoring mechanism on the progress being made by the research. Such a report must be sent to the Dean of Research's office

The Ethics Committee wished you well in your research.

Yours sincerely



Professor Wilson Akpan
Acting Dean of Research

08 August 2016