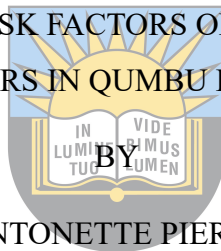




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MASTERS IN PUBLIC HEALTH -UNIVERSITY OF FORT HARE

TOPIC: PREVALENCE AND RISK FACTORS OF HEARING LOSS IN GRADE R  
LEARNERS IN QUMBU DISTRICT



BY  
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A RESEARCH MINI-THESIS SUBMITTED TO THE FACULTY OF HEALTH SCIENCES IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE MASTERS DEGREE IN  
PUBLIC HEALTH

SUPERVISOR: DR. UNATI STEMELA-ZALI

## DECLARATION

I, Antonette Rachael Pierce, do hereby declare that the work on this mini-dissertation entitled “Prevalence and risk factors of hearing loss in grade R learners in Qumbu District” is my original unaided work (except where acknowledgements indicate otherwise) and neither is it being, or is being submitted for another degree in this or any other University.



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## **ACKNOWLEDGEMENT**

I would like to acknowledge and give my deepest thanks to my supervisor Dr. Unati Stemela- Zali who has guided me and advised me through all stages of the research process.

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Finally, I would like to thank God, for guiding me through all the difficulties that I have experienced during the research process.



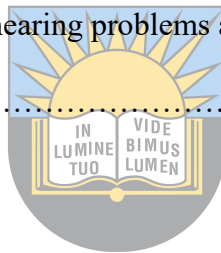
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## List of Figures:

|                                                                |    |
|----------------------------------------------------------------|----|
| Figure 1: Distribution of screened learners by the school..... | 23 |
| Figure 2: Reasons for failed hearing screening.....            | 29 |
| Figure 3: hearing loss factors in Qumbu District.....          | 30 |

## List of Tables:

|                                                                                                       |       |
|-------------------------------------------------------------------------------------------------------|-------|
| Table 1: Parents opinion on hearing ability of their children.....                                    | 22    |
| Table 2: Hearing screening results.....                                                               | 24    |
| Table 3: Childhood illness mentioned by the parents.....                                              | 25-26 |
| Table 4: Tests for association between hearing problems and development<br>and pregnancy history..... | 26-28 |



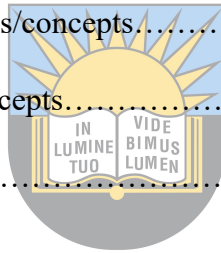
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## Table of Contents

### Chapter 1

|                                                         |     |
|---------------------------------------------------------|-----|
| 1.1. Introduction and background.....                   | 1   |
| 1.2. Problem statement.....                             | 2   |
| 1.3. Aim of the study.....                              | 2   |
| 1.4. Objectives of the study.....                       | 2   |
| 1.5. Research questions.....                            | 3   |
| 1.6. Significance of the study.....                     | 3   |
| 1.7. Delimitations of the study.....                    | 3   |
| 1.8. Operational definitions of key terms/concepts..... | 3-4 |
| 1.9. List of Abbreviations of terms/ concepts.....      | 4   |
| 1.10. Conclusion.....                                   | 4   |



### Chapter 2

|                        |     |
|------------------------|-----|
| 2.1. Introduction..... | 5-9 |
| 2.2. Conclusion.....   | 10  |

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### Chapter 3

|                                            |    |
|--------------------------------------------|----|
| 3.1 Introduction.....                      | 11 |
| 3.2. Research design.....                  | 11 |
| 3.3. Study setting.....                    | 11 |
| 3.4. Study population.....                 | 12 |
| 3.5. Inclusion and Exclusion criteria..... | 12 |
| 3.6. Sample and sampling method.....       | 12 |

|                                     |       |
|-------------------------------------|-------|
| 3.7. Research tools.....            | 13    |
| 3.8. Data collection procedure..... | 13-14 |
| 3.9. Data management.....           | 15    |
| 3.10. Data analysis.....            | 15    |
| 3.11. Validity/Reliability.....     | 15    |
| 3.12. Results dissemination.....    | 16    |
| 3.13. Research process.....         | 16    |
| 3.14. Ethical consideration.....    | 17    |
| 3.15. Time schedule.....            | 18-19 |
| 3.16. Budget.....                   | 19-20 |
| 3.17. Conclusion.....               | 20    |
| <b><u>Chapter 4</u></b>             |       |
| 4.1. Introduction.....              | 21    |
| 4.2. Results and discussions.....   | 21-31 |
| 4.3. Conclusion.....                | 31    |
| 4.4. Limitations .....              | 32    |
| 4.5. Recommendations.....           | 33    |
| Appendices.....                     | 37-60 |

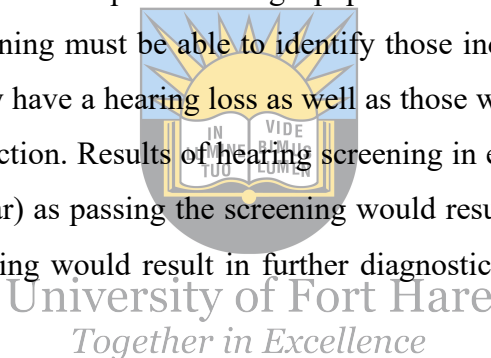


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## CHAPTER 1: INTRODUCTION AND BACKGROUND

### 1.1. INTRODUCTION

The mechanism of hearing refers to the sound impulses which are transported via one's auditory tract and where acoustical energy is converted to mechanical, then to hydraulic to chemical and electrical energy whereby the brain perceives the signal. (Martin and Clark, 2006). Sound is produced by vibrations which are passed directly through air that surrounds us and consists of pressure waves. Hearing is seen to take place only when the sound pressure waves reach the eardrum (Martin and Clark, 2006). Hearing is the end result of a process and can be tested via two pathways air and bone conduction. Screening primarily refers to the procedure of detecting healthy individuals who may present with a possible hearing impairment that may requiring further diagnostic evaluation (Ayieko, Mahommed and Swanepoel, 2014). In order for hearing screening to be beneficial, the process has to be specific to target population and sensitive test battery (Martin and Clark, 2006). The screening must be able to identify those individuals who have failed the screening indicating that they have a hearing loss as well as those who have passed the screening and have normal hearing function. Results of hearing screening in each ear are then compared to one another (right and left ear) as passing the screening would result in normal hearing function and the failing of the screening would result in further diagnostic evaluation (Martin & Clark, 2006).

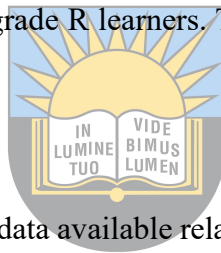


It is noted that around 466 million people are living with a hearing loss and 34 million consist of children worldwide (WHO, 2019). It is estimated that by 2030 the total number of people living with hearing loss will grow to greater than 630 million and greater than 900 million by 2050 (WHO, 2019). South Africa has a population of 10,6 million children which are aged 5 to 7 years of age living with a hearing loss (Butler, 2012). One of the notable negative impacts of hearing loss is the inability to communicate with others and especially with children they tend to have a delayed spoken language development (WHO, 2019). Ear diseases such as Otitis Media (OM) and hearing loss have a negative impact on the education of children and this effects the academic performance, as it leads to delayed language development and later affects learning (WHO, 2019).

Integrated School Health Policy (ISHP) was developed in 2012 and primarily focused on both the immediate health difficulties of learner as well as executing interventions that could stimulate their health and well-being during stages of childhood and adulthood (Rasesemola, Matshoge and

Ramukumba, 2019). The Integrated School Health Policy stated that their services will be rendered to all children that are of school going age and including pre-school children (grade R). This policy excluded children who have completed grade 12 and also those children not attending school for numerous reasons (Rasesemola, Matshoge and Ramukumba, 2019). The research that was conducted by undergraduates from University of KwaZulu-Natal Westville Campus in 2015 focused on urban areas of Durban, indicated that Grade 1 learners showed common ear problems such as cerumen impaction, middle ear pathologies and possible hearing loss (Govender et al., 2015).

As part of the ISHP in 2019, the audiologists employed by the Department of Education embarked on an outreach programme that was titled “World Hearing week”. The audiologists conducted hearing screening of learners from different districts within the Eastern Cape. It was evident from that exercise that hearing screening of grade R was vital as it enabled the audiologists to identify and detect hearing loss early amongst grade R learners. This is where the interest to conduct this study has developed.



## **1.2. PROBLEM STATEMENT**

The Eastern Cape Province has limited data available relating to the prevalence and risk factors of hearing loss amongst Grade R learners. The study contributed information relating to the prevalence of hearing loss in grade R learners at Qumbu District. It also has created awareness of risk factors to grade R children that may lead to hearing loss.

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

1. The aim of this study was to determine the prevalence of hearing loss and hearing loss risk factors of grade R Learners in Qumbu District in 2022.

## **1.4. OBJECTIVES OF THE STUDY**

1. To determine the statistics of Grade R Learners with existing hearing loss at Qumbu District by conducting hearing screening.
2. To identify the risk factors of hearing loss in Grade R learners at Qumbu District through hearing screening exercise.

## 1.5. RESEARCH QUESTIONS

1. What is the prevalence of hearing loss among grade R Learners in the Qumbu District?
2. What are the risk factors of hearing loss in Grade R learners?

## 1.6. SIGNIFICANCE OF THE STUDY

The current study provided scientific knowledge about the prevalence and risk factors of hearing loss in grade R learners in Qumbu District. Early identification and early intervention were most fundamental in reducing the negative impact of a hearing loss relating to their educational and development achievements (WHO, 2019). Preschool and School Screening for hearing loss and ear disease were seen to be the most effective instrument for early detection and also management of the specific hearing loss (WHO, 2019).

## 1.7. DELIMITATIONS(SCOPE) OF THE STUDY

This study focused only on the grade R learners that were within the age group of 5-6 years according to the Admission Policy for Public Ordinary Schools. The learners that fell outside the age group were not permitted to participate in the research.

## 1.8. OPERATIONAL DEFINITIONS OF KEY TERMS/CONCEPTS

**Hearing loss-** Hearing loss can be defined as the loss of sensitivity of sound, which can be complete or partial and resulted from any abnormalities along the auditory system (Martin and Clark, 2006).

**ISHP-**Integrated School Health Programme was developed to identify avoidable all health problems (Govender et al., 2015).

**SNHL-**Sensorineural hearing loss refers to loss of sensitivity of sound that are produced by the alteration or damage of the sensory mechanism of the cochlea and other neural structures (Martin and Clark, 2006).

**CHL-**Conductive Hearing loss refers to loss of sensitivity of sound produced by the abnormalities of the middle or outer ear (Martin and Clark, 2006).

**OM-**Otitis Media refers to an infection present in the middle ear (Martin and Clark, 2006).

**HPCSA-** Health Professional Council of South Africa (HPCSA Minimum Standards for the Hearing Screening in Schools, 2018).

**WHO-** World Health Organization (WHO, 2019)

## **1.9. LIST OF ABBREVIATIONS OF KEY TERMS/ CONCEPTS**

**HL-** Hearing loss can be defined as the loss of sensitivity of sound, which can be complete or partial and resulted from any abnormalities along the auditory system (Martin and Clark, 2006).

**ISHP-**Integrated School Health Programme was developed to identify avoidable all health problems (Govender et al., 2015).

**SNHL-**Sensorineural hearing loss refers to loss of sensitivity of sound that are produced by the alteration or damage of the sensory mechanism of the cochlea and other neural structures (Martin and Clark, 2006).

**CHL-**Conductive Hearing loss refers to loss of sensitivity of sound produced by the abnormalities of the middle or outer ear (Martin and Clark, 2006).

**OM-**Otitis Media refers to an infection present in the middle ear (Martin and Clark, 2006).

**HPCSA-** Health Professional Council of South Africa (HPCSA Minimum Standards for the Hearing Screening in Schools, 2018).

**WHO-** World Health Organisation (WHO, 2019)

## **1.10. CONCLUSION**

This chapter has presented the introduction and background of the study. It has laid the foundation of principals, aims, objectives and questions of the study. It has highlighted the problem that the study is attempting to contribute knowledge to. The next chapter will present literature reviewed to build an insight of what is already known in the topic of this study.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. INTRODUCTION

Hearing refers to one of the most important five senses and relates to providing access to sounds that exist the world such as listening to individuals' voices, words, sentences and external warning sounds (Gelfand, 2009). The ear is defined as the organ which process sounds. This organ permits the highest center which refers brain to interpret exactly what the individual is actually hearing (Gelfand, 2009). The ear can be divided into firstly the outer ear, secondly the middle ear, lastly the inner ear. These parts form an integral role in the procedure of hearing with the outer ear, middle ear that are involved in amplifying the signal of sound (vibration) and the inner ear is involved in converting the signal into an impulse(electrical) which is directly transmitted to the highest centre (Gelfand, 2009). This process permits and produces intensity and frequency as well as analyzing the signal (WHO, 2019).

In South Africa, every patient or individual has the right to a healthy and safe environment that will ensure their physical and mental health or well-being, participating in decision making, access to healthcare and knowledge of one's health insurance and medical aid scheme (Eveleigh, 2016). The Batho Pele principles are also aligned with the constitution, which states that all individuals should know the services that they are entitled to. These principles require public servants to be open, polite and transparent to deliver ethical service to the public. One of the most significant principle states that all individuals should have equal opportunity or access to the services which they are entitled to (Pietersen, 2014). In South Africa, there are limited hearing screening programmes that have been reported and mostly in the developed provinces e.g., Western Cape Province (Mattiassen and Singh, 2006), Gauteng Province (Ashmail and De Wet, 2016), and KwaZulu-Natal (Govender et al., 2015). A few hearing screening programmes have also been developed from the under resourced provinces e.g., Limpopo (Joubert et al., 2017). The hearing screening programmes have been guided by the ISHP as well as Health Professional Council of South Africa (HPCSA Minimum Standards for the Hearing Screening in Schools, 2018). In South African schools, the development of hearing screening programmes has been difficult and challenging (Govender et al., 2015). The Integrated School Health Policy that was developed and reviewed in 2011 by nurses highlighted numerous challenges including lack of technical as well as human resources, cost factor and lack of transportation (Govender et al., 2015).

However, many countries focus on hearing screening programmes similarly a study that was conducted in the United Kingdom (UK), indicated that majority of the districts within the UK offer a hearing screening programme to the learners (Fonseca, Forsyth, and Neary, 2005). From this study the outcomes revealed that learners who failed the screening were identified and the educator were made aware of the specific learning barrier (Fonseca, Forsyth, and Neary, 2005). Bamford et al. (2007), defines hearing as the ability of perceiving sounds and is critical especially during the child's development stage and entering formal education. When the child starts their schooling journey, it is necessary that their hearing be screened because it adds value to their foundation of education (Bamford et al. 2007). Fonseca, Forsyth, and Neary (2005), clearly states that it is vital that the parents become an influential factor in screening their children and explain to them the importance of screening, so that in turn they see the significance of screening and give permission to be screened. The learners that are identified within the School Hearing Screening Programme, must liaise this information to the classroom educator (Fonseca, Forsyth, and Neary, 2005).

According to Skarzynski and Piatkowski (2012), that predominantly focused on the screening for pre-school and school-age learners that indicates if a child is not identified early, it would result negatively like behavioural problems, educational difficulties, speech and language development. Those hearing losses that are identified late have negatively impacted on a child's development e.g., education, speech and language development. The final goal of the screening programme of preschool learners is primarily early identification. Secondly, the detection of hearing difficulties and providing the access to professional assistance for those who didn't pass the screening especially those who don't possess the funds for the services. The target would be all school aged children from 4-7 years of age and then periodically in higher grades. The screening should also include new entry learners of the school and provide information to the parents of the learners as to the ultimate purpose of the screening. All staff included in this screening procedure should have adequate training. The parents should also be given a copy of the results and explain the results to them as well. Screening children at preschool level are not universal in the European countries. So, the funding of these programmes could be problem, but the fact is that these programmes provide equal opportunities for all children in Europe (Skarzynski and Piatkowski, 2012).

A South African project was conducted in the Western Cape Province that screened eleven primary schools and targeted 1101 of school aged children from grade 1-6 (Mattiassen and Singh, 2005).



The outcomes of this screening programmes resulted in 70% of unilateral hearing loss in school aged children and 30% bilateral hearing loss in school aged children (Mattiassen and Singh, 2005). Another study was also conducted in Gauteng Province where five primary schools were screened and this targeted 1070 school aged children from grade 1-3 (Ashmail and De Wet, 2016). This study found a prevalence of hearing loss which was significant and was calculated to be 2.2% (Ashmail and De Wet, 2016). A similar study conducted in Kwa-Zulu Natal that screened six primary schools and targeted 85 learners from grade 1 (Govender et al., 2015). The above-mentioned studies were all conducted in South Africa; however, no recent studies were noted within the Eastern Cape Province as well as targeting Grade R learners.

The United Kingdom is a well- developed state and research conducted by Fonseca, Forsyth and Neary (2005), indicate that the hearing screening procedure was utilized to identify hearing loss namely any undiagnosed Conductive Hearing Loss (CHL), Sensorineural Hearing Loss (SNHL) or both. Children were screened during their 1st or 2nd year of school. Majority of the screening was conducted by the audiometric screeners or the school health nurses. It was noted that 79% (64 services) of the target school had a test procedure that consisted of 2 stages and the remaining 21%(17services) of schools consisted of one stage test procedure. The test protocols that were utilized varied in frequencies and intensity levels. The screening program yielded some results such as most of losses recognized were due to temporary Conductive Hearing Loss (CHL) and permanent losses were mainly unilateral or of a mild or moderate degree (Fonseca, Forsyth and Neary, 2005). The results of the screening yielded that majority of the learners that were identified were temporary CHL and that the SNHL losses were mild-moderate or unilateral. These losses can affect academic school performance (Fonseca, Forsyth and Neary, 2005). India is a developing state and have also developed hearing screening programmes. The hearing screening programmes have been around as a similar study was conducted in South India during 1997, whereby 284 children were screened and the results revealed 11.9% with hearing impairment (CHL 10.9% and OM 17.6%) (Jacob, Joseph and Rupa, 1997). According to Al-Rowaily et al. (2012), a study conducted in Saudi found that hearing loss is seen to be a health problem in school aged children worldwide as most of the mainstream schools utilize the auditory verbal approach in the environment and there seems to be failure to detect hearing loss in which the children tend to develop difficulties in language, speech acquisition, poor performance in academics, emotional and social problems. It has also been reported that school children do experience hearing disorders

all over the world with different response rate and they are the following: China (1.4%), UK (1.49%), Sweden (2%), South Arabia (4.4%), Iran (9.8%), India (11.9%) and Egypt (20.9%). It is noted that if a hearing loss is detected early then it would result in better-quality of life, improving the communication and educational skills. It is vital that the school children are screened for their hearing so that early identification and intervention can take place.

World Health Organization (WHO), also stated that deafness and hearing impairment is experienced world-wide with an estimation of 42 million individuals that are over 3 years of age. The most predominant hearing loss is SNHL, CHL also occurs when the OM is untreated (WHO,2019). The Audiologist, Ears Nose Throat Specialists (ENTS) and public health consultants are most concerned about early identification of hearing loss in children. The consequences of a hearing loss are serious as it affects the cognitive, speech as well as language, academic and conceptual factors (WHO,2019). According to Swart et al. (1994), 20% of 30 000 children are enrolled yearly and these kids drop out after first year of attending school. One of the contributing factors to the dropout is hearing impairment and usually Chronic Otitis Media (COM). Evidence from studies that concentrated on auditory deprivation specify that if early identification and rehabilitation occur concurrently, there stands a greater chance of enabling linguistic and speech production in the child's early life. It was noted that a unilateral hearing loss also has consequences in psycho-linguistic and auditory skills, classroom behaviour, educational progress and communication. Conductive Hearing Loss has been seen to have long term effects on the intellectual and language development which in turn impacts on them socially. There are signs that show that children who experience recurrent Otitis Media do also experience difficulties with auditory perception. The factors that are listed above do form a solid reason to advocate for screening for any hearing loss and disease in the school children that are in their first year of schooling.

Recent times have revealed that some risk factors of hearing loss have been trending and include infections such as Mumps, Measles, Rubella and bacterial meningitis have been linked to causing hearing loss (WHO, 2019). Due to the world-wide vaccine coverage of the immunization these infections are reported to be prevented by encouraging health education through the communities (WHO, 2019). A study conducted in Gaza focused on toddlers hearing loss and identified that maternal unemployment was prevalent and purchasing of folic acid as well as iron supplements

during the preconception period were associated with a low prevalence of hearing loss. The admission of neonates at Intensive Care Units (ICU), low-birth weight and prematurity were associated with a higher prevalence of hearing loss. This study identified associated factors such as health, environmental and socio-economic vulnerabilities (Hamad and Zaqqout, 2022).

The United Kingdom is known for having a hearing screening programme to detect these hearing impairments. Sometimes the congenital hearing loss is not that easy to detect and only surfaces later stages of childhood. It is noted that hearing losses can be acquired during very early stages of infancy or initial stages of childhood for numerous reasons. It seems that the infectious diseases such as meningitis and Otitis Media are becoming quite common in causing acquired hearing loss to school children. It is also evident that when the nervous system is under attack and results in traumatic injury and ototoxic medication can also results in acquiring a hearing loss. It is stated the most common cause of a hearing loss is Otitis Media. Developing countries are benefiting from the hearing screening programs and have now made it mandatory that hearing screening should take place at school entry level i.e., the United Kingdom recommends a hearing screening programme for entry level school children, whilst the American Academy suggests that hearing screening should take place at early stages namely the age of 4,5 and later on at 8 and 10 years of age (Al-Rowaily et al., 2012). As Swanepoel et al. (2009), states that South Africans need to pave the way to create the need for universal hearing screening in schools. It is time that professionals, parents and people of South Africa be advocating for hearing screening to identify the hearing loss of school aged children.

Although many studies do exist internationally as well as sub-Saharan Africa limited research exists in South Africa especially impoverished and under resourced provinces such as the Eastern Cape. The main aim of the hearing screening programmes is for early identification and early intervention (Skarzynski and Piatkowski, 2012). The studies further highlighted that funds need to be in place so that the hearing screening programme can be properly resourced and implemented correctly (Skarzynski and Piatkowski, 2012). The ultimate benefit of conducting a hearing screening programme is obtaining data which can be utilized as evidence in South Africa to motivate the government for support and possible funding (Govender et al., 2015).

## 2.2. CONCLUSION

This chapter has presented literature reviewed around the topic of study. The literature is not limited to this one, but for the purpose of this study the literature was selected to pick what was deemed sufficient by the researcher. The literature shows the work done nationally and internationally on the two objectives of the study screening and risk factors of hearing loss. The next chapter will present the methodology of the study.



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## CHAPTER 3: RESEARCH METHODOLOGY

### 3.1. INTRODUCTION

This chapter presents the methodology of the study.

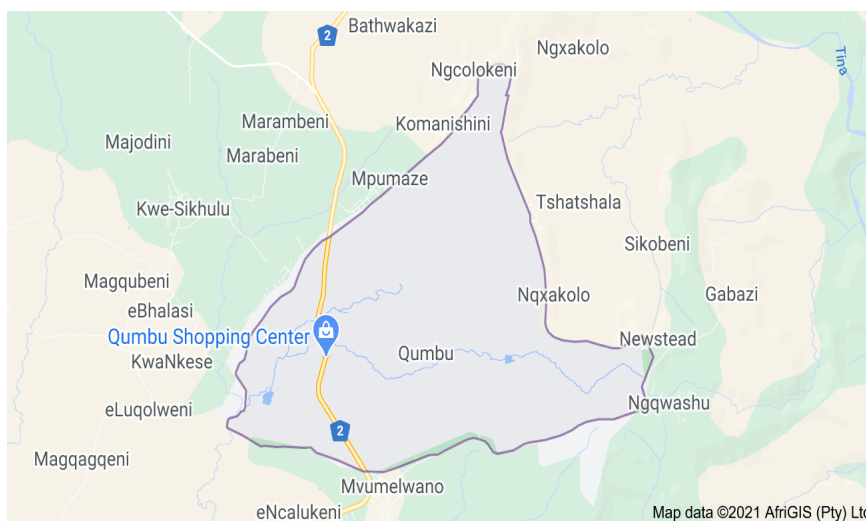
### 3.2. RESEARCH DESIGN

A cross-sectional study design was used with a quantitative method. This aimed to quantify the exact extent of the health problem or disease within the target population (Morroni and Myer, 2014). The quantitative method was beneficial within the management of health service as they provide information about target populations and allocation of certain resources for specific population and further develop the services (Morroni and Myer, 2014). This study was cross sectional as it aimed to examine the precise relationship between the existing exposure and the relevant outcome. This study evaluated and related the actual prevalence of the disease and the exposure within the population. This research design related to a quantitative research approach in which the settings and behaviour were either manipulated or controlled. This study also focused on measurements or numbers which is in direct correlation to the study topic at hand. (McMillian, 2008).



The current research has used a quantitative approach as the main aim of the study was to find the prevalence of hearing loss and risk factors amongst grade R learners in Qumbu District.

### 3.3. STUDY SETTING



The study took place at Qumbu District which consists of 389 schools and 215 of primary schools. Qumbu is a rural area within OR Tambo Inland District in the Eastern Cape Province. The rural area is 61km north of Mthatha and was founded in 1876. The data collection took place in a typical school environment so that the setting was familiar to the learner. The screening took place in a very quiet classroom which had reduced ambient noise ensuring that no external factors affect the testing procedure. After completion of screening feedback was given to the parent orally.

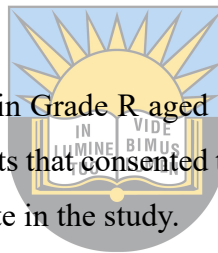
### **3.4. STUDY POPULATION**

The population was Grade R learners within the age group of 5-6 years and their parents. The district consisted of a total of 389 schools and total number of primary schools was 215 in the Qumbu District.

### **3.5. INCLUSION & EXCLUSION CRITERIA**

#### **3.5.1. INCLUSION CRITERIA**

The study included learners who were in Grade R aged 5-6 years that attended public schools in Qumbu District and their parents. Parents that consented to participate in the study. Learners of the school who were permitted to participate in the study.



#### **3.5.2. EXCLUSION CRITERIA**

The study excluded learners who were in Grade R but outside of the target age range. It excluded learners of parents who did not consent to the study.

### **3.6. SAMPLE AND SAMPLING METHOD**

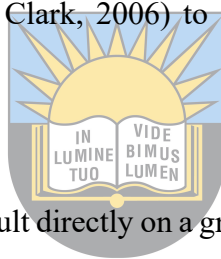
The total number of schools that were present in the Qumbu District were 389. The total number of primary schools consisted was 215. The selection of schools consisted of primary schools that were within close approximation and was easily located. The sample size has been determined by using Slovincs Formula (Ellen,2020). The final sample size consisted of 10 conveniently selected primary schools and targeted approximately 150 learners.

### **3.7. RESEARCH TOOLS**

Three research tools were utilized to collect the data. These were the namely the questionnaire, the screening audiogram and the hearing screening equipment.

#### **3.7.1. THE QUESTIONNAIRE**

The questionnaire that has been prepared for the research was structured with closed questions and some open-ended questions. The questionnaire was prepared in English and translated into isiXhosa as these two languages are utilized predominantly in the Eastern Cape (Appendix 5 B). The questionnaire has been checked for language preference, cultural appropriateness, and language composition (syntax, semantics and pragmatics) by a colleague who is also an audiologist and whose first language is isiXhosa. The questionnaire that was utilized was adapted from American Speech-Language Hearing Association (ASHA) and established standard practices and procedures for audiology (Martin and Clark, 2006) to suit the main aim of the research topic (Mathers, Fox and Hunn, 2009).



#### **3.7.2. THE AUDIOGRAM**

The researcher recorded the learners result directly on a graph referred to an audiogram. This graph utilized symbols that represented the hearing threshold of the right and left ear with reference to intensity and frequency (Martin and Clark, 2006). The audiogram that was utilized in the study consisted of a hearing screening form developed by the Department of Education Eastern Cape.

#### **3.7.3. THE HEARING SCREENING EQUIPMENT**

Clinical screening audiological equipment have been utilized in this research. The screening equipment consisted of the otoscope, screening Tympanometer and screening audiometer.

### **3.8. DATA COLLECTION PROCEDURE**

The data was collected in three phases. The first phase was a preliminary of conducting consultations with the stakeholders and participants and the following phases were administering the questionnaire with the parents which was the second phase and the third phase was to conduct hearing screening on grade R learners.

### **3.8.1. PRELIMINARY PHASE**

The researcher had made contact with the parents during their parents meeting that usually took place at the beginning of the year. The researcher has also explained the research process so that the parents understand the purpose of the study as well as answering their concerns or questions that they may pose. The aim of this was to assure the parents that the process would not be harmful to the learners. To involve the parents to be part of every stage in the research.

### **3.8.2. ADMINISTERING THE QUESTIONNAIRE**

A short questionnaire was handed to the identified school. The parents of the grade R learner had to complete the questionnaire and return it to the school. The researcher had to collect the questionnaires (within two weeks) and analyze thereafter. Once the relevant documents are collected and that the consent form was signed, hearing screening of grade R learners commenced.

### **3.8.3. CONDUCTING THE HEARING SCREENING**

The actual hearing screening was conducted on learners. This process consisted of 3 stages: otoscopy, tympanometry and screening audiometry. The screening procedure had to adhere to the screening protocol for screening according to HPCSA Guidelines (HPCSA Minimum Standards for Hearing Screening in Schools, 2018). Data collection for the main study included screening for hearing loss be conducted in accordance to HPCSA Guidelines for Hearing Screening (HPCSA Minimum Standards for Hearing Screening in Schools, 2018) and administering the questionnaire with the parents.

1. Otoscopic examination was an initial component of a hearing test, this procedure involves examination of the external auditory canal, external inspection of the outer ear as well as observing if there are any obstructions and foreign bodies (Martin and Clark, 2006). A hand-held Welch-Allyn mini 3000 otoscope was used to examine the ears of learners (HPCSA Minimum Standard for Hearing Screening in Schools, 2018). Otoscopy involved examining the external auditory canal and observing if there are any obstructions, foreign bodies.
2. Screening Tympanometry was the second component of the hearing screening procedure and was an objective measure that evaluates the status of the middle ear system (Martin and Clark, 2006). A hand-held GSI 33 Tympanometer assessed the function of the middle ear (HPCSA



Minimum Standards for Hearing Screening in Schools, 2018). Tympanometry evaluated the status of the middle ear system.

3. Screening Audiometer was the third and final component of the screening procedure and was a subjective measure that evaluate the pathway of sound heard via air conduction pathways (Martin and Clark, 2006). A GSI 33 Audiometer was utilized to screen pure tone thresholds at 500Hz, 1000Hz, 2000Hz and 4000Hz (HPCSA Minimum Standards for Hearing Screening in Schools, 2018). GSI 17 Audiometer HASS Group Audiological Instruments Maintenance and Calibration according to SABS 0154-1/2, 0182 (HPCSA Minimum Standards for Hearing Screening in Schools, 2018).

### **3.9. DATA MANAGEMENT**

The researcher has collected the data(questionnaire) as well as the hearing screening results. All the relevant data has been be stored and kept in a safe and locked office (researchers office). All hearing screening data have been transferred and stored on a device as well as a back-up (Chawinga & Zinn, 2019). The results have been consolidated on Microsoft Excel Spreadsheet to determine the prevalence as well as identified pathology.

### **3.10. DATA ANALYSIS**

The statistician has been consulted and the data has been analyzed accordingly. The data has been transferred to Microsoft Excel and thereafter analyzed by the statistician. The data has been analyzed using the latest edition of the Standardized Statistical Software-SPSS. The t -test has been calculated using the statistical software. Thereafter the p value has also been investigated so that the researcher is able to conclude whether the study was significant with having a p-value < 0.05. All results that were calculated for the study will be depicted on graphs, tables and charts (Joubert, 2014).

### **3.11. VALIDITY/RELIABILTY**

Validity refers to the extent which an observed indicator can actually represent the perception of interest. Reliability can be defined as the mark to which a tool produces reproducible outcomes (Lund, 2014).

A pilot study was conducted in two of the schools in the district to identify any gaps in administering the questionnaire. The results revealed that the questionnaire should be given to the parents prior and not on the date of hearing screening as it was time consuming as well finding a conducive environment with reduced noise levels. The recommendations were noted and implemented for the administering the questionnaire as well locating a very quiet room for screening for the research process.

### **3.12. RESULTS DISSEMINATION**

The researcher can submit the mini-dissertation to the library on open access to any scholar who is researching in the same or similar field. The study results would be presented at conferences as well as local community groups or local stakeholder meeting (Borrel et al., 2017). The results would also be shared with schools and participants in relevant meetings.

### **3.13. THE RESEARCH PROCESS**

The research process was in the following order:

1. Ethical Clearance from HREC obtained from the University of Fort Hare Ethics Committee (Appendix 1).
2. Permission obtained from the Department of Education District Director and Principals i.e., OR Tambo Inland-Qumbu (Appendix 2).
3. Pilot Study conducted in one of the schools in the district to identify any gaps in administering the questionnaire. The equipment that was utilized was calibrated and checked for accuracy.
4. Parent Meeting (Information Sharing) has been conducted by the researcher. The parents have been informed about the research process, procedures and that the parents have a right to accept or deny participation at any step within the research process. The duty of a parent in the research consisted of providing correct information in the questionnaire and lastly a signed consent form permitting their child to participate in the study and giving the researcher permission in the research process. The signed consent form relates to the parent that they have agreed with the terms and conditions of the clinical process and have allowed the child to participate in the procedures and process (Appendix 5A).

5. Distribution of Questionnaires as well as consent forms have been administered by the researcher after the parents meeting. The Grade R Educator has been involved in collecting both forms from the parents. Allocated time for receiving the Questionnaires and the consent forms from the parents will be two weeks. Once the parents have signed both the consent form and answered the questionnaire, they will return them to the Grade R Educator within 2 weeks. Once all the forms are collected then the researcher will collect them from the Grade R Educator (Appendix 5A & B).

6. Analysis of Questionnaires and determining the participants for the second phase of the study. The next process involved analyzing the consent form as well as the questionnaire. Once consent has been granted from the parent to the researcher, then the second stage commenced and involved the clinical procedures.

7. Hearing screening on learners. The participants results have been documented on a screening form and were part of the research (Appendix 5C).

### **3.14. ETHICAL CONSIDERATION**

The principles of biomedical ethics have been observed throughout the research process. The principles that were highlighted by the Beauchamp and Childress (1979) highlighted four main principles which were applicable to ethics in healthcare which involves human participants (Singh, Kagee and Swartz, 2014). These main principles consisted of the following:

1. Autonomy- The participant should be regarded as an autonomous representative (Singh, Kagee and Swartz, 2014). The researcher had abided by this principle as the participant were be able to exit any stage of the research procedure, if they preferred to exist and did not feel comfortable.

2. Beneficence- The participants were to be treated in a decent way by respecting their choices and protecting them from all harm (Singh, Kagee and Swartz, 2014). The researcher had selected this topic of interest as it will benefit the Department of Education and Department of Health in the Eastern Cape as well developing hearing screening programmes for Grade R learners.

3. Non-maleficence- The principal related to not to causing harm or injury to the participants intentionally (Singh, Kagee and Swartz, 2014). The researcher had instructed the learner about

each and every step that is part of the screening procedure so that the learner was aware of the requirements and actions of the researcher.

4. Justice- The researcher has advised to share his benefits and burdens equally (Singh, Kagee and Swartz, 2014). The researcher had made sure that the participants understood their role in the research process and making sure that they received fair treatment during the research process irrespective of gender, race and religion.

During this entire research process the identities of the participants have been omitted and utilized participant codes e.g. A1, A2. It was necessary to note that the target population primarily consisted of Grade R learners who were within the age group of 5-6 years of age. The participants that were selected to take part in the study have to be reimbursed and conducted according to the Model for Compensation for all clinically research-related visits (CT TIE Compensation Model, 2018).

This study required the participants parent/legal guardian that has to be present throughout the research process and the same remuneration will be applied. The time spent related to the unskilled labour minimum wages is approximately calculated to the value of R20 for every hour but also included an inconvenience aspect which increases to R33 for every hour. The inconvenience aspect related to the distance from home to research location e.g., R2 for every kilometer from home to school. The Expenses aspect related to all participants receiving a meal valued to R50 and if the participant waited for more than 3 hours, then another meal should be provided (CT TIE Compensation Model, 2018).

### **3.14. TIME SCHEDULE**

The process from the development of the study proposal to the final report submission has taken full two years. The reasons included unforeseen circumstances, prolonged ethical clearance approval, extensive time engaging with data and a long period of report writing. Below is the time schedule table.

| Time Range                 | Activity                            |
|----------------------------|-------------------------------------|
| January 2022-November 2022 | Proposal development                |
| November 2022              | Proposal sent for ethical clearance |

|                                |                 |
|--------------------------------|-----------------|
| December 2022-<br>January 2023 | Data collection |
| February 2023-<br>March 2023   | Data analysis   |
| April 2023-<br>August 2023     | Report writing  |

### 3.15. BUDGET

The study was not funded. The researcher used personal funds to conduct the study. The table below tabulated the funds budgeted and used for the study.

| Items to be financed                                                                                           | Cost      |
|----------------------------------------------------------------------------------------------------------------|-----------|
| Stationery (purchasing paper for printing questionnaires, consent, hearing screening forms, pens etc.)         | R 2000.00 |
| Petrol for traveling bi-weekly (filling petrol from Mthatha to Qumbu schools)                                  | R 3000.00 |
| Printing documents (utilizing private printing company for consent, questionnaires and hearing screening form) | R 2000.00 |
| Data (retrieving relevant articles for network connectivity)                                                   | R 1500.00 |

|                                                                                                                                          |           |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Airtime- contacting the parents for follow-up appointments for diagnostic evaluation and ENT referrals, principals and grade R educators | R 1500.00 |
| Statistician (analysis of results)                                                                                                       | R10 000   |
| Meals (light lunch) provided for the participants and parents                                                                            | R5 000    |
| Total                                                                                                                                    | R25 000   |



### 3.16. CONCLUSION

The methodology chapter has shown the methods and steps taken to conduct the study. The following chapter will present the results and their discussions.

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## CHAPTER 4: RESULTS & DISCUSSION

### 4.1. INTRODUCTION

This chapter presents both the results of the study and their discussion. The results and discussions are presented according to the two objectives of this study. The first objective was to determine the statistics of grade R learners with existing hearing loss at Qumbu District by conducting hearing screening and second objective was to identify the risk factors of hearing loss in Grade R at Qumbu District through hearing screening exercise.

Objective 1: To determine the statistics of grade R learners with existing hearing loss at Qumbu District by conducting hearing screening.

The data for these results was collected in phases through the questionnaires from parents as phase one and through conducting hearing screening on the learners as the second phase.

During phase one, a total of 259 learners participated although the target was 150 in the study and of these n=59 (22.8%) consisted of 5-year-old and the rest had 6-year-old learners n=200 (77.2%). The results below show the responses of the parents/care-givers to the question that sought to establish their view of the existence of hearing loss in their children. An initial number of parents that were invited to the research were 481 and 259 participated which was a 53,9% attendance and parents that didn't participate was 222 (46,1%). The parent participation was above the half mark and was achieved in the period that was allocated to data gather.

Results 1: Parents views on existence of hearing loss in their children

#### HEARING HISTORY

| Health matter     | Frequency | Percent     |
|-------------------|-----------|-------------|
| Hearing problems  | 18        | 14.8        |
| Worsening problem | 11        | 61.1% of 18 |
| Hearing ability   |           |             |
| Fair              | 14        | 11.5        |

|                            |                                                |      |
|----------------------------|------------------------------------------------|------|
| Good                       | 86                                             | 70.5 |
| Poor                       | 22                                             | 18.0 |
| Ever used hearing aids     | 86 (70.5%) never used the rest did not respond |      |
| Ringling noises            | 3                                              | 2.5  |
| Discharge                  | 8                                              | 6.6  |
| Ever felt dizziness        | 2                                              | 1.6  |
| Ever seen a doctor         | 5                                              | 4.1  |
| Family history             | 2                                              | 1.6  |
| Ever exposed to loud sound | 3                                              | 2.5  |
| Ever had ear fullness      | 13                                             | 10.7 |

*Table 1: Parents opinions on hearing ability of their children*

These results show that the prevalence of hearing problems among the children was reported to be n=18 (14.8%) by parents which means 148 per 1000 children was reported to have a hearing problem. Of the 259 children, n=18 (14.8%) was reported to be having hearing problems. Of the n=18 (14.8%) that reported hearing problems, only n=10 (55.6%) could specify the problem ear and n=11(61.1%) reported the hearing problem as worsening. The results show that n=86 (70.5%) parents considered their children to be having good hearing ability, n=14 (11.5%) as fair and n=22 (18%) the rest as poor. While n= 18 (14.8%) considered their children to be having hearing problems, n=22 (18.0%) considered their children's hearing ability to be poor. This suggests that there are some parents/caregivers of these children who are aware that their children had existing hearing difficulties, although the percentage was low. Most parents did not think that their children had hearing losses. The parents are seen to have the similar attitude and concern as the literature review indicated that they do not think the learners have a hearing loss and may not comply with further appointments (Fonseca, Forsyth, and Neary, 2005).



Results 2: Hearing screening results regarding existence of hearing loss in learners.

A hearing screening was conducted on 259 learners in nine different schools. The figure shows the distribution of learners screened across the schools.

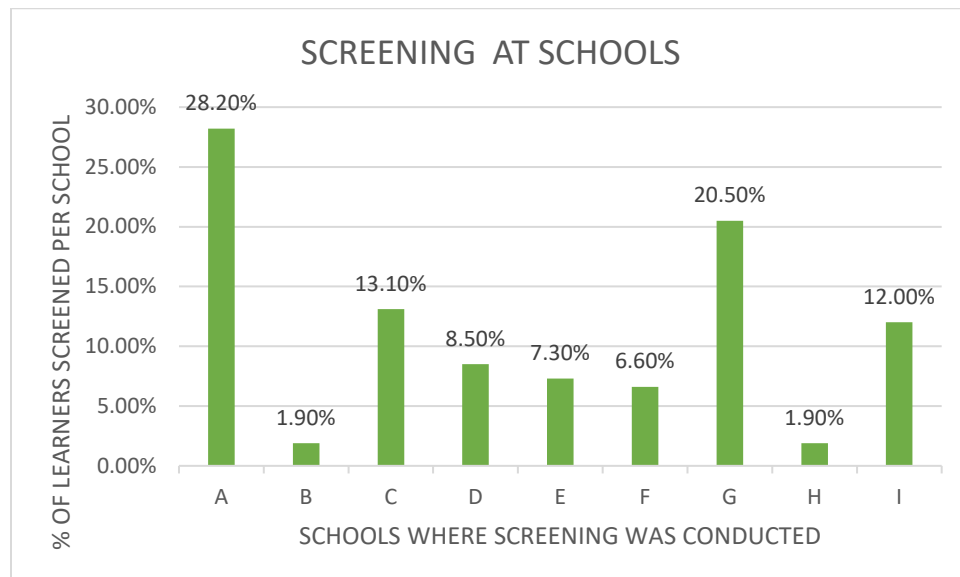


Figure 1: Distribution of screened learners by school

Out of 259 learners, it was 25.5% was found to be having a hearing problem in at least one of their ears. Of the 66 who failed the screening test, 35(53.0%) were females. Looking at the gender distribution, the results show that, of the 128 female learners, 35(27.3%) had hearing problems and of the 131 males, 31(23.7%) had hearing problems. This suggests that the prevalence of hearing problems is higher among the girls than the boys. To determine if this difference is statistically significant, the chi-squared test for independence was carried and the results showed that there was no significant association between gender and hearing problems ( $\chi^2=0.46$ ;  $p=0.496$ ). The odds ratio for the association was found to be 1.2 with a 95% confidence interval of (0.69; 2.12). The confidence interval contains 1, the null value of odds ratios, which means the proportion of girls with hearing problems is not significantly different from that of boys. Please refer to Table 2.

| Hearing screening results and cross tabulation by gender |                   |       |        |
|----------------------------------------------------------|-------------------|-------|--------|
| Gender                                                   | Screening outcome |       | Total  |
|                                                          | Fail              | Pass  |        |
| Female                                                   | 35                | 93    | 128    |
|                                                          | 13.51             | 35.91 | 49.42  |
|                                                          | 27.34             | 72.66 |        |
|                                                          | 53.03             | 48.19 |        |
| Male                                                     | 31                | 100   | 131    |
|                                                          | 11.97             | 38.61 | 50.58  |
|                                                          | 23.66             | 76.34 |        |
|                                                          | 46.97             | 51.81 |        |
| Total                                                    | 66                | 193   | 259    |
|                                                          | 25.48             | 74.52 | 100.00 |

Table 2: Hearing screening results *Together in Excellence*

A study that was conducted in South India during 1997, developed hearing screening programmes whereby 284 children were screened and the results revealed 11.9% with hearing impairment (Jacob, Joseph and Rupa, 1997). A similar study conducted by Skarzynski and Piatkowski (2012), revealed that the screening programme of preschool learners was primarily early identification. A South African project was conducted in the Western Cape Province that screened eleven primary schools and targeted 1101 of school aged children from grade 1-6 (Mattiassen and Singh, 2005). The outcomes of this screening programmes resulted in 70% of unilateral hearing loss in school aged children and 30% bilateral hearing loss in school aged children (Mattiassen and Singh, 2005). Another study was also conducted in Gauteng Province where five primary schools were screened and this targeted 1070 school aged children from grade 1-3 (Ashmail and De Wet, 2016). This

study found a prevalence of hearing loss which was significant and was calculated to be 2.2% (Ashmail and De Wet, 2016).

These results show that the hearing loss existed at 25.5% in learners and the number was above what the parents had thought estimated at 18%. The results are consistent with similar studies where the existence of hearing loss is there although low. The results from the current study were similar with the trends on literature. The significance of these results are in existence of hearing loss more than the low percentage of it. These results are contributing to the first objective of this study as they show a 25.5% prevalence of hearing loss amongst grade R learners at Qumbu District.

Objective 2: To identify the risk factors of hearing loss in Grade R learners at Qumbu Education District through hearing screening exercise.

Results 3: Child illnesses as mentioned by parents

The table 3 shows the distribution of illnesses for which the child had to be treated. The results shows that less than 5% of the children had been treated for encephalitis, seizures, meningitis and rubella while n=14(11.5%) had been treated for mumps, n=18(14.8%) for scarlet fever, n=21(17.2%) for chicken pox and n=29(23.8%) had been treated for measles.

Illnesses child has been treated for

| Illness       | Frequency | Percent |
|---------------|-----------|---------|
| Measles       | 29        | 23.77   |
| Chicken pox   | 21        | 17.21   |
| Mumps         | 14        | 11.48   |
| Scarlet fever | 18        | 14.75   |
| Encephalitis  | 6         | 4.92    |
| Seizures      | 2         | 1.64    |
| Meningitis    | 5         | 4.10    |

*Table 3: Childhood illness mentioned by the parents*

WHO (2019), revealed that some risk factors of hearing loss include infections such as Mumps, Measles, Rubella and Bacterial Meningitis. The results show that there were learners who had been treated for some of the infections mentioned by WHO which are world-wide risk factors. According to Govender et.al. (2015), these risk factors are most common in developing countries like South Africa (Govender et al.,2015). The results of the present study revealed a similar trend that the learners were exposed to child illnesses (Measles, Chicken Pox, Mumps, Scarlet fever, Encephalitis, Seizures, Meningitis and Rubella) and would be at risk to develop a hearing loss. The child illnesses are identifying the risk factors of hearing loss in Grade R learners and contribute to the second objective of the study by listing the illnesses that would possibly result in a hearing loss.

#### Result 4: Tests for association to determine risk factors for hearing loss

Tests for associations were used to achieve the second objective of the study. In order to determine the risk factors of hearing problems, the chi-squared test for independence was used to test for associations between a child having hearing problems and the child's development history and other characteristics. The table 4 shows the cross tabulation of hearing problems and each of the potential risk factors as well as the chi-squared statistic and the corresponding p-value, odds ratio (OR) and the lower (LCL) and upper (UCL) 95% confidence limits (CL).

Tests for associations between hearing problems and development and pregnancy history

| Variable             | Response | Hearing Problems |          | Chisq | p-value | OR | 95% CL |     |
|----------------------|----------|------------------|----------|-------|---------|----|--------|-----|
|                      |          | Yes              | No       |       |         |    | LCL    | UCL |
| Age                  | 5 years  | 12(20.3)         | 47(79.7) | 0.21  | 0.644   |    |        |     |
|                      | 6 years  | 15(23.8)         | 48(76.2) |       |         |    |        |     |
| Physical development | .        | 10(50.0)         | 10(50.0) | 11.25 | 0.101   |    |        |     |
|                      | Fast     | 4(21.1)          | 15(78.9) |       |         |    |        |     |

|                         |           |          |           |       |       |     |      |       |
|-------------------------|-----------|----------|-----------|-------|-------|-----|------|-------|
|                         | Normal    | 12(15.2) | 67(84.8)  |       |       |     |      |       |
|                         | Slow      | 1(25.0)  | 3(75.0)   |       |       |     |      |       |
| Dexterity               | .         | 5(26.3)  | 14(73.7)  | 3.50  | 0.321 |     |      |       |
|                         | Both      | 3(25.0)  | 9(75.0)   |       |       |     |      |       |
|                         | Left      | 0(0.0)   | 11(100.0) |       |       |     |      |       |
|                         | Right     | 19(23.7) | 61(76.3)  |       |       |     |      |       |
| Difficult words         | Yes       | 4(14.3)  | 24(85.7)  | 1.30  | 0.254 |     |      |       |
|                         | No        | 23(24.5) | 71(75.5)  |       |       |     |      |       |
| Face reading            | Yes       | 16(18.8) | 69(81.2)  | 1.78  | 0.182 |     |      |       |
|                         | No        | 11(29.7) | 26(70.3)  |       |       |     |      |       |
| Health during pregnancy | Fair      | 9(34.6)  | 17(65.3)  | 5.18  | 0.075 |     |      |       |
|                         | Good      | 15(23.1) | 50(76.9)  |       |       |     |      |       |
|                         | Poor      | 3(9.7)   | 28(90.3)  |       |       |     |      |       |
| Pregnancy term          | Full term | 21(19.8) | 85(80.2)  | 2.52  | 0.112 |     |      |       |
|                         | Preterm   | 6(37.5)  | 10(62.5)  |       |       |     |      |       |
| Medication use          | Yes       | 14(46.7) | 16(53.3)  | 13.90 | 0.001 | 5.3 | 2.10 | 13.43 |
|                         | No        | 13(14.1) | 79(85.9)  |       |       |     |      |       |
| Delivery mode           | C-Section | 12(29.2) | 29(70.3)  | 1.83  | 0.177 |     |      |       |

|                        |        |          |          |       |       |     |      |       |
|------------------------|--------|----------|----------|-------|-------|-----|------|-------|
|                        | Normal | 15(18.5) | 66(81.5) |       |       |     |      |       |
| Delivery complications | Yes    | 9(47.4)  | 10(52.6) | 8.32  | 0.004 | 4.3 | 1.51 | 11.95 |
|                        | No     | 18(17.5) | 85(82.5) |       |       |     |      |       |
| Miscarriage history    | Yes    | 9(56.2)  | 7(43.8)  | 12.44 | 0.001 | 6.3 | 2.07 | 19.08 |
|                        | No     | 18(17.0) | 88(83.0) |       |       |     |      |       |

*Table 4: Tests for association between hearing problems and development and pregnancy history*

The results show that hearing problems are independent of the child's age, child's dexterity, whether child struggles with certain words, whether the child reads the face for communication clues, health condition of mother during pregnancy, pregnancy term and mode of delivery. In table 4, the variables referred to above have p-values that are greater than 0.05, the significance level used in this analysis.

The analysis found that there were statistically significant associations between hearing problems and medication use during pregnancy (Chisq=13.90; p=0.001), delivery complications (Chisq=8.32; p=0.004) and history of miscarriage (Chisq=12.44; p=0.001). To determine the strength and direction of the associations, odds ratios and their corresponding 95% confidence intervals were calculated for those associations detected as significant by the chi-squared test. These results show that children whose mothers had been on medication during pregnancy, experienced delivery complications and had had a miscarriage were significantly more likely to have hearing problems compared to those whose mothers did not have such experiences.

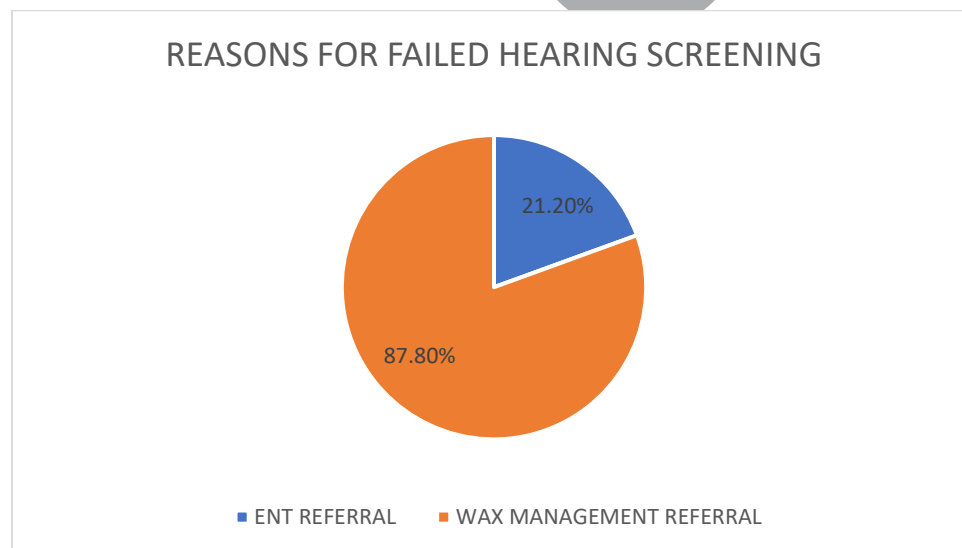
Specifically, children whose mothers took medication during pregnancy were 5.3 times as likely to develop hearing problems as those whose mothers did not, those whose mothers had pregnancy complications were 4.3 times as likely to develop hearing problems compared to those whose mothers had uneventful pregnancies and those whose mothers had a history of miscarriage were 6.3 times as likely to develop hearing problems compared to those whose mothers had no history of miscarriage. Note that the odds ratios for these risk factors are greater than 1 and their 95%

confidence intervals do not contain 1. This shows that the association is positive and statistically significant at a 5% level of significance.

A study conducted in Gaza identified that maternal unemployment was prevalent and purchasing of folic acid as well as iron supplements during the preconception period were associated with a low prevalence of hearing loss. According to Hamad and Zaqqout (2022), the admission of neonates at Intensive Care Units (ICU), low-birth weight and prematurity were associated with a higher prevalence of hearing loss. (Hamad and Zaqqout, 2022). One of the risk factors that was identified in the study was noted to be mothers that were on medication as well as the mothers that had pregnancy complications. Pregnancy complications and medication that the mother was administering contributed to the second objectives of risk factors in developing a hearing loss.

#### Result 5: Wax impaction on learners as a risk factor

Upon screening results showed that a number of 66 learners failed the hearing screening. A minority of the learners failed the hearing screening presented with middle ear pathologies (n=13 and 19.69%), majority of the learners presented with impacted cerumen (n=49 and 74.4%). Please refer to Figure 2.

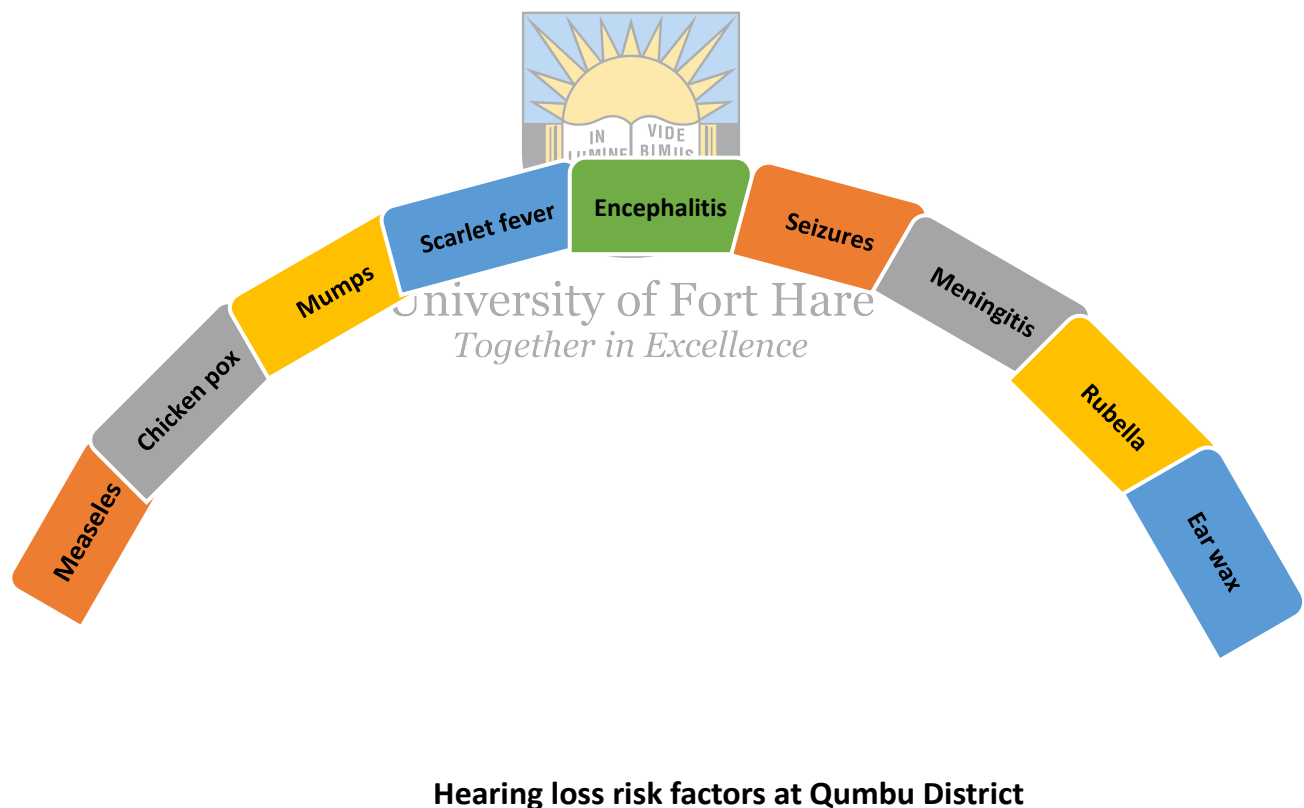


*Figure 2: Reasons for failed hearing screening*

Impacted cerumen is referred to one of the most common pathologies identified during school hearing programmes (Govender et al., 2015). Impacted cerumen needs to be clearly observed as it effects hearing ability (WHO, 2019). It has been suggested that excessive/impacted cerumen could

be a related to genetics, anatomical changes and ear cleaning practices (Govender et al., 2015). Due to the high prevalence of impacted cerumen that are identified in developing countries, early identification of learners through conducting hearing screening programs will definitely lead to better outcomes (Govender et al., 2015).

The tests for associations identified use of medication during pregnancy, pregnancy complications and history of miscarriage as maternal/obstetric risk factors of hearing problems. The results of the study also agreed with the risk factors for hearing loss as depicted by the World Health Organization (WHO, 2019). Figure 1 shows the summary of all risk factors identified by the current study through case history information and hearing screening.



*Figure 3: List of risk factors for hearing loss*



## 4.2. CONCLUSION

The aim of this study was to determine the prevalence of hearing loss and risk factors of grade R Learners in Qumbu District in 2022. The aim of the study was achieved as the prevalence of hearing loss was determined at 25.5% and was obtained by the hearing screening procedure. The first objective was to determine the statistics of Grade R Learners with existing hearing loss at Qumbu District by conducting hearing screening. The second objective was to identify the risk factors of hearing loss in Grade R learners at Qumbu District through hearing screening exercise. The study met both of the objectives and the results that were revealed depicted the merger of the study in relation to the objectives.

The Eastern Cape Province had limited data available relating to the prevalence and risk factors of hearing loss amongst Grade R learners. The study contributed information relating to the prevalence of hearing loss in grade R learners at Qumbu District. It also a list of risk factors on grade R learners that may lead to hearing loss.

It is noted that parents are seen to have the similar attitude and concern as the literature review indicated that they do not think the learners have a hearing loss (Fonseca, Forsyth, and Neary, 2005). Hearing screening programmes ultimately assist with early identification of hearing loss as the literature review highlights the identification of hearing loss. (Skarzynski and Piatkowski, 2012). Hearing screening programmes are beneficial and determines the prevalence of hearing loss which was significant (Ashmail and De Wet, 2016).

The results of the present study revealed a similar trend that the learners were exposed to child illnesses (Measles, Chicken Pox, Mumps, Scarlet fever, Encephalitis, Seizures, Meningitis and Rubella) and would be at risk to develop a hearing loss (WHO, 2019).

The use of medication during pregnancy, pregnancy complications and history of miscarriage were viewed as maternal/obstetric risk factors of hearing problems and the results of the present study also agreed with the risk factors for hearing loss as depicted by the World Health Organization (WHO, 2019). Wax impaction was also identified as one of the most common pathologies identified during school hearing programmes (Govender et al., 2015).

The study achieved its purpose in finding the prevalence problem in at least one of their ears. These results show that the hearing loss existed at 25.5% in learners and the number was above what the

parents had thought estimated at 18%. The results are consistent with similar studies where the existence of hearing loss is there although low.

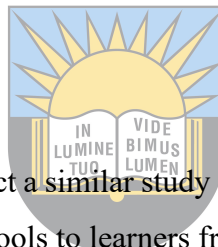
The risk factors of a hearing loss of the present study revealed a similar trend that the learners were exposed to child illnesses (Measles, Chicken Pox, Mumps, Scarlet fever, Encephalitis, Seizures, Meningitis and Rubella) and would be at risk to develop a hearing loss. The use of medication during pregnancy, pregnancy complications and history of miscarriage as maternal/obstetric risk factors of hearing problems.

#### **4.3. LIMITATIONS OF THE STUDY**

1. Research targeted a limited population.
2. The time allocated to conduct the study was short due to the nature (mini dissertation) and unforeseen circumstances like delays in the research processes which affected the time allocations etc.

#### **4.4. RECOMMENDATIONS**

1. The future researchers, should conduct a similar study on schools also located in the urban areas and comparing learners from urban schools to learners from rural schools.
2. The policy implementors to conduct regular hearing screenings for early identification and intervention
3. Health promoters and audiologists/hearing practitioners to educate communities about risk factors for hearing loss and how to seek help early.



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## 4.5. APPENDICES

### APPENDIX 1: ETHICAL CLEARANCE CERTIFICATE



University of Fort Hare  
*Together in Excellence*

#### HEALTH RESEARCH ETHICS COMMITTEE

P.O. Box 1054  
East London 5200  
Tel: +27 (0) 43 704 7368  
E-mail: dgoon@ufh.ac.za

### CLEARANCE CERTIFICATE

**REC-100118-054**

Certificate Reference      **Ref#2022=11=10=Pierce A**

Number:

Project title:      Prevalence and risk factors of hearing loss in grade R Learners in Qumbu in Eastern Cape District

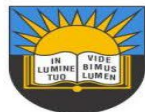
Nature of Project:      Masters of Public Health

Principal Researcher:      Pierce Antonette

Student number      201928123

Supervisor:      Dr U Stemela-Zali

On behalf of the University of Fort Hare Health Research Ethics Committee (HREC), I hereby give ethical approval in respect of the undertakings contained in the above-mentioned project and research instruments(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.



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## HEALTH RESEARCH ETHICS COMMITTEE

P.O Box 1054  
East London 5200  
Tel: +27 (0) 43 704 7368  
E-mail: [dgoon@ufh.ac.za](mailto:dgoon@ufh.ac.za)

Please note that the HREC 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 HREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

The HREC retains the right to

- Withdraw or amend this Ethical Clearance Certificate if
  - Any unethical principles 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





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## HEALTH RESEARCH ETHICS COMMITTEE

P.O Box 1054  
East London 5200  
Tel: +27 (0) 43 704 7368  
E-mail: [dgoon@ufh.ac.za](mailto:dgoon@ufh.ac.za)

In addition to the need to comply with the highest level of ethical conduct principal 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 HREC [monitoring@ufh.ac.za](mailto:monitoring@ufh.ac.za).

The Ethics Committee wishes you well in your research endeavours.

Yours sincerely

**Professor DT Goon**

**Chairperson: HREC**

**31 October 2022**

## APPENDIX 2: LETTER TO THE DISTRICT DIRECTOR



**EASTERN CAPE**

**DEPARTMENT OF EDUCATION**

**Inclusive Education:** Qumbu District Church Street Qumbu, 5180, Private

Bag 466, Qumbu, 5180. **REPUBLIC OF SOUTH AFRICA, Website:** [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

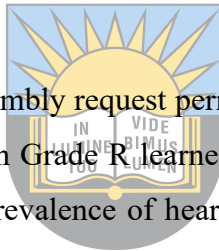
**TO : DISTRICT DIRECTOR**

**FROM : PIERCE A.R. (AUDIOLOGIST)**

**SUBJECT : Requesting permission to conduct a**

**Masters- Research study**

**DATE : October 2022**



1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.

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*Together in Excellence*

2. The research will firstly consist of receiving consent from the parents and issuing a questionnaire which will be completed and returned to the Grade R educator.
3. The next stage will consist of
  - i) Screening the Grade R learners hearing
  - ii) Results will be given to all Grade R learners that pass
  - iii) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management.

4. This research will assist us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully

Pierce

.....  
**PIERCE A.R.**

**AUDIOLOGIST-ESSS**



.....  
**MAKRWEDE F.**

**DISTRICT DIRECTOR ORTI**

University of Fort Hare  
*Together in Excellence*

APPENDIX 1: LETTER TO THE DISTRICT DIRECTOR



EASTERN CAPE

DEPARTMENT OF EDUCATION

Inclusive Education Qumbu District Church Street Qumbu, 5180, Private Bag 466, QUMBU, 5180

REPUBLIC OF SOUTH AFRICA, Website: [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

**TO :** DISTRICT DIRECTOR  
**FROM :** PIERCE A.R. (AUDIOLOGIST)  
**SUBJECT :** Requesting permission to conduct a Masters- Research study  
**DATE :** October 2022

1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.
2. The research will firstly consist of receiving consent from the parents and issuing a questionnaire which will be completed and returned to the Grade R educator.
3. The next stage will consist of
  - i) Screening the Grade R learners hearing
  - ii) Results will be given to all Grade R learners that pass
  - iii) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management.
4. This research will assist us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully

PIERCE A.R.  
AUDIOLOGIST-ESSS

MAKRWEDE F.  
DISTRICT DIRECTOR ORTI

DATE

### APPENDIX 3: LETTER TO PRINCIPALS



**EASTERN CAPE**

**DEPARTMENT OF EDUCATION**

**Inclusive Education:** Qumbu District Church Street Qumbu, 5180, Private Bag

466, Qumbu, 5180. **REPUBLIC OF SOUTH AFRICA, Website:** [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

**TO : PRINCIPAL**

**FROM : PIERCE A.R. (AUDIOLOGIST)**

**SUBJECT : Requesting permission to conduct a Masters- Research study**

**DATE : October 2022**

1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research at your school which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.
2. The research will firstly consist of receiving consent from the parents and issuing a questionnaire which will be completed and returned to the Grade R educator.
3. The next stage will consist of
  - iv) Screening the Grade R learners hearing
  - v) Results will be given to all Grade R learners that pass
  - vi) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management.
4. This research will assist us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully

A.R. Pierce

.....

**PIERCE A.R. (AUDIOLOGIST- ESSS)**

.....

**PRINCIPAL**



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APPENDIX 2: LETTER TO PRINCIPALS



EASTERN CAPE

DEPARTMENT OF EDUCATION

Inclusive Education Qumbu District Church Street Qumbu, 5180, Private Bag 466, QUMBU, 5180

REPUBLIC OF SOUTH AFRICA, Website: [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

TO : PRINCIPAL  
FROM : PIERCE A.R. (AUDIOLOGIST)  
SUBJECT : Requesting permission to conduct a Masters- Research study  
DATE : October 2022

1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research at your school which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.
2. The research will firstly consist of receiving consent from the parents and issuing a questionnaire which will be completed and returned to the Grade R educator.
3. The next stage will consist of
  - i) Screening the Grade R learners hearing
  - ii) Results will be given to all Grade R learners that pass
  - iii) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management.
4. This research will assist us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully

.....  
PIERCE A.R. (AUDIOLOGIST- ESSS)

.....

Principal

|                            |
|----------------------------|
| DEPT. OF EDUCATION         |
| TSOLO RESIDENCY J.S.3      |
| 2022 -11- 22               |
| SIGNATURE                  |
| P.O. BOX 106, TSOLO - 5170 |

20/11/2022  
.....  
DATE

#### APPENDIX 4: LETTER TO PARENTS



**EASTERN CAPE**

**DEPARTMENT OF EDUCATION**

**Inclusive Education:** Qumbu District Church Street Qumbu, 5180, Private Bag

466, Qumbu, 5180. **REPUBLIC OF SOUTH AFRICA, Website:** [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

**TO : PARENT/GUARDIAN**

**FROM : PIERCE A.R. (AUDIOLOGIST)**

**SUBJECT : Requesting permission to conduct a Masters-  
Research study that specific to your child**

**DATE : October 2022**



1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research that is specific to your child at the school which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.
2. The first stage will consist of delivering consent from the parents/guardians and a questionnaire which will be completed by the parent and then returned to the Grade R educator within two weeks.
3. The next stage will consist of
  - i) Screening the Grade R learners hearing
  - ii) Results will be given to all Grade R learners that pass
  - iii) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management



4. This research will help us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully

Pierce

.....  
**PIERCE A.R. (AUDILOGIST- ESSS)**



.....  
**PARENT/GUARDIAN**

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## APPENDIX 3: LETTER TO PARENTS



EASTERN CAPE

## DEPARTMENT OF EDUCATION

Inclusive Education Qumbu District Church Street Qumbu, 5180, Private Bag 466, QUMBU, 5180

REPUBLIC OF SOUTH AFRICA, Website: [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

TO : PARENT/GUARDIAN

FROM : PIERCE A.R. (AUDIOLOGIST)

SUBJECT : Requesting permission to conduct a Masters- Research study that specific to your child

DATE : October 2022

1. I, Pierce A.R. (AUDIOLOGIST) humbly request permission to conduct my research that is specific to your child at the school which is titled: Prevalence of Hearing loss in Grade R learners from Qumbu District. The aim of the study is to determine the current prevalence of hearing loss of grade R Learners in Qumbu District.
2. The first stage will consist of delivering consent from the parents/guardians and a questionnaire which will be completed by the parent and then returned to the Grade R educator within two weeks.
3. The next stage will consist of
  - i) Screening the Grade R learners hearing
  - ii) Results will be given to all Grade R learners that pass
  - iii) Grade R learners that fail the hearing screening will be requested to have diagnostic hearing test or referred for ENT Management
4. This research will help us in determining the Prevalence of Hearing Loss in our district as not much information exists in the Eastern Cape especially in the rural areas.
5. I therefore humbly request your immediate consideration in this request and your co-operation in this will be highly appreciated.

Yours faithfully



PIERCE A.R. (AUDIOLOGIST- ESSS) PARENT/GUARDIAN

22-11-2022

DATE

## APPENDIX 5 A: CONSENT FORM



**EASTERN CAPE**

**DEPARTMENT OF EDUCATION**

**Inclusive Education:** Qumbu District Church Street Qumbu, 5180, Private Bag

466, Qumbu, 5180. **REPUBLIC OF SOUTH AFRICA, Website:** [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

**TO : PARENT/GUARDIAN**

**FROM : PIERCE A.R. (AUDIOLOGIST)**

**SUBJECT : Requesting permission to conduct a Masters- Research study that specific to your child**

**DATE : October 2022**



### **Consent form**

*If you agree to allow your child to participate, I would like you to sign on this form. You may also SMS your contact detail (Optional), so that you get assistance or if you may need any clarity.*

I, \_\_\_\_\_ (Parents name) have read the information on the letter. I understand the nature of the study. I have no problem of allowing my child to be one of the participants in the research. I, hereby consent my child \_\_\_\_\_ to participate in the study.

Signature:

\_\_\_\_\_

Parent/Guardian

\_\_\_\_\_

Date and Place

If you would like to contact the researcher and/or his supervisor, contact details are as follows:

Antonette Pierce

(The Researcher)

Audiologist

Department of Education

OR Tambo Inland

Qumbu District

Tel: 047 542 0096

Cell: 078 225 8568

Work: 063 251 1513

[antonettenaidoo@gmail.com](mailto:antonettenaidoo@gmail.com)

Dr. Unathi Stemela-Zali

(Research Supervisor)

Head of Department of

Rehabilitative Services

Lecturer of Speech Therapy

Department

Tel: 043 704 7200

Cell: 083 419 6690

Work: 043 704 7200



[ustemela@ufh.ac.za](mailto:ustemela@ufh.ac.za)

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APPENDIX 4 A: CONSENT FORM



EASTERN CAPE

DEPARTMENT OF EDUCATION

Inclusive Education Qumbu District Church Street Qumbu, 5180, Private Bag 466, QUMBU, 5180

REPUBLIC OF SOUTH AFRICA, Website: [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

TO : PARENT/GUARDIAN  
FROM : PIERCE A.R. (AUDIOLOGIST)  
SUBJECT : Requesting permission to conduct a Masters- Research study that  
specific to your child  
DATE : October 2022

CONSENT FORM

*If you agree to allow your child to participate, I would like you to sign on this form. You may also SMS your contact detail (Optional), so that you get assistance or if you may need any clarity.*

I, [REDACTED] (Parents name) have read the information on the letter. I understand the nature of the study. I have no problem of allowing my child to be one of the participants in the research. I, hereby consent my child [REDACTED] to participate in the study.

Signature:

[REDACTED]

Parent/Guardian

22/11-2022  
Date and Place

If you would like to contact the researcher and/or his supervisor, contact details are as follows:

Antonette Pierce  
(The Researcher)  
Audiologist  
Department of Education  
OR Tambo Inland  
Qumbu District  
Tel: 047 542 0096  
Cell: 078 225 8568  
Work: 063 251 1513  
[antonettenaidoo@gmail.com](mailto:antonettenaidoo@gmail.com)

Dr. Unathi Stemela-Zali  
(Research Supervisor)  
Head of Department of  
Rehabilitative Services  
Lecturer of Speech Therapy  
Department  
Tel: 043 704 7200  
Cell: 083 419 6690  
Work: 043 704 7200  
[ustemela@uth.ac.za](mailto:ustemela@uth.ac.za)

## **APPENDIX 5: SECTION B: QUESTIONNAIRE FORM**



**EASTERN CAPE**

**DEPARTMENT OF EDUCATION**

**Inclusive Education:** Qumbu District Church Street Qumbu, 5180, Private Bag

466, Qumbu, 5180. **REPUBLIC OF SOUTH AFRICA, Website:** [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

## **APPENDIX 5: SECTION A: Questionnaire Form for Hearing Screening of Grade R learners**

Child's name ..... Igama lomntwana.....

Date of Birth.....Umhla wokuza(umhla/inyanga/unyaka) .....

Age..... Iminyaka .....

Parent/guardians name.....

Igama lomzali/igama lomzali ahlala naye.....

Address.....Idilesi yokuhlala.....

Age of mother: .....Iminyaka kamama.....

Age of Father..... Iminyaka katata.....

Name of school that your child is attending.....

Igama lesikolo umntwana afunda kuso.....

### **DEVELOPMENT HISTORY: Imbali yokukhula**

1. Please indicate the age at which your child achieved the following: Chaza ukuba umntwana wayeneminyaka emingaphi ukufumana kwakhe ezizizinto zilandelayo

Sat alone/Ukuzihlalela.....

Crawled/Gaqa.....

Walked alone/Ukuzihambela.....

Fed oneself/Uzityela.....

Toilet trained/Wafundiswa ukuzithuma.....

Dressed oneself/Ukuzinxibisa.....

2. Please state your child's physical development? (slow, normal or fast)/Chaza ngokukhula kwamalungu omzimba? (kancinci, kufanelekileyo, ngokukhawuleza)

3. Please indicate which hand does your child prefer to use? (right/left/both)/

Chaza sesiphi isandla umntwana wakho asisebenzisayo rhoqo? (esasekunene, esasekhohlo, okanyezozibini)

4. Please report on what age did your child? /Chaza umntwana wakho wayeneminyaka emingaphi?

Babble/ukuzama ukuthetha.....

use words/ukusebenzisa amagama.....

use phrases/ukwenza isivakalisi esingaphelelanga.....

use sentences/ukwenza isivakalisi.....

5. Please state if there are any words or phrases that your child can't say but understands? / Chaza ukuba akhona na amagama / izivakalisi ezingaphelelanga umntwana wakho angankwazi uzibiza kodwa ezazi?

6. Does your child look at your face for communication clues? Yes/No /Ingaba umntwana wakho uyakujonga na ebusweni akohlule ukuba uqumbile okanye wonabile? Ewe/Hayi.....

**PREGNANCY HISTORY: Imbali yokukhulelwa**

1.How was your health during the pregnancy? Ibingani impilo yakho ngoku

ubukhulelwe? (Measles, diabetes, high blood pressure)

.....

2. What was your length of the pregnancy? (Month /weeks) /Ukhulelwe ixesha

elingakanani? (Inyanga / liveki) Premature/Uzelwe ngaphambili kwexesha

ebelibekiwe.....

Full Term/ uzelwe inyanga ziphelele

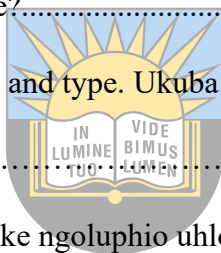
.....

3. Did you take any medication during your pregnancy? Yes/No/Akhona

amayeza ubuwasela ngoku ubukhulelwe?.....

Ewe/Hayi If yes, please state the reason and type. Ukuba uthi Ewe, yitsho isizathu

nokuba ubusela ntoni.....



4. What was the type of delivery: Ubeleke ngoluphio uhlobo:

Normal/Uzibelekele.....

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*Together in Excellence*

c-section/Nge-operation.....

5. Did you experience any complications during the delivery? /Yabakhona inxaki

ngoku wawubeleka? Yes/No Ewe / Hayi.....

6. What was the birth weight of your child? /Umntwana wayengakanani ngoku

wayezalwa?.....

7. Do you have a history of miscarriages? /Wawukhe waphunyelwa sisisu? Yes/

No/ Ewe/Hayi.....

If yes, please state how many? /Ukuba uthi Ewe, yitsho ukuba zingaphi

Ezaphumayo izisu?.....



## HEARING HISTORY

8. Does your child have hearing problem? /Ingaba unayo ingxaki yokuva?

YES/NO/ Ewe/Hayi .....

If yes, which ear? / Ukuba uthi Ewe, yini entlebeni .....

9. Is your child's hearing getting worse? / Ingaba ukuva kwakho kuyehla?

YES/NO/Ewe/Hayi.....

10. How would you describe your child's hearing ability? /Ungakuvavanya njani ukuva kwakho?

Good/Kulungile.....

Fair/Akulungangancam.....

Poor/akulunganga.....

11. Has your child ever worn a hearing aid? /Uke wazinxiba izincedisi kuva? Yes/

No/Ewe/Hayi .....

12. Does your child have any ringing noises in their ears? Ingaba akhonto

ikhalayo Ezindlebeni zakho?Yes/No/Ewe/Hayi.....

13. Has your child ever had any discharge/fluid from their ears? / Ingaba wakha

wanengxaki yokuchiza kwendlebe? Yes/ No/ Ewe/Hayi. If yes, describe/ Ukuba

kunjalo cacisa.....

14. If yes to Q 14, how long has your child been having discharging ears? /Ukuba

kunjalo Q14, unexesha elingakanani unendlebe ezichizayo?.....

15. Has your child ever experienced any dizziness? / Ingaba sowukhe wanesiyezi?

Yes/No/ Ewe / Hayi.....

16. Has your child ever seen a doctor about your hearing or your ears? Ingaba



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wakha wadibana nogqirha ngokuva kwakho? Yes/No/ Ewe/Hayi. If yes, why? /

Ukuba kunjalo kwakutheni?.....

17. Please check the illness that your child has/had been treated for: Jonga isigulo

somntwana ukuba sanyangwa na

Measles/Imasisi.....

Chicken pox.....Mumps/Izigqitshi.....

Scarlet fever.....Encephalitis.....

Seizures/Ukuxuzula.....Meningitis/Intloko.....

Rubela.....Other.....

18. Does any other member within the family have a hearing loss or wears a

hearing aid? Ingaba kukhona umntu apha ekhaya ongeva okanye onalanto ifakwa

entlebeni yokuva? Yes/No/ Ewe/Hayi.....If Yes, please state the

member/ukuba uthi ewe, yitsho ngubani.....

19. Has your child ever been exposed to a very loud sound/explosion? Umntwana

wakho wakhe wakwindawo enxolayo okanye edubulayo? Yes/No Ewe/Hayi.....

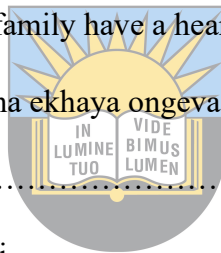
If Yes, please state the type/ukubauthi ewe, caccisa ukuba yayinjani.....

20. Has the child ever complained about fullness of the ears? Umntwana wakhe

wakuxelela ngendlebe ezivalekile? Yes/No Ewe/Hayi .....

If yes, please state which ear/Ukuba uthi Ewe, caza ukuba yeyiphi

indlebe.....



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**APPENDIX 4: SECTION B: QUESTIONNAIRE FORM**



EASTERN CAPE

DEPARTMENT OF EDUCATION

Inclusive Education Qumbu District Church Street Qumbu, 5180, Private Bag 466, QUMBU, 5180

REPUBLIC OF SOUTH AFRICA, Website: [www.ecdoe.gov.za](http://www.ecdoe.gov.za)

**APPENDIX 1: SECTION A: Questionnaire Form for Hearing Screening of Grade R learners**

Child's name ..... Igama lomntwana .....  
Date of Birth ..... Umhla wokuza/umhla/inyanga/unyaka .....  
Age ..... Iminyaka .....  
Parent/guardians name ..... Igama lomzali/igama lomzali ahlala naye .....  
Address ..... Idilesi yokuhlala .....  
Age of mother; ..... Iminyaka kamama .....  
Age of Father ..... Iminyaka katata .....  
Name of school that your child is attending TRALO RESIDENCY SPS  
Igama lesikolo umntwana afunda kuso .....

**DEVELOPMENT HISTORY: Imbali yokukhula**

1. Please indicate the age at which your child achieved the following Chaza ukuba umntwana wayeneminyaka emingaphi ukufumana kwakhe ezizizinto zilandelayo

Sat alone/Ukuzihlalela 5 months Crawled/Gaga 6 months  
Walked alone/Ukuzihambela 9 months Fed oneself/Uzityela 2 years  
Toilet trained/Wafundiswa ukuzithuma ..... Dressed oneself/Ukuzinxibisa 4 years

2. Please state your child's physical development? (slow, normal or fast) Chaza ngokukhula kwamalungu omzimba? (kancinci, kufanelekileyo, ngokukhawuleza) normal

3. Please indicate which hand does your child prefer to use? (right/left/both) Chaza sesiphi isandla umntwana wakho asisebenzisayo rhoqo? (esasekunene, esasekhohlo, okanyezozibini) normal right

4. Please report on what age did your child? /Chaza umntwana wakho wayeneminyaka emingaphi?

Babble/ukuzama ukuthetha 1 year use words... ukusebenzisa amagama 5 year 6 months  
use phrases/ukwenza isivakalisi esingaphelelanga ..... use sentences/ukwenza isivakalisi .....

5. Please state if there are any words or phrases that your child can't say but understands? / Chaza ukuba akhona na amagama / izivakalisi ezingaphelelanga umntwana wakho angankwazi uzibiza kodwa ezazi? Yes

6. Does your child look at your face for communication clues? Yes/No /Ingaba umntwana wakho uyakujonga na ebusweni akohlule ukuba uqumbile okanye wonabile? Ewe/Hayi Yes

**PREGNANCY HISTORY: Imbali yokukhulelwa**

1. How was your health during the pregnancy? Ibingani impilo yakho ngoku ubukhulelwe? (measles, diabetes, ...)

- Full Term uzelwe inyanga ziphelele... UZE/WE Phambi Kwe 7 Months <sup>(premature)</sup>
3. Did you take any medication during your pregnancy? Yes/No/Akhona amayeza ubuwasela ngoku ubukhulelwe? Ewe/Hayi If yes, please state the reason and type. Ukuba uthi Ewe, yitsho isizathu nokuba ubusela ntoni... No
4. What was the type of delivery: Ubeleke ngoluphio uhlobo: Normal/Uzibelekele... c-section/Nge-operation c-section
5. Did you experience any complications during the delivery?/Yabakhona inxaki ngoku wawubeleka? Yes/No Ewe / Hayi... Yes
6. What was the birth weight of your child? /Umntwana wayengakanani ngoku wayezalwa? 2.6 kg
7. Do you have a history of miscarriages? /Wawukhe waphunyelwa sisisu? Yes/ No/ Ewe/Hayi... No
- If yes, please state how many? /Ukuba uthi Ewe, yitsho ukuba zingaphi ezaphumayo izisu?.....
- HEARING HISTORY**
8. Does your child have hearing problem? /Ingaba unayo ingxaki yokuva? YES/NO/ Ewe/Hayi... No Yes
- If yes, which ear? / Ukuba uthi Ewe, yini ..... entlebeni left ear
9. Is your child's hearing getting worse? / Ingaba ukuva kwakho kuyehla? YES/NO Ewe/Hayi... No Yes
10. How would you describe your child's hearing ability? /Ungakuvavanya njani ukuva kwakho? Good/Kulungile... Good Fair/Akulungangancam... Poor Poor/Akulunganga.....
11. Has your child ever worn a hearing aid? /Uke wazinxiba izincedis kuva? Yes/ No/ Ewe/Hayi... No
12. Does your child have any ringing noises in their ears? Ingaba akhonto ikhalayo ezindlebeni zakho? Yes/No...Ewe/Hayi... No
13. Has your child ever had any discharge/fluid from their ears? / Ingaba wakha wanengxaki yokuchiza kwendlebe? Yes/ No/ Ewe/Hayi. If yes, describe/ Ukuba kunjalo cacisa... Yes
14. If yes to Q 17, how long has your child been having discharging ears?/Ukuba kunjalo Q17, unexesha elingakanani unendlebe ezichizayo? 2 days
15. Has your child ever experienced any dizziness? / Ingaba sowukhe wanesiyezi? Yes/No/ Ewe / Hayi
16. Has your child ever seen a doctor about your hearing or your ears? Ingaba wakha wadibana nogqirha ngokuva kwakho? Yes/No/ Ewe/Hayi. If yes, why? / ukuba kunjalo kwakutheni? No
17. Please check the illness that your child has/had been treated for: Jonga isigulo somntwana ukuba sanyangwa na Measles/Imasisi..... Chicken pox..... Mumps/Izigqitshi..... Scarlet fever.....Encephalitis.....Seizures/Ukuxuzula.....Meningitis/Intloko.....Rubela.....Other..... 18.
- Does any other member within the family have a hearing loss or wears a hearing aid? Ingaba kukhona umntu apha ekhaya ongeva okanye onalanto ifakwa entlebeni yokuva? Yes/No Ewe/Hayi/ Yes, please state the member.....ukuba uthi ewe, yitsho ngubani.....
19. Has your child ever been exposed to a very loud sound/explosion? Umntwana wakho wakhe wakwindawo enxolayo okanye edubulayo? Yes/No Ewe/Hayi... No
- If Yes, please state the type/ukubauthi ewe, caccisa ukuba yayinjani.....
20. Has the child ever complained about fullness of the ears? Umntwana wakhe wakuxelela ngendlebe ezivalekile? Yes/No Ewe/Hayi... Yes
- If yes, please state which ear/Ukuba uthi Ewe, caza ukuba yeyiphi indlebe.....

## **APPENDIX: 5 SECTION C: RECORDING TEMPLATE**

[illegible]