

**THE KNOWLEDGE AND ATTITUDES OF GRADE R SCHOOL
TEACHERS REGARDING THE PSYCHOSOCIAL IMPACT OF
STRABISMUS AMONGST SCHOOL CHILDREN**

by

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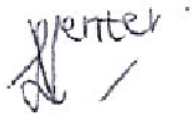
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DECLARATION

I, Liza-Marié Venter Jansen declare as follow:

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L VENTER JANSEN

March 2020

DATE

DEDICATION

To my father who teaches me to strive for excellence and to continue gaining knowledge
and sharing with others.

To my dedicated husband and to my loving family.

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LIST OF ACRONYMS AND ABBREVIATIONS

3D	Three Dimensional
AAO	American Academy of Ophthalmology
AAPOS	Association for Paediatric Ophthalmology and Strabismus
AOA	American Optometric Association
BSV	Binocular Single Vision
CAPS	National Curriculum and Assessment Policy Statement
QoL	Quality of Life
HRQoL	Health Related Quality of Life
KAP	Knowledge, Attitude and Practice
LER	Learner-Educator Ratio
Q	Quintile
R	Reception
WHO	World Health Organisation

STUDY DEFINITIONS

Amblyopia: Reduction in best-corrected visual acuity in the absence of any obvious structural anomalies or ocular disease (Griffin & Grisham, 2002).

Attitude: A settled way of thinking or feeling about something (Collins, 2014).

Bias: Feel or show inclination or prejudice for or against someone or something, especially in a way considered to be unfair; lacking a neutral viewpoint (Collins, 2014).

Child: A young human being below the age of puberty or the legal age of majority (Collins, 2014).

Developmental milestones: Behaviours, physical skills and individual abilities that must be obtained during the development of a child by specific ages, as they grow and develop. These include vision, hearing, social, cognitive, language, motor and self-help (Beighley & Matson, 2013).

Diplopia: A condition in which a single object is perceived as two rather than one (Griffin & Grisham, 2002).

Eye contact: The state in which two people are looking directly into one another's eyes (Collins, 2014).

Facial features: A distinguishing elements of the face; such as an eye, nose or lip. (Collins, 2014).

Fusion: The process by which stimuli, seen separately by the two eyes, are combined, synthesised, or integrated into a single perception (Griffin & Grisham, 2002).

Grade R: Children start school at age five in the year turning six (Department of Basic Education Republic of South Africa, 2018).

Knowledge: Facts, information and skills acquired through experience or education; the understanding of a subject (Collins, 2014).

Negative social bias: Negative effect, things of a more negative nature have a greater impact on one's psychological state; e.g. unpleasant thoughts, emotions or social interactions (Collins, 2014).

Physical appearance: Physical characteristics or features of someone or something (Collins, 2014).

Psychosocial impact: Effects caused by environmental and/ or biological factors on an individual's social and/ or psychological aspects (Collins, 2014).

Prism dioptre (PD): The customary unit of measurement of the magnitude of deviation of the visual axes in strabismus or heterophoria. One prism dioptre is the angle subtended by a deviation of 1 centimeter at a distance of 1 meter (Griffin & Grisham, 2002).

Quality of life: An individual or group standard of health, comfort and happiness (Collins, 2014).

Social interactions: A process by which two or more individuals act and react to those around them (Collins, 2014).

Social skills: The skill necessary to communicate and interact with others where social rules and relations are created, communicated and changed in verbal and nonverbal ways (Collins, 2014).

Stereopsis: Binocular visual perception of three-dimensional space, based on retinal disparity. Clinically referred to as depth perception (Griffin & Grisham, 2002).

Strabismus: Abnormal alignment of the eyes; the condition of having a squint (Griffin & Grisham, 2002).

Suppression: Under binocular viewing conditions, the inability to perceive all or part of objects in the field of vision of one eye, attributed to cortical inhibition (Griffin & Grisham, 2002).

Teacher: A person who teaches at a school or similar institution (Collins, 2014).

ABSTRACT

THE KNOWLEDGE AND ATTITUDES OF GRADE R SCHOOL TEACHERS REGARDING THE PSYCHOSOCIAL IMPACT OF STRABISMUS AMONGST SCHOOL CHILDREN

BACKGROUND: Negative social bias due to strabismus affects the self-esteem and learning process of a child. Social and educational milestones are already prioritised as early at a pre-primary school level. A Grade R teacher's interaction with a child with strabismus can steer their functional development and influence their future quality of life. A lack of knowledge and an erroneous attitude ultimately contributes to the negative social stigma about strabismus.

PURPOSE: The study aimed to determine the knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus among school children.

METHODS: A descriptive study was carried out from March to June 2018, through a structured questionnaire.

RESULTS: Thirty-one female Grade R teachers, ages ranging between 24 and 62 years participated in the research study. The majority of the teachers (87.10%) were able to correctly identify a child with strabismus and refer them to treatment. Children with strabismus were thought of being at risk of struggling with areas of mathematics, language and life skills (64.52%). Nevertheless, the teachers had an overall positive attitude towards a photograph of a child with strabismus depicted in the questionnaire. The teachers described the strabismic child as happy, cute, healthy and intelligent. The teachers also suggested that a child with strabismus will be able to be a class representative (83.87%). The teachers were also aware that a child with strabismus may be at risk for developing a low self-esteem (identified by 83.87%) and to experience social anxiety (identified by 45.16%).

CONCLUSION: The negative social biases towards strabismus are clearly defined in previous research. This study, however, contradicts previous findings. Not only did the Grade R teachers demonstrate a good understanding of the clinical aspects related to strabismus, but they also had an overall positive attitude towards strabismus in general.

Keywords: psychosocial - strabismus - school children - social bias - social and educational milestones - quality of life - teacher - health education

THE KNOWLEDGE AND ATTITUDES OF GRADE R SCHOOL TEACHERS REGARDING THE PSYCHOSOCIAL IMPACT OF STRABISMUS AMONGST SCHOOL CHILDREN

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO THE RESEARCH

The first chapter of this mini-dissertation is an introduction to this study that planned to investigate the knowledge and attitudes of Grade R teachers regarding the psychosocial impact of strabismus on school children in Bloemfontein. The background information relating to eye contact and strabismus is given. This is followed by the research problem statement, research question, the aim of the research and the objectives that motivated the research. The chapter concludes with important key terms related to the research, as well as the significance of the study and an outline of the mini-dissertation.

1.2 BACKGROUND OF THE RESEARCH

A well-known expression states that 'a book cannot be judged by its cover' (Zebrowitz, 1997). However, first impressions are still significantly influenced by the physical appearance of the face. Our quality of life (QoL) is affected by how other people view and treat us. Therefore, our social interactions with other people are affected by the physical appearance of facial features (Reis *et al.*, 1982).

Eye contact is a fundamental body language expression that is used every day, and it can be used in both positive and negative interactions (Kleinke, 1986). Eye contact provides the foundation for communication (Kleinke, 1986; Csibra & Gergely, 2006), social interaction and intimacy (Kleinke, 1986). The human eye is the ultimate beholder of information regarding dominance, social skills, mental health, reliability, capability, focus, attraction and love (Kleinke, 1986). Also, the direction in which the eyes look play an essential role in daily life (Langton *et al.*, 2000). Therefore, the visible misalignment of the eye (strabismus) has a social significance.

Strabismus is derived from a Greek word *stabismós*, meaning to squint or look, one prism diopter or more, away from the standard visual axes of the eye (Griffin & Grisham, 2002).

1.3 PROBLEM STATEMENT

Strabismus can present as early as in the first year of life and has a psychosocial impact on people of all ages (Satterfield *et al.*, 1993). Olitsky *et al.* (1999) suggested that strabismus should be regarded as more than just a cosmetic problem as it affects a person's self-esteem, interpersonal relationships and school performance. Strabismus can affect a child's self-esteem, interpersonal relationships and school performance, both academically and in extra-curricular activities.

Children can recognise mirror images of themselves already between the ages of two and four years (Satterfield *et al.*, 1993). Young children are conscious of how they look, and this influences how they are accepted among their peers (Povinelli *et al.*, 1996). Negatively biased opinions towards strabismus include that a person with strabismus is less intelligent, less attentive, and incompetent, as well as lacking leadership, communication and organisational skills. Olitsky *et al.* (1999), suggested that these negative sentiments may influence a person's socialisation skills as well as their employment opportunities.

A Grade R child's early development depends on both cognitive and social skills (Arya, 2008). A society's biased opinions towards strabismus may delay a child's early educational development. Negatively biased interactions towards children with strabismus may be due to a society's general outlook or due to a lack of knowledge regarding the condition.

Various societal stressors put pressure on family time; increasing living costs make it unaffordable for only one parent to work. In many families, through no fault of the parents, children spend more time with their teachers than at home (Association of Teachers and Lecturers, 2014). A teacher influences the educational and social development of a child.

In conclusion, strabismus affects a child's quality of life. It influences their physical and emotional status, as well as their social functioning. Grade R teachers are the gatekeepers of a child's early education. A teacher's interaction with a child with strabismus can steer the child's functional development (Uretmen *et al.*, 2003). Addressing any knowledge gaps regarding strabismus can empower teachers to recognise it earlier and to seek the appropriate treatment (Cumurcu *et al.*, 2011). To do this, negative social biases should be identified and addressed first. That is why this study focuses on identifying any knowledge gaps of Grade R teachers regarding strabismus in a school child. This study also attempts

to identify the attitudes of Grade R teachers regarding the psychosocial impact of strabismus in school children.

1.4 RESEARCH QUESTION

To address the problem stated, the following research question was formulated:

What is the knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus among schoolchildren?

1.5 AIM OF THE RESEARCH

Based on the above problem statement, this research aims to ascertain the knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus among schoolchildren in Bloemfontein, Free State Province.

1.6 RESEARCH OBJECTIVES

To achieve the aim mentioned above, the following objectives were created:

- i. To gather the knowledge of Grade R school teachers regarding strabismus among school children.*
- ii. To identify the social and educational barriers a school child with strabismus may experience.*
- iii. To explore the attitudes of Grade R school teachers towards strabismus and any stigma towards school children with strabismus.*

1.7 SIGNIFICANCE OF THE RESEARCH

The research attempts to address knowledge gaps so that teachers can recognise strabismus earlier and seek the most appropriate treatment. The research project highlights some of the problems that a child with strabismus may face in their psychosocial development. The outcomes of this project can be used by teachers to implement the necessary changes in their classrooms in order to accommodate children with strabismus. The findings may also be used by local policymakers to plan for proper preventative and curative services in local schools.

1.8 DEFINITIONS OF KEY TERMS

Key terms are briefly introduced in this chapter to allow the reader to understand what is presented in the subsequent sections.

Attitude: A settled way of thinking or feeling about something (Collins, 2019).

Bias: Feel or show inclination or prejudice for or against someone or something, especially in a way considered to be unfair; lacking a neutral viewpoint (Collins, 2019).

Child: A young human being below the age of puberty or the legal age of majority (Collins, 2019).

Developmental milestones: Behaviours, physical skills and individual abilities that must be obtained during the development of a child by specific ages, as they grow and develop. These include vision, hearing, social, cognitive, language, motor and self-help (Beighley & Matson, 2013).

Eye contact: The state in which two people are looking directly into one another's eyes (Collins, 2019).

Facial features: A distinguishing elements of the face; such as an eye, nose or lip (Collins, 2019).

Grade R: Children start school at age five in the year turning six (Department of Basic Education Republic of South Africa, 2018).

Knowledge: Facts, information and skills acquired through experience or education; the understanding of a subject (Collins, 2019).

Negative social bias: Negative effect, things of a more negative nature have a greater impact on one's psychological state; e.g. unpleasant thoughts, emotions or social interactions (Collins, 2019).

Physical appearance: Physical characteristics or features of someone or something (Collins, 2019).

Psychosocial impact: Effects caused by environmental and/ or biological factors on an individual's social and/ or psychological aspects (Collins, 2019).

Quality of life: An individual or group standard of health, comfort and happiness (Collins, 2019).

Social interactions: A process by which two or more individuals act and react to those around them (Collins, 2019).

Social skills: The skill necessary to communicate and interact with others where social rules and relations are created, communicated and changed in verbal and nonverbal ways (Collins, 2019).

Strabismus: Abnormal alignment of the eyes; the condition of having a squint (Griffin & Grisham, 2002).

Teacher: A person who teaches at a school or similar institution (Collins, 2019).

1.9 OUTLINE OF THE MINI-DISSERTATION

This mini-dissertation consists of six chapters. A brief summary of each chapter is given below.

Chapter 1: Introduction

The background of the research topic and problem statement was discussed. The chapter also defined the research question, aim, objective and the significance of the research. Lastly, definitions of key terms and concepts relating to the research topic were given.

Chapter 2: Literature review

A review is presented of the existing literature regarding global prevalence of strabismus. An in-depth discussion follows about the clinical aspects and psychosocial impact of strabismus.

Chapter 3: Research methodology

The methods followed in carrying out the research are discussed. The chapter outlines the research design, sampling procedure, questionnaires, data collection process and the approach to data analysis.

Chapter 4: Research results

The findings of the study are presented. The analysed data from the questionnaire is displayed in graphs and tables.

Chapter 5: Discussion

The research results are interpreted and discussed. The limitations of the research are also mentioned. These findings are integrated with the theoretical framework and previously reviewed literature.

Chapter 6: Conclusion

A summary is presented about the overall research, and includes recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION TO THE LITERATURE REVIEW

The literature review will begin with a report about the global prevalence of strabismus. A discussion will follow on visual development and the importance of binocular vision. Following this, the clinical aspects of strabismus will be reviewed. In addition, known literature regarding the psychosocial impact of strabismus will be discussed. The current treatment options of strabismus will be explored, and the role of the teacher in early intervention will be reviewed. This review aims to provide the theoretical framework and relevant background needed to understand the research objectives of this study.

2.2 GLOBAL PREVALENCE OF STRABISMUS

Strabismus is derived from a Greek word *stabismós*, meaning to squint or look, one prism diopter or more, away from the standard visual axes of the eye. In simple terms, it is the visible misalignment of the eyes (Griffin & Grisham, 2002). It is also known as heterotropia, squint or tropia.

The prevalence of strabismus varies widely worldwide. The latest comprehensive systemic review about the prevalence of strabismus was done by Hashemi *et al.* (2019). They grouped 56 regional studies, performed over a period of 1986 to 2018, according to the six WHO regions. These include the African Regional Office (AFRO), American Regional Office (AMRO), Eastern Mediterranean Regional Office (EMRO), European Regional Office (EURO), South-East Asia Regional Office (SERO), and the Western Pacific Regional Office (WPRO) (WHO, 2018). Table 2.1 (p.29) lists the studies used for the literature review.

The systematic review by Hashemi *et al.* (2019), demonstrated a global pooled prevalence of strabismus of 1.93%. In the WHO regions, the highest and lowest pooled prevalence of strabismus was seen in the American (2.86%) and African Regional Office (0.42%). The low prevalence in the African Regional Office may not be that accurate as this region only included three cross-sectional reviews (Hashemi *et al.*, 2019). Regardless of a large amount of data available, few studies have been performed on population-based samples. The variation in study designs and disease classification makes a direct comparison between

most of these studies difficult.

The most comparable studies include the Multi-Ethnic Pediatric Eye Disease Study (MEPEDS), the Baltimore Pediatric Eye Disease Study (BPEDS), and the Strabismus, Amblyopia, and Refractive Error in Singaporean Children Study (STARS). All of the studies included a similar age group of 6 – 72 months, as well as comparable methodologies. The results from Chia *et al.* (2010), STARS study differed from the rest. The prevalence of strabismus in Singaporean children was much lower than that of Hispanic/Latino, white, and African-American children in the MEPEDS and BPEDS cohorts (Multi-Ethnic Pediatric Eye Disease Study Group, 2008; Friedman *et al.*, 2009; Chia *et al.*, 2010). The authors did not provide clear reasons for this difference.

Investigating the prevalence of strabismus helps to determine the extent and burden of disease in order to plan appropriate preventative and curative services (Friedmann *et al.* 2009). For example, the Multi-Ethnic Pediatric Eye Disease Study Group (2008) performed a large population-based evaluation of the prevalence of visual disorders in children aged six months to 11 years in Los Angeles in the United States. Eye examinations were performed on 6014 children from various ethnic backgrounds. They found that the prevalence of strabismus in their study increased with age (Multi-Ethnic Pediatric Eye Disease Study Group, 2008). These findings can be used to improve existing and plan new visual screening programs.

Table 2.1: Global prevalence of strabismus according to the WHO regional offices (Hashemi *et al.*, 2019)

Region*	Country	Study	Age group	N	Prevalence
AFRO	Nigeria	Azonobi <i>et al.</i> , 2009	2 – 16 yrs.	7288	0.89%
	Nigeria	Ajaiyeoba <i>et al.</i> , 2006	4 – 24 yrs.	1144	0.26%
	Tanzania	Wedner <i>et al.</i> , 2000	7 yrs.	1386	0.51%
AMRO	United States	MEPEDS study group, 2008	0.5 – 6 yrs.	6014	2.47%
		Friedman <i>et al.</i> , 2009 (BPEDS study)	0.5 – 6 yrs.	2298	2.61%
SERO	India	Sharma-1 <i>et al.</i> , 2017	5 – 16 yrs.	5918	0.41%
		Singh <i>et al.</i> , 2017	5 – 15 yrs.	4838	0.27%
EURO	United Kingdom	Williams <i>et al.</i> , 2008	7 yrs.	7538	2.30%
	Turkey	Ertekin <i>et al.</i> , 2016	5 – 13 yrs.	1938	2.22%
EMRO	Iran	Hashemi <i>et al.</i> , 2015	7 yrs.	3675	2.50%
		Rajavi <i>et al.</i> , 2015	7 – 12 yrs.	2417	2.28%
		Hashemi <i>et al.</i> , 2017	0 – 20 yrs.	879	2.16%
WPRO	Australia	Robaei D <i>et al.</i> , 2006	6 yrs.	1739	2.76%
	Malaysia	Reddy <i>et al.</i> , 2006	7 – 12 yrs.	1214	2.47%

Region*	Country	Study	Age group	N	Prevalence
	Singapore	Chia <i>et al.</i> , 2010 (STARS study)	0.5 – 6 yrs.	3009	0.80%

* AFRO = African Regional Office, AMRO = American Regional Office, SERO = South-East Asia Regional Office, EURO = European Regional Office, EMRO = Eastern Mediterranean Regional Office, WPRO = Western Pacific Regional Office

** MEPEDS: Multi-Ethnic Pediatric Eye Disease Study

Despite several studies across the world, no comprehensive study of the prevalence epidemiological characteristics of strabismus in children could be found in South Africa. Considering the medical, social, and psychological impact of strabismus, there is a need for more research in this field in South Africa.

2.3 VISUAL DEVELOPMENT

A child's pre-school years are the most crucial time to develop their visual abilities (AOA, 2020.). Vision becomes the dominant sense, by the age of 6 months, and forms the basis for perceptual, cognitive and social development (Atkinson, 2002). Up to the age of six years, the visual system is susceptible to vision conditions that cause either blurred vision or abnormal binocular function from objects that impede vision (American Optometric Association, 2017).

A Grade R child uses their vision to guide other learning experiences (AOA, 2020). They are developing vision guided eye-hand-body coordination, fine motor skills and visual perceptual skills that are essential for learning to read and write. Teachers use activities such as stacking building blocks, rolling a ball back and forth, colouring, drawing, and assembling lock-together toys as exercises to improve a child's visual skills.

The teacher should be attentive to pick up any problems that might indicate a visual development problem in a child. These may include sitting too close to the writing board, squinting of eyes, tilting of their head, frequent rubbing of their eyes, short attention span, turning of an eye in or out, sensitivity to light, difficulty with eye-hand-body coordination in ball play and avoidance of colouring and puzzle building (AOA, 2020). If these problems go unnoticed, they can lead to headaches, fatigue and other eyestrain problems, further impairing a child's learning capability (AOA, 2020).

The Grade R teacher has a fundamental role during this time of vision development. A passionate Grade R teacher could give any child an enormous head start for their school career which is an important stepping stone for the rest of their lives.

2.4 THE IMPORTANCE OF BINOCULAR VISION

Binocular vision refers to both eyes aiming and focusing simultaneously on the same object. Healthy binocular vision produces stereopsis, a vital visual perceptual skill which is part of normal vision development. Stereopsis is a term that refers to the perception of depth and three-dimensional structure on the basis of visual information deriving from the two eyes. Essentially, each eye sends a separate, slightly different image to the brain's visual cortex, where the images are fused into a single one. The combined picture appears three-dimensional because it has an added depth dimension (Griffin & Grisham, 2002).

In order to have good binocular vision, the visual system relies on the close cooperation of its motor and sensory components. The sensory part starts when light is emitted or reflected from an object in the external environment and focused on the retina by each eye's optical mechanism. The motor components direct the alignment of both foveas to the object of attention within the visual field and maintain them in this position as long as required. The motor positioning and alignment of the eyes allows a clear focus to develop and ensures the maintenance of binocular vision (Griffin & Grisham, 2002).

Binocular vision is vital in developing good depth perception, which affects coordination and hand-to-eye skills. Binocular vision allows us to catch a ball, read classroom instructions from a board, and even to perform simple tasks such as walking and running. Impaired binocular vision leads to uncoordinated, clumsy movements because of a lack of orientation and integration with the environment.

2.5 CLINICAL ASPECTS OF STRABISMUS

Strabismus is the result of the failure to maintain bifoveal fixation under normal viewing conditions. In strabismus, the image of the fixation point is not formed on the fovea, which occurs either constantly (one eye turns all of the time) or intermittently (one eye turns occasionally) (Griffin & Grisham, 2002).

2.5.1 Aetiology of strabismus

The aetiology of strabismus can be classified as refractive causes, organic and sensory causes, anatomic and motor causes and innervational causes. The exact cause of

strabismus cannot always be determined. The development of strabismus can also be affected by external factors. There appears to be an association of strabismus with prematurity (Robaei *et al.*, 2006 & Multi-Ethnic Pediatric Eye Disease and Baltimore Pediatric Eye Disease Study Group, 2011) and maternal smoking during pregnancy (Multi-Ethnic Pediatric Eye Disease and Baltimore Paediatric Eye Disease Study Group, 2011).

2.5.2 Heredity of strabismus

The mode of inheritance of strabismus is multifactorial (Press & Moore, 1993). The offspring of two affected parents have a higher risk of developing strabismus than the offspring of two healthy parents or one affected parent. In a clinical environment, the incidence of strabismus is higher if it exists among brothers and sisters in the same family who has strabismus (Griffin & Grisham, 2002).

2.5.3 Clinical features of strabismus

The primary signs of strabismus are the visible misalignment of the eyes turning in, out, up, down or at an oblique angle; squinting of eyes; closing of one eye; rubbing of one eye or both and a compensatory head posture. Symptoms may include double vision, split vision, decreased vision, eyestrain, fatigue, headaches and the awareness that an eye is moving (Griffin & Grisham, 2002).

Strabismus can be classified according to its time of onset, nature, direction, magnitude, laterality, frequency, and the time or age of onset (Griffin & Grisham, 2002).

Strabismus can present either at birth (congenital) or can be acquired. Congenital strabismus is present in the first six months of life, and acquired strabismus usually presents after the first six months of life. Acquired strabismus may have a sudden onset, particularly in older individuals (Griffin & Grisham, 2002).

The nature of strabismus can either be comitant or incomitant. A comitant deviation is when the angle of deviation of the visual axes is the same in all positions of gaze. An incomitant deviation is when the angle of deviation changes when the eyes move from one position of gaze to another (Griffin & Grisham, 2002).

The direction of strabismus can be classified as horizontal, vertical, torsional or a combination of these. An esotropia deviation is when the visual axes converge so that the cornea is rotated nasally. An exotropia deviation is when the visual axes diverge so that the cornea is rotated temporally. A vertical deviation is when the visual axis is either higher (hypertropia deviation) or lower (hypotropia deviation) than the other. A torsional deviation is when there is a misalignment of one or both eyes around the sagittal axis, either producing a clockwise (of the right eye: intorsion deviation) or counter-clockwise (of the right eye: extorsion deviation) rotations of the globe (Griffin & Grisham, 2002).

The magnitude of strabismus can be classified as small, intermediate or large. A small deviation is usually ten prism dioptres or less. An intermediate deviation is between 11 and 30 prism dioptres. A large deviation measures greater than 30 prism dioptres. An esotropia can range from small to large, but an exotropia is very seldom small (Griffin & Grisham, 2002).

Strabismus may be classified as unilateral, if the one eye consistently deviates, or alternating if either of the eyes can be seen to deviate. Strabismus can be either constant or intermittent. A constant deviation is when the eyes are always misaligned, and fusion never occurs. An intermittent deviation is where the eyes are misaligned for a specific time, and also for a certain time there is fusion or alignment (Griffin & Grisham, 2002).

2.5.4 Amblyopia

Amblyopia is a unilateral, or rarely bilateral, decrease in best-corrected visual acuity, caused by any form of vision deprivation and/or abnormal binocular interactions. In amblyopia, there are no intrinsic neurological problems in the eye, but there is a developmental problem present in the brain. The brain fails to process inputs from one eye, and over time will favour the other eye. Amblyopia results in decreased vision in an eye that otherwise typically appears normal. Strabismus is one of the main causes of amblyopia. Other causes include refractive amblyopia (unequal refractive error between the two eyes) and deprivation amblyopia (vision-obstructing disorders such as congenital cataracts) (Kanski's, 2006).

In strabismus, the brain has not learned to align the eyes and use them together. Each eye aims independently of the other, i.e. both eyes do not focus on the same object or place at the same time. Therefore, a different image is being projected to the brain from each eye.

This would normally lead to double vision in an adult (Griffin & Grisham, 2002). However, children's brains can adapt by suppressing images from one of the eyes, and thereby, eliminating the double vision. This protective mechanism interrupts the brain's normal development and results in amblyopia (Kanski's, 2006).

Amblyopia leads to abnormalities in spatial vision, including reductions in visual acuity and contrast sensitivity, as well as spatial distortion and abnormal spatial interactions. Children with amblyopia also have problems with binocular vision, such as limited depth perception, so that they usually struggle seeing three-dimensional images (Griffin & Grisham, 2002).

Amblyopia should be treated before the child turns ten years old. This is known as the 'critical sensitive period' in the development of amblyopia because it can be reversed by treating the cause and vision can be restored by stimulating visual development of the affected side (Epelbaum *et al.*, 1993).

2.5.5 Visual screening for strabismus

Strabismus requires treatment early in life to ensure the best visual outcomes. That is why it should be detected as soon as possible. Strabismus can be diagnosed with an eye examination.

Currently, in South Africa, there are no programs dedicated to visual screening only. In general, optometrists in South Africa use the American Optometry Association's (AOA) guidelines. The AOA advocates that a child should have an eye examination starting at the age of six months, then at three years and then by the first grade of school, followed by annual examinations (AOA, 2017). Six months was not chosen randomly, as visual acuity, accommodation, eye muscle coordination and stereopsis are all developed by six months of age.

Age-appropriate eye and vision evaluation should be incorporated into the scheduled health evaluation routine for children (Simons K, 1996). This should start with all infants receiving a routine eye screening at birth by a medical worker (e.g. Pediatrician, General practitioner, or Nurse practitioner). If a child should fail the vision screening, they should be referred for a complete eye exam by an Optometrist or Ophthalmologist (Kanski's, 2006).

Early detection and treatment of strabismus in children are essential to ensure the best functional outcome. The majority of our population does not have access to adequately trained staff to provide quality eye care services.

To address this issue, Kaur (2016) evaluated the effectiveness of introducing teachers as the first level of vision screening in local schools in Ludhiana, India. Teachers from government and semi-government schools were educated about childhood ocular disorders and the importance of early detection and treatment. After receiving training in vision screening, they conducted screening programs in their own schools. Subsequently, an ophthalmology team visited the schools to re-examine the children identified with low vision. The teacher-based screenings were compared with the ophthalmology consults. By using a random sampling technique, 95.65% of children were correctly identified as normal by the teachers. This study's findings prove that vision screening in schools by teachers can be an effective method of identifying children with impaired vision (Kaur, 2016).

2.6 PSYCHOSOCIAL IMPACT OF STRABISMUS

2.6.1 Quality of life

The "quality of life (QoL)" is an individual or group standard of health, comfort and happiness (Collins, 2014). In general, it is an assessment of an individual's well-being or lack thereof and includes the emotional, social and physical aspects of the individual's life. It is known that strabismus has a negative impact on the quality of life (Aste *et al.*, 2016). That is why some patients with strabismus are willing to trade a part of their life expectancy in exchange for successful surgical correction (Beauchamp *et al.* 2005).

A comparable term is used in healthcare, namely "health-related quality of life (HRQoL), which is an assessment of how an individual's well-being is affected over time by a disease, disability or disorder (Schalock, 2004). It involves the physical, functional and emotional status, as well as social functioning (Schumacher *et al.* 1991). As expected, strabismus has a negative impact on HRQoL. Schuster *et al.* (2019) assessed the mental health and HRQoL in a German population-based study. They used a German version of the KINDL-R questionnaire, that covers six dimensions of quality of life, i.e. physical well-being, emotional well-being, self-esteem, family, friends, and school aspects. Low scores were reported in the domains of 'family' and 'friends'. Comparable results were reported in the

multi-ethnic Pediatric Eye Disease Study (MEPEDS), a population-based study performed in the United States. They used a similar questionnaire, the Pediatric Quality of Life Inventory, and found lower scores in the categories physical health, psychological health, emotional functioning, and school functioning (Varma *et al.*, 2006).

2.6.2 Communication

Effective communication is a key skill, and the better we are at it, the better our quality of life will be. Communication skills are needed for a child to progress in school, as oral presentations, class discussions, and group work become regular activities when they start school. All of these activities depend directly upon their verbal communication skills.

As a child develops communication skills, their interpersonal and social skills also mature. These skills develop together mainly through interaction and play with siblings and friends. If these skills are developed effectively, they will feel more comfortable in social situations. This will enable them to start conversations with their peers and make new friends. Through relationships, children also learn about empathy, the importance of being a good 'listener', as well as how to interpret non-verbal communication cues.

Eye contact is a form of non-verbal communication that strongly influences social behaviour. Eye position and movements have an important role during communication, as it directs attention and broadcasts non-verbal communication cues (Astle *et al.* 2016). A person with strabismus, whose eyes are not aligned normally, usually makes full eye contact with one eye only, while the other eye can deviate to some degree.

The inability to maintain good eye contact has several negative consequences. Firstly, people have preconceptions that someone with strabismus has poorer communication skills compared to those without strabismus (Olitsky *et al.* 1999). Secondly, people with strabismus can struggle to read non-verbal cues. This may be due to them receiving abnormal gaze cues from the individuals they are speaking to, as they can be unsure on which eye to focus on, or where the person is fixating (Astle *et al.* 2016). Lastly, if a child with strabismus does not communicate well, both their interpersonal and social skills won't develop adequately (Astle *et al.* 2016).

2.6.3 Social life

A major determinant of a person's perceived quality of life is how they are viewed and treated during social interactions (Warwar *et al.* 2001). Socialising is an essential part of human beings' nature. The state of someone's social life undeniably influences both their mental and physical health. Without positive and durable relationships, the strong connection between body and mind will deteriorate.

In general, the foundation of a child's social context is created in primary schools. Some of the social skills that a child must master in primary school include the ability to initiate, maintain and end a conversation, to read social signals and more complex skills such as conflict management. Therefore, a child's social life is much more than just 'learning to play'.

Unfortunately, some social interactions can do more harm than good. Young children appear to be very self-conscious about their physical appearance. They are able to detect an abnormality in their appearance very early on, as children develop mirror recognition themselves between two and four years of age (Povinelli *et al.*, 1996). Socially noticeable strabismus is problematic for all age groups, including both children and adults (Satterfield *et al.*, 1993), as it can cause a negative social bias. Bias occurs when a person feels or shows prejudice for or against someone or something, especially in a way to be unfair (Collins, 2014). In the context of a person with strabismus, it is an irrational dislike, or prejudice, based on the appearance of their misaligned eyes, causing them to be treated unfairly.

Biased opinions of a child with strabismus include them being less intelligent, less attentive, incompetent and lacking emotional stability (Olitsky *et al.*, 1999). In one study, children with strabismus were considered to be less sincere, accused of cheating, daydreaming and not paying attention because of their wandering eyes (Satterfield *et al.*, 1993).

Strabismus interferes with the way a child interacts with other individuals and the way they interrelate with them (Satterfield *et al.*, 1993). Children are able to relate a negative attitude towards strabismus from approximately six years of age. In one study, three identical dolls were altered so that one had a normal gaze, and the other two were strabismic (esotropic and exotropic). The children aged older than six years described negative feelings towards

the strabismic dolls and were hesitant to play with them (Paysse *et al.*, 2001). Several other studies also confirmed similar findings. Mojon-Azzi *et al.* (2011) showed that children aged six years and older are less likely to be invited to birthday parties by their peers. Lukman *et al.* (2010, 2011) demonstrated that children, aged 8 to 12 years, had a higher preference to sit next to a child without strabismus, regardless of the child's age. It is not difficult to imagine a child with strabismus being teased and bullied by their peers at school or at home.

A child viewed differently by their peers would most likely find it difficult to socialize with other children. Uretmen *et al.* (2003) demonstrated that elementary school teachers believe that it could be harder for a child with strabismus to be accepted into a social group of friends. Every child wants to belong to a social group, but in this case, social fears may prevent it. There is a shift from family norms, where they feel accepted and loved, to group norms, where they may feel judged. This shift may further inhibit any group integration.

A child with strabismus will most likely isolate themselves from social environments due to the negative influence of their appearance on others. The neglect they suffer lowers their self-esteem, causing anxiety and continuously reinforces social fears. Cumurcu *et al.* (2011) investigated the prevalence of mental health problems in children with strabismus. High rates of social phobia and depression were found in comparison with sex- and age-matched control subjects (Cumurcu *et al.*, 2011). A social phobia, also known as social anxiety disorder, is intense anxiety or fear of being judged, negatively evaluated, or rejected in a social situation (British Psychological Society, 2013). Social phobia, when present from an early age, may prevent a child or teenager from gaining new social and educational skills during adolescence (Cumurcu *et al.*, 2011). Satterfield *et al.* reported similar findings, with depression and anxiety being more prevalent in children with strabismus than the control group (Satterfield *et al.*, 1993).

The psychological effects of strabismus are not confined to childhood only, as social phobias can hinder adolescents and adults from obtaining new social and educational skills (Cumurcu *et al.*, 2011). This is why early diagnosis and treatment of strabismus will definitely have a positive impact on a child's future quality of life.

2.6.4 Education

Uretmen *et al.* (2003) gave credibility to the notion that strabismus can be seen as a handicap from an educational point of view. In their study, photographs of two boys and two girls were digitally altered to create a facial profile with a normal gaze and one with a strabismic gaze (esotropic or exotropic). Elementary school teachers were asked to rate the personal characteristics of the children depicted in the whole-face photographs (Uretmen *et al.* 2003).

Their ratings were based on a list of personal characteristics: intelligence, health, trustworthiness, hardworking, happiness, cuteness, hesitancy, aggressiveness, activeness, and sentimentality. The participants were also asked question based on their first impressions of the photographs, for example, if the teachers would assign normal duties to the child if the child would have difficulty in learning if they would be accepted into social groups, and if they would be able to complete responsibilities given to them (Uretmen *et al.*, 2003).

The study's results were quite significant, as researchers demonstrated that educational biases exist against children with strabismus. Children with strabismus were rated more negatively than children with a normal gaze on all ten personal characteristics. The teachers had major preconceptions regarding the performance of a child with strabismus. They assumed that a child with strabismus would have learning difficulties compared to 'normal' children and that they would not be able to finish responsibilities tasked to them. Most teachers preferred to assign duties to 'normal' students during cultural activities at school. Hence, strabismus has a definite negative impact on a child's education (Uretmen *et al.*, 2003).

2.7 TREATMENT OF STRABISMUS

Several treatment options are available to improve eye alignment and coordination. Treatment options include spectacles or contact lenses, prism lenses, vision therapy, botulinum toxin injection, and ocular realignment surgery (Kanski's, 2006).

Spectacles or contact lenses, as prescribed by an Optometrist, are often the only treatment needed in some cases of accommodative strabismus. The optical correction allows normal

binocularity to develop. In some cases, prisms are incorporated into the spectacles to correct strabismus (Kanski's, 2006).

Vision therapy, performed by an Optometrist, is a structured program of visual activities to improve eye coordination and focus. Visual therapy trains the eyes and brain to work together effectively (Kanski's, 2006).

Botulinum toxin, or chemo denervation, is used to temporary paralyse an extra-ocular muscle. The injection is performed under topical anaesthesia and electromyogram (EMG) control. The effects take several days to develop, usually maximal of one to two weeks following injections and generally worn off by three months. About 5% of patients have the risk to develop some degree of temporary ptosis (Kanski's, 2006).

Surgery aims to preserve or restore vision and straighten the eyes to achieve binocular vision. This is achieved by changing the position or length of the extraocular muscles around the eye so that the eyes appear straight. After surgery, vision therapy is also suggested to improve eye coordination and to maintain the alignment of the eyes. Strabismic surgery improves a patient's physical appearance and can also be used to reduce an abnormal head posture (Kanski's, 2006).

Early diagnosis and treatment of strabismus may have a positive impact on a child's future quality of life (Cumurcu *et al.*, 2011). If strabismus is not treated in a timely manner in children, in addition to cosmetic consequences, it may have a dramatic impact on their learning and educational ability and impair their functional and psychological performance (Jackson *et al.* 2006). In some cases, where visual function can't be improved, correcting an 'abnormal' facial profile still benefits the patient's psychosocial profile (Olitsky *et al.*, 1999).

2.8 CONCLUSION

Little has been written about strabismus, one general eye conditions, in school children in South Africa. This may be due to inadequate and ineffective screening programs currently employed by the South African Health and Education Departments. Generally, Grade R teachers are the first contact a child has with the education system. If these teachers are educated to recognise strabismus at an early stage, significant future morbidity can be prevented.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION TO THE RESEARCH METHODOLOGY

Research can be defined as the systematic process of collecting and analysing data to establish facts and new conclusions for a specific purpose (Burns & Grove, 1999). This study aimed to determine the knowledge and attitudes of Grade R teachers towards the psychosocial impact of strabismus among children in Bloemfontein, Free State Province.

This chapter offers an overview of the research design, research setting, research population, an explanation of the sampling technique and the recruitment strategy utilised to select participants for this study. After that, the measurement tool and data analysis are discussed. Lastly, issues of data validity, reliability and ethical considerations are considered before the conclusion.

3.2 RESEARCH PARADIGM

This study used a quantitative research approach. A quantitative research method is a formal, objective and systematic process, as numerical data is used to obtain information regarding certain variables within a study population (Burns & Grove, 1999).

3.3 RESEARCH DESIGN

The research design can be seen as methods and techniques that are chosen by the researcher to be integrated with the different components of the research, logically so that the research problem is adequately addressed (De Vaus, 2001). This study followed a quantitative research approach by applying a descriptive research design. A descriptive research sets out to describe the characteristics or behaviour of the study population (Joubert & Ehrlich, 2014).

Burns & Grove (1999), states that a descriptive research design provides an accurate portrayal of characteristics such as the behaviour, opinions, abilities, beliefs and knowledge of individuals, situations or groups. That is why a descriptive design is relevant to this study, as it will provide an accurate depiction of the knowledge, attitudes and behaviours of Grade R teachers towards children with strabismus.

3.4 RESEARCH SETTING

This study was conducted at public primary schools in Bloemfontein, Free State Province, South Africa.

3.5 RESEARCH POPULATION

A population is defined as the people or inhabitants of a country or a region (Burns & Grove, 1999). A study population is a group of individuals who have and share specific characteristics within an area (De Vos *et al.*, 2011).

The study population consisted of Grade R teachers in Bloemfontein public primary schools.

3.6 RESEARCH SAMPLE

According to De Vos *et al.* (2014), a sample is a portion of a population considered to be representative of that population. The method in which this portion is selected is called sample selection or sampling.

3.6.1 Sample selection

Participants were selected using stratified systematic sampling. In systematic sampling, participants from a sample population are selected according to a random starting point but with a fixed, periodic interval (Joubert & Ehrlich, 2014). A strata is a subsection of a population with unique characteristics and should be large enough to obtain reliable results (Joubert & Ehrlich, 2014).

In Bloemfontein, there are 71 primary schools with Grade R classes (cf. Appendix A & Table 3.1). These schools were grouped according to the quintile classification, ranging from quintiles one to five (Q1 – Q5). This classification groups schools according to the wealth of the communities surrounding them; quintile one being the poorest community and five being the wealthiest community. The researcher compiled this list from the website of the Free State Department of Education (Department of Education, Free State Province, 2018). Quintiles one, two and three schools are no-fee paying schools, while quintiles four and five schools are fee-paying schools (Veriava, 2017).

Table 3.1: Number of public-sector primary schools with Grade R classes, in Bloemfontein, grouped according to the quintile (Q) classification

Quintile Group Classification	Q1	Q2	Q3	Q4	Q5	TOTAL
Number of schools per group	11	4	33	6	17	71

In this study, every fifth school from each quintile group (Appendix A and Table 3.1) was selected to participate. Although the sample of the selected schools was small, the wealth distribution, according to the quintile classification was still similar when compared to the broader study population (see percentages in brackets in Table 3.2). If this were not the case, there would have been a risk for participation bias occurring, for example, including only wealthier schools from the study population. Furthermore, this infers that the sample selection was representative of the study population.

Table 3.2: Comparison of the number of schools per quintile group vs the number of schools selected in each quintile group for participation in this study

Quintile Group Classification	Study Population Numbers of schools per group	Sample Number of schools per group
Q1	11 (15.49%)	2 (15.38%)
Q2	4 (5.63%)	1 (7.69%)
Q3	33 (46.48%)	6 (46.15%)
Q4	6 (8.45%)	1 (7.69%)
Q5	17 (23.94%)	3 (23.08%)
TOTAL	71	13

3.6.2 Sample size

A group of subjects that was selected from a general target population and were considered to be representative of the true population for the specific study is known as the sample size (Joubert & Ehrlich, 2014).

The learner-educator ratio (LER) for public-sector primary schools was used to select the number of Grade R teachers to participate in the study. The primary school LER is the number of learners enrolled in the primary school divided by the number of primary school teachers, regardless of their teaching assignment (Department of Basic Education, Republic of South Africa, 2017). The number of Grade R learners per school was obtained from the website of the Free State Department of Education (Department of Education, Free State Province, 2018). The Department of Basic Education (2017) stated that the national average learner-educator ratio (LER), for public-sector schools, is one teacher for every 31.3 (≈ 31) learners.

According to the learner-educator ratio, it was estimated that 34 Grade R teachers would participate in the study (cf. Table 3.3). All of the teachers in the selected primary schools with Grade R classes were invited to participate in this research study.

Table 3.3: Estimate number of Grade R teachers to participate in this study according to the learner-educator ratio (LER) for public-sector primary schools

Primary School	Quintile Group	Number of Grade R learners in school	Estimated number of Grade R teachers per school
1	Q1	33	1
2	Q1	4	1
3	Q2	151	5
4	Q3	89	3
5	Q3	73	2
6	Q3	64	2
7	Q3	89	3
8	Q3	53	2
9	Q3	49	2
10	Q4	138	5
11	Q5	105	4
12	Q5	54	2
13	Q5	51	2
TOTAL:			34

3.6.3 Sample criteria

The subjects in the sample were selected to meet specific criteria.

3.6.3.1 Inclusion criteria

The participants needed to fulfil the following criteria to be included in the study:

- Participant should be teaching in a Bloemfontein public-sector school.
- Participant should be teaching at a primary school.
- Participant should be teaching a Grade R class.
- Participant should be willing to participate in the research.

3.6.3.2 Exclusion criteria

The following exclusion criteria were used in the study:

- Participant not teaching in a Bloemfontein public-sector school.
- Participant not teaching at a primary school, e.g. teaching at a crèche.

- Participant not teaching a Grade R class.
- Participant not willing to participate in the research.

3.7 DATA COLLECTION

3.7.1 Data collection instrument

A questionnaire was chosen as data collection instrument. A questionnaire is a printed self-report form designed to gather information that can be obtained through the written response of subjects (Burns & Grove, 1993). A questionnaire consists of a series of both open and closed questions for the collection of data. This method of data collection was chosen as it is an effective means of measuring the behaviour, attitude, preference, opinion and intentions of the participants (Mc Leod, 2018).

A questionnaire was used for the collection of data for describing a population too large to observe directly (Mouton, 1996). The questionnaire obtains information from the sample of people by means of answering a series of questions posed by the researcher (Polit & Hungler, 1993).

Using a questionnaire offered several advantages for this study (Mc Leod, 2018):

- A questionnaire is an effective method for measuring the behaviour, attitude, preference, opinions and intentions of the participants.
- A questionnaire requires less time to administer and is a cost-effective method of obtaining research data.
- A questionnaire can be completed anonymously, as the participant's names were not required to complete the study.
- Carefully formulated questions attempt to prevent any form of bias from occurring.

Using a questionnaire may also have disadvantages. Respondents might lie due to social desirability (Mc Leod, 2018), and therefore, influencing the validity and accuracy of the research data (Burns & Grove, 1993). Also, respondents might not reflect their true opinions, causing valuable information to be lost as answers are usually brief (Burns & Grove, 1993).

In this study, the questionnaire comprised of 30 questions, including mostly closed-ended questions and a few open-ended questions. In the open-ended questions, the subjects had an option to respond in writing, whereas closed-ended questions had options which were chosen by the researcher (Burns & Grove, 1993). Open-ended questions allow participants to provide more diverse detail, such as information about their attitudes, opinions and overall understanding of the subject (Burns & Grove, 1993).

Closed-ended questions are easier to administer due to only allowing responses which fit into pre-decided categories (McLeod, 2018). They are more time-efficient, as a respondent would be able to complete more close-ended questions than open-ended questions in a given period of time (Polit & Hungler, 1993). Closed-ended questions allow the researcher to target mainly factual information.

The questionnaire was designed in English, Afrikaans and Sesotho (cf. Appendix B), allowing participants to complete the questionnaire in their language of preference.

The researcher designed the questionnaire based on the Knowledge, Attitudes and Practices (KAP) study model. The KAP model is a representative study of a specific population, from which information is collected about what is known ("knowledge"), believed ("attitudes") and done ("practices") about a particular topic (WHO, 2008).

In this study, the researcher focused on the *knowledge*- and *attitude*-aspects of the KAP model. These principles were used to structure appropriate questions related to the study's objectives. The *knowledge*-aspect of the KAP model refers to the participant's understanding of strabismus, including the etiology, clinical presentation, and available treatment modalities. The *attitudes*-aspect of the KAP model refers to the participant's feelings towards a child with strabismus. This also includes any prejudiced ideas towards a child with strabismus.

The questionnaire consisted of three sections:

- A. Demographic information of the participants.
- B. Awareness of general eye problems, knowledge of strabismus and the educational barriers a Grade R child with strabismus may experience.
- C. Attitudes and stigma towards strabismus, including any social barriers that a Grade R child with strabismus may experience.

Section A included the following demographic information of the participants: gender, age, qualification level, teaching experience, school quintile classification and language of teaching. Demographics are statistical data collected about characteristics of a specific sample (Joubert & Ehrlich, 2014). This information could assist the researcher when interpreting the results.

Section B focused on determining the participant's awareness of general eye problems, their knowledge of strabismus and the educational barriers that a Grade R child with strabismus may experience.

Although this study focuses on strabismus, questions regarding the participant's awareness about general eye conditions were also included. The aim of any childhood vision screening program should be to identify any cause of childhood blindness. A teacher should not only be vigilant to identify strabismus only, but they should also be capable of diagnosing general eye conditions. Closed-ended questions were included relating to the clinical presentation of refractive errors and allergic eye conditions. For example, they were asked if they have noticed a child walking closer to the activity board to look at something, and if they have noticed a child holding a picture book very close to their face. Also, they were asked if they have seen children with tearing of the eyes and frequently rubbing their eyes.

The knowledge-aspect of the questionnaire referred to the participant's understanding of strabismus. A photograph of a child with prominent strabismus was given to the participants (cf. Figure 3.1). They were asked if something was wrong with the child or not. This assessed if the participants would be able to recognise a child with strabismus or not. Thereafter, a list of eight personality characteristics were given to the participants. This included: intelligent, healthy, trustworthy, a hard worker, happy, cute, hesitant to work hard, and aggressive. From this list, they had to choose the characteristics that best described the photograph of the child in Figure 3.1. Uretmen *et al.* (2003) used similar questions to determine the knowledge and perceptions of elementary school teachers about the personal characteristics of a child with strabismus based on a photograph.



Figure 3.1: Child with an esotropic deviation of the right eye (9ja Wife, 2012)

The next three questions related to the treatment of strabismus and referred back to Figure 3.1. The participants were asked whether they would refer the child in photograph to a healthcare professional. If they marked yes for referral, a list of healthcare professionals were given to them from which they could choose to whom they would refer. Thereafter, they had to select the best treatment modalities for the child in the photograph. The knowledge assessment of strabismus ended with questions about the epidemiology and etiology of the disease.

The next list of questions in Section B assessed the educational barriers that a Grade R child with strabismus may experience. Educational barriers refer to things that may prevent a child to reach the minimum education standards.

The department of education in South Africa uses the National Curriculum and Assessment Policy Statement (CAPS) to guide education standards. This is a policy document for all subjects listed in the National Curriculum for learning and teaching Grades R to Grade 12 students (Department of Basic Education Republic of South Africa, 2018). At a Grade R level, the CAPS milestones are language, mathematics and life skills. The participants had to indicate whether a child with strabismus would need special attention in class or not. In addition, they were asked if they thought a child with strabismus would have learning difficulties in either language, mathematics or life skills.

In the next question, the participants had to indicate whether they thought a child with strabismus would see a blurred image or normal image when looking at an activity book. Figure 3.2 was given as an example of blurred image of a phrase in an activity book.

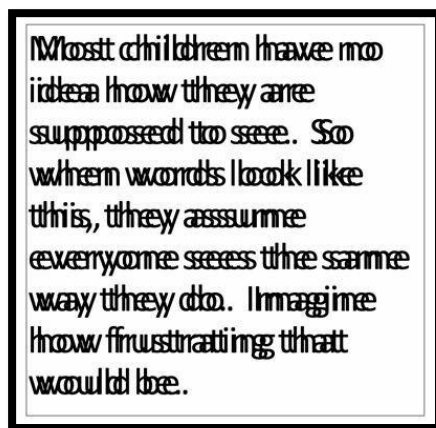


Figure 3.2: A blurred image of a phrase in an activity book (College of Optometrist in Vision Development, 2012)

The last question in Section B assessed whether the participants knew if a child with a strabismus would be able to watch a 3D movie at the cinema or not. This tested if they knew about the negative effects of strabismus on stereopsis and depth perception.

Section C included questions about the participant's attitudes towards strabismus and stigma of strabismus. The questions aimed to identify any social barriers that a child with strabismus may experience.

The following statements, involving social experiences that a child with strabismus may have had, were presented in the questionnaire:

- Strabismus is cosmetically unacceptable and embarrassing to the public opinion.
- A child with a squint eye will not succeed, be capable of doing the task or having the same learning capabilities in a classroom as a child without a squint.
- A child with a squint eye can be a class representative.
- A child with a squint eye is less likely to be invited to a birthday party by his or her peers.
- A child with a squint eye will struggle to make friends with their peers.
- A child with a squint eye is teased and bullied by their peers because of their funny looking eyes.

The participants were asked to rate their perceptions of these statements according to a five-point Likert scale: one – strongly agree; two – strongly disagree; three – neutral; four – moderately agree; and five – disagree. A Likert scale is an ordered scale from which respondents choose one opinion that best aligns with their view (Likert, 1932). In a follow-

up question, the participants had to indicate whether they would assign duties to a child with strabismus during a cultural activity in their school. Uretmen *et al.* (2003) included similar questions to assess prejudiced opinions during task delegating about children with strabismus and those without.

In the next question, participants had to identify the psychological effects that a child with strabismus may present with. The list included a low self-esteem, depression, social anxiety and anger. In the last question of the questionnaire, the participants had to select reasons why a child with strabismus or poor vision won't want to wear spectacles. This included cost related factors, being cosmetically unacceptable and the opinion that spectacles won't be able to cause normalization of the eyes.

3.7.2 Pilot study

A pilot study refers to a trial administration of an instrument to identify flaws. When a questionnaire is used as a data gathering instrument, it is necessary to determine whether questions and directions are clear to subjects and whether they understand what is required from them (Polit & Hungler, 1995).

A pilot study was done on one teacher after ethical approval from the Health Sciences and Research Committee. Approval was also granted from the Department of Education in the Free State. The pilot study tested the data collection tool and capturing procedure used in this study. The data obtained from the pilot study was included in the formal research collection because there were no changes in the methodology.

3.7.3 Data collection procedure

After permission was obtained from the school principals, a specific time was scheduled with the participating school for the researcher to deliver the self-administered questionnaire personally to the potential participants.

The researcher informed each potential participant about the study and handed each one an information document (cf. Appendix C). Those who wanted to participate in the study had to sign a consent form (cf. Appendix D).

After signing the consent form, a questionnaire was given to the participant to complete. An instruction guideline was included in the questionnaire to guide participants when answering questions. The participants were assured that the questionnaire could be completed in 15 minutes. The researcher did not complete any questionnaire on behalf of a participant. The questionnaires were collected by the researcher on the same day of completion.

3.8 DATA ANALYSIS

Data analysis is a process that allows the researcher to give meaning to the collected data (Fisher & Marshall, 2009) by applying statistical techniques to describe, illustrate and evaluate data (Burns & Grove, 1993).

After the questionnaires were collected, each participant was assigned a study number. This number served as the only identifier for the data collected from each participant. Before any data analysis could be performed, the researcher captured the data twice on different MS-Excel spreadsheets on a laptop computer. This is known as a double-entry accuracy check, where the spreadsheets were compared to pick up any data entry errors and missing values.

The data collected by means of the questionnaire was analysed with the assistance of a Biostatistician from the Department of Biostatistics, Faculty of Health Sciences, at the University of the Free State. The biostatistician used Statistical Software Analysis version 9.1 to do the data analysis. Descriptive statistics namely means and standard deviations were calculated for the numerical data. The numerical data was parametric. Frequencies and percentages were calculated for the categorical data.

3.9 QUALITY OF THE RESEARCH

In order to produce high quality research, the validity and reliability of the data needs to be ensured.

3.9.1 Validity

Validity refers to how truthful the research results are with regards to the measuring instrument (Golafshani, 2003) and if the questionnaire measured what it intended to (Polit

& Hungler, 1993). Content validity is the extent to which the elements within a measurement procedure are *relevant* and *representative* of the construct that they will be used to measure (Haynes *et al.*, 1995).

Prior to designing the questionnaire, an in-depth literature review was performed, focusing on previous studies with similar objectives as the current study. The construct that the questionnaire intended to measure was the knowledge and attitudes of Grade R teachers of the psychosocial impact of strabismus. To ensure that the content of the questionnaire remained relevant, every question was designed based on the study's objectives as well as information obtained from the literature review.

The researcher included mostly closed-ended questions, thereby targeting factual information obtained from previous studies. But, some questions included an option of a written response. By including the option of an open-ended response, the participants could voice their own opinions related to their experiences of children with strabismus. This approach was followed to make sure that the questionnaire remained representative of the knowledge and attitudes of the teachers taking part in this study.

The pilot study also tested the validity of the content in the questionnaire. The participant who completed the pilot study had the opportunity to comment on the content of the questionnaire. No changes were made to the questionnaire after the pilot study. This infers that the questions used were relevant and representative of the situations that a Grade R teacher might experience when working with a child with strabismus.

3.9.2 Reliability

Reliability refers to consistency, stability and repeatability of results in a quantitative research study. For example, the results of a study are considered to be reliable if consistent results have been obtained in identical situations but different circumstances. (Twycross & Shields, 2004).

In order to ensure reliability of the data, a consistent approach was followed while overseeing the completion of the questionnaires by the participants. The researcher was present on every occasion, and was able to help with any queries from the participants. If there were more than one participant at a time, they were not allowed to discuss the contents of the questionnaire. The researcher was available to help them clarify any misunderstandings if there were any.

Reliability measures were also tested by the pilot study. For example, the time taken by the participant to complete the study (15 min) was used as a guideline to inform others before starting the questionnaire.

3.10 ETHICAL CONSIDERATIONS

Ethical considerations aim to protect the individual's physical and mental integrity, to respect their moral and cultural values, religious and philosophical convictions and other fundamental rights including respect to privacy (Bastien *et al.*, 2011).

Ethical aspects concerning this study related to obtaining approval from the relevant authorities, informed consent from the participants, and maintaining participant confidentiality.

3.10.1 Approval

Ethical approval for conducting this study was granted by the University of the Free State Health Sciences Research Ethical Committee (HSREC) (UFS-HSD2017/0966 – cf. Appendix E).

An application was submitted to the Department of Education in the Free State to conduct the study in the selected schools (cf. Appendix F). Written permission was provided from the Department of Education in the Free State (cf. Appendix G). Permission was also obtained from the school principals to allow their teachers to participate in the study (cf. Appendix H). Emphasis was placed on ensuring that completion of the questionnaires would take place during convenient times that would not disrupt activities.

3.10.2 Informed consent

Burns and Grove (1993) define informed consent as the prospective subject's agreement to participate voluntarily in a study, which is reached after assimilation of essential information about the study.

Each participant signed an informed consent document (cf. Appendix C) before completing the questionnaire. The document was written in a simple and clear language and clearly articulated the purpose and objectives of the study. In addition to this, the consent form

made provision for full participation and opting out from the study at any time without penalty. Participants were made aware that they did not have to disclose any confidential information, that there were no potential risk or costs involved, and that they will not be compensated for their participation in this study. The contact information of the researcher was provided in order to assist with any further questions or complaints.

3.10.3 Confidentiality

The participant's privacy was protected by ensuring confidentiality. No names or personal identification appeared on any data sheet that was sent for statistical analysis. All information was managed in a strictly professional and confidential manner.

Confidentiality is when the information the participant provide is not publicly reported in a way which identifies them (Polit & Hungler, 1995). The confidentiality in this study was maintained by keeping the collected data confidential and not revealing the subjects identities when reporting or publishing the study (Burns & Grove 1993) No identifying information was entered onto the questionnaire and the questionnaires were only numbered after data was collected (Polit & Hungler 1995)

3.11 CONCLUSION

This chapter outlined how the research was conducted, illustrating the research design, the process used to select the participants, the method used to collect data as well as the approach that was used in analysing the data. The strategies used to maintain ethical standards were discussed as well as the approaches used to assure the data's validity and reliability.

The next chapter presents the results of the data analysis.

CHAPTER 4

RESULTS

4.1 INTRODUCTION TO THE RESULTS

This chapter presents the results of the questionnaire that was conducted to determine the knowledge and attitudes of Grade R teachers regarding the psychosocial impact of strabismus on school children in Bloemfontein.

The chapter starts with a presentation of the demographic information of the sample population. This is followed by the participants' awareness of general eye problems, their knowledge of strabismus and the educational barriers associated with strabismus. Lastly, the participants' attitudes towards strabismus and the psychosocial effects of strabismus will be presented.

Categorical data is presented using frequencies and percentages, whereas the numerical data is presented by calculated means, medians, standard deviations and percentiles. Various tables are included to provide a breakdown of the analysed data.

4.2 DEMOGRAPHIC INFORMATION

4.2.1 Gender and age

Thirty-one Grade R teachers (n=31) completed the questionnaire. Only females participated in this study, with an age distribution ranging between 24 and 62 years (Table 4.1). The mean age of the participants was 41.82 (± 10.03) years. Most of the participants (22.58%) were in the age group of 45-49 years, followed by participants in the age-group of 30-34 years old. Three participants did not list their ages in the questionnaire.

Table 4.1: Age distribution of the participants (n=31)

Age group	Number of participants	Percentage (%)
20-24 years	1	3.23%
25-29 years	1	3.23%
30-34 years	6	19.35%
35-39 years	5	16.13%
40-44 years	3	9.68%
45-49 years	7	22.58%
50-54 years	1	3.23%

Age group	Number of participants	Percentage (%)
55-59 years	2	6.45%
60-64 years	2	6.45%
No responses	3	9.68%

4.2.2 Level of education

The highest qualification achieved by the participants was an M.Ed. degree and the lowest was an entry-level National Qualification Framework (NQF) Level 4. The majority of the participants (48.39%) had a National Professional Diploma in Education (NPDE) (cf. Table 4.2). Two participants did not complete their highest qualification in the questionnaire.

Table 4.2: Educational level of the participants (n=31)

Qualification	Number of participants	Percentage (%)
M.Ed. Degree (Research and course based)	1	3.23%
B.Ed. Honours Degree	4	12.90%
B.Ed. Degree	3	9.68%
B.Ed. Psych (Educational Psychology)	1	3.23%
PGCE (Postgraduate Certificate in Education former known as HED)	2	6.45%
NPDE (National Professional Diploma in Education)	15	48.39%
ECD (Early Childhood Education)	1	3.23%
B.Com Degree	1	3.23%
NQF Level 4 (National Qualifications Framework)	1	3.23%
No responses	2	6.45%

4.2.3 School quintile classification

In Figure 4.1, the participating schools are grouped according to the quintile (Q) classification. The results were as follows: three schools (9.68%) from quintile one, five schools (16.13%) from quintile two, five schools (16.13%) from quintile three, three schools (9.68%) from quintile four, and five schools (48.39%) from quintile five.

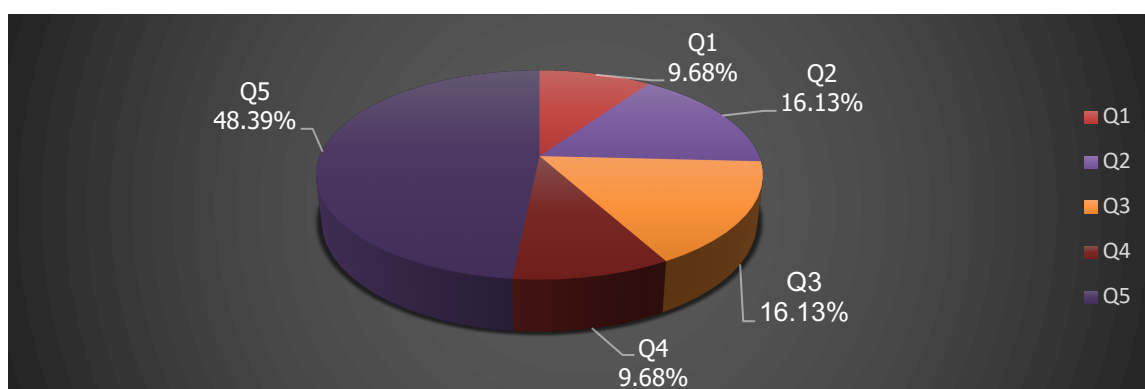


Figure 4.1: Participating schools (%) grouped according to the quintile (Q) classification (n = 31)

There were three participants (9.68%) from quintile one schools, five participants (16.13%) from quintile two schools, five participants (16.13%) from quintile three schools, three participants (9.68%) from quintile four schools, and fifteen participants (48.39%) from quintile five schools.

4.2.4 Teaching experience

The participants teaching experience ranged from one month (minimum) to 31 years (maximum) with a median duration of nine years (cf. Figure 4.2). The lower quartile value was six years, and the upper quartile value was 15.5 years.

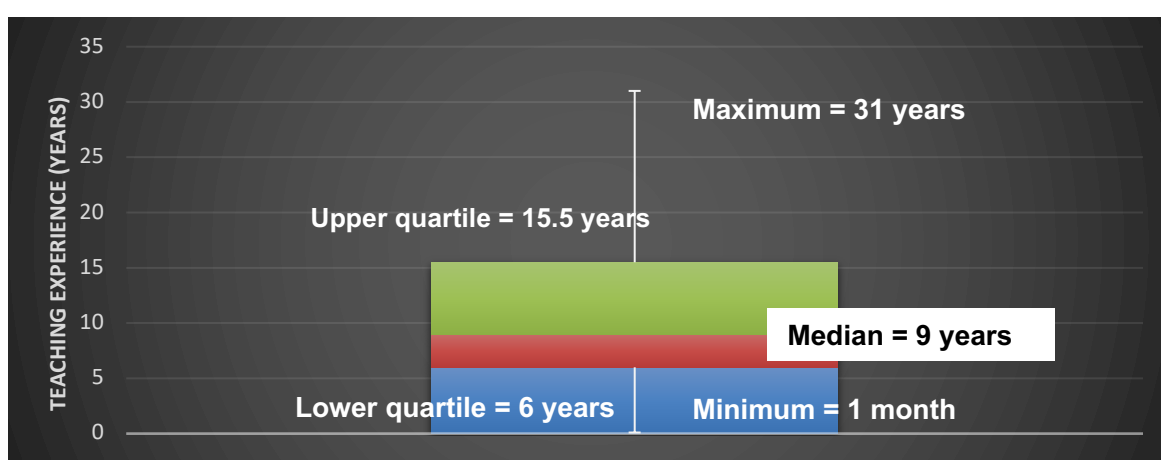


Figure 4.2: Educational level of the participants

4.2.5 Preferred language of teaching

Figure 4.3 illustrates the preferred teaching languages of the participants. The three most used languages were English (32.26%), followed by Sesotho (25.81%) and Afrikaans (22.58%). Two of the participants used two languages when teaching. One of them used Afrikaans and English and the other one used English and isiXhosa.

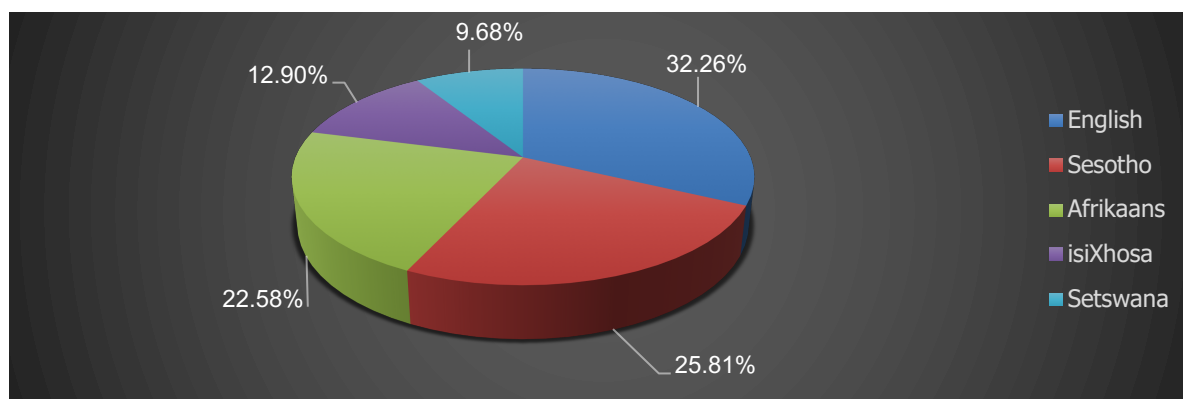


Figure 4.3: Language of teaching (%) (n=31)

4.3 AWARENESS OF GENERAL EYE PROBLEMS

Most of the participants (61.29%) had previously noticed eye problems, and 32.26% had not yet observed eye problems in their classes (cf. Table 4.3).

Table 4.3: The ability of the participants to recognise eye problems (n = 31)

Question	Number of responses		
	Yes	No	No responses
Have you noticed any child in your class with eye problems?	19 (61.29%)	10 (32.26%)	2 (6.45%)

Table 4.4 illustrates the different types of eye problems that have been identified by the 19 teachers in Table 4.3. The most frequently observed eye problems were strabismus, holding a picture book very close to the face, squinting of the eyes and tearing of the eyes. A few participants observed red or brown discolouration of the eyes, closing one eye when reading or looking at things, and problems with visual perceptual skills

Table 4.4: Eye problems recognised in Grade R classrooms. (Participants could select more than one eye problem)

Eye problems	Number of responses
Walking closer to the activity board to look at something	4 (21.05%)
Holding a picture book very close to the face	5 (26.32%)
Squinting of the eyes	5 (26.32%)
Tilting of the head	4 (21.05%)
Closing one eye when reading or looking at things	1 (5.26%)
One eye turning in or out (strabismus)	6 (31.58%)
Sensitivity to light	4 (21.05%)
Difficulty with eye-hand-body coordination when playing with a ball	4 (21.05%)
Avoid colouring activities, puzzles or other detailed activities	0
Red or brown discolouration of the eyes	2 (10.53%)
Frequent rubbing of the eyes	4 (21.05%)
Tearing of the eyes	5 (26.32%)
Other, for example, visual perceptual skills	1 (5.26%)

4.4 KNOWLEDGE OF STRABISMUS

The participants' knowledge of strabismus refers to their understanding of the disease. They were asked questions related to the epidemiology, aetiology, diagnosis and treatment options of strabismus.

4.4.1 Identification of strabismus by Grade R teachers

A photograph of a child with prominent strabismus was given to the participants (Figure 3.1, p. 51). They had to recognise that something was wrong with the child, i.e. the presence of strabismus. Table 4.5 summarises their responses. The majority of the participants (87.10%) identified that something was wrong with the child with strabismus, as depicted in the photograph.

Table 4.5: The participant's ability to recognise a child with strabismus (n=31)

Question	Number of responses			
	Yes	No	Don't know	No response
When you look at the child in Picture A (Figure 3.1, p. 51), would you say something is wrong with her?	27 (87.10%)	1 (3.23%)	2 (6.45%)	1 (3.23%)

4.4.2 Knowledge of the Grade R teachers about the referral of a child with strabismus

Ninety percent of the participants responded that they would recommend the parent of the child with strabismus to see a Health Care Professional (cf. Table 4.6).

Table 4.6: The participant's ability to refer a child with strabismus for diagnosis (n=31)

Question	Number of responses		
	Yes	No	Don't know
Would you recommend the parents of the child in Picture A (Figure 3.2) to see a Health Care Professional?	28 (90.32%)	3 (9.68%)	0

Table 4.7 illustrates the different referral options selected by these participants. Of those who recommended the parents to see a Healthcare professional, most of them would refer the child to an Ophthalmologist or Optometrist. One of the participants suggested referring the child to see a Psychologist or a Paediatrician. Seven participants selected more than one referral option. Three of the participants selected three options, namely a doctor, an ophthalmologist and an optometrist. Four participants selected two options, namely an ophthalmologists and an optometrist.

Table 4.7: Recommended Healthcare Professional to diagnose or treat a child with strabismus. (The participants could select more than one option for treatment)

Healthcare Professional	Number of responses*
A child with strabismus does not need any help with their eyes	0
Doctor or other medical workers	3 (10.71%)
Social worker	0
Psychologist	1 (3.57%)
Ophthalmologist (Eye specialist)	20 (71.43%)
Optometrist (Does an eye examination and prescribe spectacles)	13 (46.43%)
Other, for example, Psychologist or Paediatrician	1 (3.57%)

* Number of responses from the 28 participants listed in Table 4.6.

4.4.3 Treatment of strabismus

Table 4.8 lists the recommended treatment modalities for strabismus identified by the participants. Spectacle correction was identified as the main treatment modality for strabismus by most participants. The other common treatment options selected were surgery (41.94%) and eye exercises (38.71%). Less common options chosen by the participants were to cover one eye (9.68%), special visual aids (9.68%), and to increase the font size of an activity book (3.23%). One participant responded that there is no cure or treatment for strabismus (Table 4.8). Sixteen participants selected more than one option. The most common selected combination was spectacle correction, surgery and eye exercises.

Table 4.8: Recommended treatment for a child with strabismus. (Participants chose more than one mode of treatment)

Treatment methods	Number of responses
I do not think there is any cure or treatment for this child's eye problem	1 (3.23%)
Spectacle correction (Eyeglasses)	21 (67.74%)
Contact lens	0
Medicine	0
Eye drop	0
Surgery	13 (41.94%)
Eye exercise	12 (38.71%)
To cover or to close one eye	3 (9.68%)
Need for a particular visual aid, for example, a magnifier	3 (9.68%)
Increased font size on an activity book	1 (3.23%)
Other, specify	0

4.4.4 Aetiology and occurrence of strabismus

Most of the responses (90.32%) listed genetic inheritance as the cause of strabismus (cf. Table 4.9). The majority of the participants (74.19%) indicated that anybody could have

strabismus (cf. Table 4.10). Seven participants selected both genetic inheritance and pregnancy-related causes as the aetiology of strabismus.

Table 4.9: Aetiology of strabismus. (Participants chose more than one cause of strabismus)

Causes of strabismus	Number of responses
Exposure to bright light	2 (6.45%)
Trauma	3 (9.68%)
Hereditary (Born with)	28 (90.32%)
Diet	0
Pregnancy-related	8 (25.81%)
Eye diseases	5 (16.13%)
Other, for example, injury during birth or eye muscles needing more exercise	2 (6.45%)

Table 4.10: Occurrence of strabismus (n=31)

Question	Number of responses		
	Yes	No	Don't know
Can anybody get a squint eye?	23 (74.19%)	5 (16.13%)	3 (9.68%)

4.5 EDUCATIONAL BARRIERS OF STRABISMUS

4.5.1 Learning difficulties with strabismus

The results indicated that twenty (64.52%) of the participants responded that a child with strabismus would have learning difficulties at a pre-primary level (cf. Table 4.11). Most of these participants (16 out of 20 – 80%) indicated that a child with strabismus would struggle the most with mathematics. Thirteen participants (41.94%) selected more than one option, from which twelve of these selected all three subject choices, i.e. languages, mathematics and life skills.

Table 4.11: Learning difficulties that a child with strabismus would experience

Question	Number of responses n=31		
	Yes	No	Don't know
Will a child with a squint eye have any difficulty in learning?	20 (64.52%)	9 (29.03%)	2 (6.45%)
Question	Number of responses* (more than one response allowed per participant)		
	Language	Mathematics	Life Skills
In which areas would a child with a squint eye have difficulties learning at a pre-primary level?	14 (70%)	16 (80%)	13 (65%)

* Number of responses related to the 20 participants that responded a child with strabismus will have learning difficulties.

4.5.2 Special attention given for learning difficulties with strabismus

Most of the participants (80.65%) opted to give special classroom attention to children with strabismus (Table 4.12). Fourteen of the participants indicated that they would give special attention in all three of the listed subject choices, i.e. languages, mathematics and life skills.

Table 4.12: Learning difficulties that the participant would give special attention

Question	Number of responses (n=31)		
	Yes	No	Don't know
Would you as a Grade R teacher pay any special attention when teaching a child with a squint eye?	25 (80.65%)	6 (19.35%)	0
Question	Number of responses (more than one option could be chosen)		
	Language	Mathematics	Life Skills
In which areas of learning would you pay special attention to when teaching a child with a squint eye?	17	18	17

4.5.3 Other effects of strabismus on educational and social activities

An equal number of participants (35.48%) thought that the child with strabismus would see the picture (Figure 3.1, p. 52) as either blurry or as normal. Twenty-six percent (25.81%) of the participants did not know what a child with strabismus would perceive (cf. Table 4.13).

Thirty-two percent (32.26%) of the participants responded that a child with strabismus would be able to watch a 3D movie at the cinema, 25.81% of the participants indicated that a child with strabismus would not be able to watch a 3D movie and 38.71% did not know whether the child would be able to perceive 3D (cf. Table 4.13).

Table 4.13: Other effects strabismus has on educational and social activities

Question	Number of responses			
	Yes	No	Don't know	No response
Does a child with strabismus experience their activity book as blurry, referring to picture B (cf. Figure 3.1, p. 52)?	11 (35.48%)	11 (35.48%)	8 (25.81%)	1 (3.23%)
Question	Number of responses			
	Yes	No	Don't know	No response
Would a child with strabismus be able to watch a 3D Movie at the cinema?	10 (32.26%)	8 (25.81%)	12 (38.71%)	1 (3.23%)

4.6 ATTITUDES AND STIGMAS TOWARDS STRABISMUS

The participants addressed a combination of positive and negative statements relating to their attitudes and perceptions of stigmas towards a Grade R child with strabismus (cf. Figure 4.4).

The first statement about strabismus being cosmetically unacceptable and embarrassing in the public opinion, generated more negative responses (disagree & strongly disagree) indicating a more positive attitude towards strabismus. More than half of the participants (51.61%) felt that strabismus is cosmetically acceptable and not embarrassing in the public opinion. Thirteen out of thirty-one participants (41.94%) believed that strabismus is cosmetically unacceptable and embarrassing.

A large proportion, specifically 22 out of 31 (70.97%), of the participants disagreed with the statement that a child with strabismus would not succeed, be capable of having the same learning capabilities in a class as a child with normal vision. The majority of participants, specifically 26 out of 31 (83.87%), believed that a child with strabismus could be a class representative.

According to the responses, 19 out of the 31 (61.29%) participants disagreed with the opinion that a child with strabismus would struggle to make friends with their peers. Also, 25 out of the 31 (80.65%) participants disagreed with the statement that child with strabismus will less likely be invited to a birthday party by their peers. In contradiction with the previous statements, 20 out of 31 (64.52%) participants responded that a child with strabismus was teased and bullied by their peers, because of the funny looking eyes.

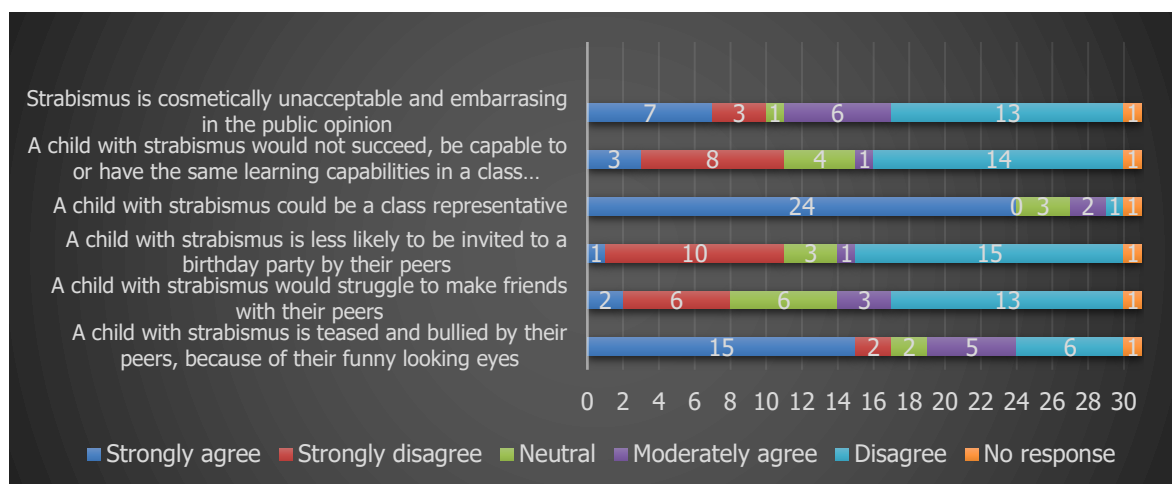


Figure 4.4: Attitudes and stigmas towards strabismus

Table 4.14: Attitudes towards assigning a task to a child with strabismus during a cultural activity (n=31)

Question	Number of responses			
	Yes	No	Don't know	No response
Would the teacher assign a task to a child with strabismus during a cultural activity in their school?	27 (87.10%)	2 (6.64%)	0	2 (6.64%)

Most participants (87.10%) felt that they would assign a duty to a child with strabismus during a cultural activity in their school.

4.7 Psychological effects of strabismus

The participants were asked to select the relevant personal traits of a child with strabismus depicted in a photograph in the questionnaire (Figure 3.1, p. 51). The participants could choose more than one of the traits listed in Table 4.15.

The majority of the participants (87.09%) described the child in the photograph with positive traits only. Eleven participants chose more than one positive trait. The most positive traits were '*happy*', followed by '*cute*', then '*healthy*' and '*intelligent*'. Some of the participants indicated that the child with strabismus was a '*hard worker*' and '*trustworthy*'. A few of the participants selected negative traits, such as '*hesitant to work hard*' and '*aggressive*'. There were two participants that selected both positive and negative traits. One participant chose all of the eight qualities, and the other one chose *cute* and *hesitant to work hard*.

Table 4.15: The participant's responses to the personality traits of a child with strabismus. (The participants could choose more than one option)

Would you say the child in Picture A (Figure 3.1, p.51)	Number of responses
Intelligent	10 (32.26%)
Healthy	13 (41.94%)
Trustworthy	4 (12.90%)
A hard worker	5 (16.13%)
Happy	21 (67.74%)
Cute	14 (45.16%)
Hesitant to work hard	4 (12.90%)
Aggressive	1 (3.23%)

In the next question, participants had to identify the psychological effects associated with strabismus. Their responses are listed in Table 4.16. The majority of the participants

(83.87%) noted that a child with strabismus might experience a low self-esteem. Social anxiety was selected by less than half of the participants (45.16%). Less common options selected included depression (22.58%) and anger (25.81%). Thirteen participants selected more than one option, from which five of these selected all four. The most common 2-option choices were a 'low self-esteem' and 'social anxiety'.

Table 4.16: Psychological effects a child with strabismus might experience. (The participants were allowed to select more than one option)

Question	Number of responses			
	A low self-esteem	Depression	Social anxiety	Anger
A child with a squint eye may experience	26	7	14	8

In the next question, the participants had to identify any psychological barriers causing children not to wear their spectacles. Their responses are listed in Table 4.17. The participants listed cost (38.71%) and the fear of being teased (29.03%) as the common reasons for not wearing spectacles. A few of the participants responded that school children did not wear spectacles as it was cosmetically unacceptable in public and prevented the normalisation of the eyes. Seven (22.58%) of the participants did not know why students with poor vision or strabismus do not wear spectacles. Six participants selected more than one option, with the most commonly chosen options being cost, cosmetic acceptability in the public view and the fear of being teased.

Table 4.17: Psychological barriers associated with spectacle correction. (The participants were allowed to choose more than one answer)

Reasons school children with poor vision or strabismus do not wear spectacles	Number of responses
I don't know	7 (22.58%)
Glasses prevent the normalisation of the eyes	2 (6.45%)
Cosmetically unacceptable and embarrassing in public	3 (9.68%)
Cost	13 (41.94%)
Fear of being teased	9 (29.03%)
Other, for example, unaware that a problem is present, lack of knowledge on where to seek help, spectacles will not improve the problem of poor vision or strabismus	4 (12.90%)

CHAPTER 5

DISCUSSION

5.1 INTRODUCTION TO THE DISCUSSION

The study aimed to investigate the knowledge and attitudes of Grade R school teachers about the psychosocial impact of strabismus among school children. The discussion focuses on the following objectives: the knowledge of Grade R school teachers regarding strabismus, and the social and educational barriers a child with strabismus may experience, and the attitudes and stigma towards strabismus.

The questionnaire was compiled by the researcher for the specific use in this study. The questionnaire is not standardised but customised for this study. All the questions were based on the literature reviewed for this study (Satterfield *et al.*, 1993; Olitsky *et al.*, 1999; Paysse *et al.*, 2001; Uretmen *et al.*, 2003; Mojon-Azzi *et al.*, 2011; Lukman *et al.*, 2011; Schuster *et al.*, 2019).

Although the sample size was small (n=31), the results still provided meaningful insight into the outlook of these teachers towards a child with strabismus. These insights might prompt a positive change in the negative bias towards strabismus.

Thirty-one out of thirty-four of the participants completed the questionnaire, which makes the response rate 91.17%. The results are considered representative of the sample population.

5.2 DEMOGRAPHIC INFORMATION OF THE PARTICIPANTS

The researcher used the LER (Table 3.3, p.47) to estimate the number of teachers in each quintile group that would participate in this study. The estimate was accurate, except for quintiles three and five. The initial estimate from quintile three was fourteen teachers and from quintile five was eight teachers. The actual numbers included five teachers from quintile three and fifteen teachers from quintile five.

The difference between the estimated and actual amount of participants that were part of the study can be explained by the wealth distribution according to the quintile classification.

Quintile five schools, from where the majority of the participants were from, are situated in wealthier communities and can, therefore, have more resources available to appoint more teachers per class. Another explanation for the difference between the estimated and actual amount of participants may be due to teacher absence during data collection or due to declining to participate in the study. This is less likely, as only three teachers of the selected sample population did not complete the questionnaire. Hypothetically, if they completed the questionnaire, there would not have been any statistical significance as participants from quintile five schools would still have formed the majority.

Most of the Grade R teachers preferred to teach in English (32.26%), followed by Sesotho (25.81%) and Afrikaans (22.58%). Two indicated that they teach in more than one language. The one teacher preferred to use English and Afrikaans and the other one preferred English and Xhosa. The results did not compare well with the demographics of the Free State Province, as Sesotho (71.9%) and Afrikaans (10.9%) are the languages spoken by the majority of people (Statistics South Africa, 2011). As mentioned above, most of the participants were from quintile five schools, which are situated in wealthier communities. All of the participants from the quintile five schools preferred to teach in either English or Afrikaans. This explains why the participant's preferential teaching languages differed from the demographics of the Free State Province.

The highest qualification reached by the participants was an M.Ed Degree and the lowest was an entry-level National Qualification Framework (NQF) Level 4. The majority (48.39%) of the participants had a National Professional Diploma in Education (NPDE). The participant's educating experience ranged from 1 month to 31 years.

5.3 OBJECTIVE ONE: THE KNOWLEDGE OF GRADE R SCHOOL TEACHERS REGARDING STRABISMUS

A hereditary cause was listed as the common cause of strabismus by 90.32% of the participants. It is known that genetic factors play an essential role in the aetiology of strabismus (Paul & Hardage, 1994). A large percentage of participants (74.19%) responded that strabismus could happen to any person. Other probable causes listed for strabismus were pregnancy-related factors (25.81%) and eye diseases (16.13%).

The majority of the teachers (90.32%) knew that they had to advise the parents or seek help if they had a child with strabismus in their classroom. Most teachers (71.43%) selected

an Ophthalmologist as the referral health professional. Other professionals for referring the child with strabismus included an optometrist (46.43%), a Doctor, or other medical professionals (10.71%), a Paediatrician (3.57%) and a Psychologist (3.57%). Seven participants responded with more than one referral option. The most common combinations were a doctor, an optometrist and an ophthalmologist. This indicates that the participants may be aware of the normal referral procedure for medical conditions in both the public and private sector. General practitioners are generally seen as the gateway for a referral to specialist ophthalmic services, but optometrists can also fulfil this function. The majority of the participants included optometrists can also directly refer patients to ophthalmologists.

The treatment of strabismus aims to restore vision in the misaligned eye and to straighten the eye for a normal appearance (Kanski's, 2006). The teachers selected spectacles (67.14%) as the main treatment modality, followed by surgery (41.94%) and eye exercises (38.71%). Half of the teachers (51.61%) selected more than one treatment option. The most common combination included spectacle correction, eye surgery and eye exercises.

In summary, the results suggested that the majority of the Grade R teachers had a good understanding of the clinical aspects of strabismus. This might be due to them having previous experience teaching a child with strabismus, after which they had to improve their own knowledge about the disease. This view is supported by the teachers identifying strabismus as the most prevalent eye problem in their Grade R classrooms (31.58%). However, more importantly, they will be able to identify a child with strabismus in their classroom and be able to refer to such a child to the appropriate medical professional. The results also indicate that the teachers are well-informed about the available treatment modalities. The results also demonstrated that they are aware that strabismus is managed by a multi-modal approach, including various medical professionals and different treatment modalities. A large proportion of teachers selected more than one medical professional for referral and also more than one treatment option for strabismus.

Basic knowledge regarding strabismus empowers the teachers to identify strabismus at an earlier stage and facilitate prompt referral to the relevant medical disciplines for treatment.

5.4 OBJECTIVE TWO: TO IDENTIFY ANY SOCIAL AND EDUCATIONAL BARRIERS, A CHILD WITH STRABISMUS MAY EXPERIENCE

The importance of the Grade R year is often unrecognised by most parents. Many parents

think this year only bridges the gap between pre-school and primary school, not realising the critical importance of this phase in a child's life. For many families, who cannot afford pre-schools, the Grade R year serves as a child's introduction to the schooling system and also forms the basis of their social context.

There is a big misconception that Grade R is just about 'playing'. The act of playing is an important tool that forms the basis of many learning experiences. Children process information by using their five senses: seeing, touching, hearing, tasting and smelling. Play is not only important in a child's educational development, but also teaches them vital social skills. Play for a child involves interaction with their peers, learning how to communicate effectively and thereby to express themselves freely. A child who plays enough learns more and develops more in thought and general growth (Arya, 2008). Hence, a child's early learning development depends on both cognitive and social skills. That is why any educational and social barriers that might influence a child with strabismus should be considered together.

5.4.1 Social barriers

Grade R teachers are the ideal role models for children from whom they can learn social skills. That is why the researcher included questions to investigate how Grade R teachers view children with noticeable strabismus. The goal was to determine whether there is a negative social bias against such children. A child viewed differently by their teachers and peers may find it difficult to integrate into social groups.

The teachers had to select personality traits from a list of eight qualities that best described a facial photograph of a child with strabismus (Figure 3.1, p51). The responses were mainly positive, as 27 out of 31 teachers (87.09%) only chose positive traits. Also, eleven teachers selected more than one positive trait. Most of them described the child to be happy, cute, healthy and intelligent. Some teachers indicated that the child would be a hard worker and trustworthy. A few teachers selected negative traits, such as hesitancy to work hard, and some described the child as aggressive. Two teachers selected both positive and negative traits. One of them selected all eight qualities to describe the child, and the other one felt the child appeared cute but will be hesitant to work hard. Irrespective of these two mixed responses, the outcome from this question is still positive. The Grade R teachers in this study did not portray any negative biases towards the child with strabismus in the photograph.

The above-mentioned results contradict the findings of the literature review. Previous studies clearly demonstrate a negative social bias towards strabismus in both adults and children. Olitsky *et al.* (1999) demonstrated that people with strabismus were judged more negatively than 'normal' people, based only on personality characteristics important for social interactions. Uretmen *et al.* (2003) focused on elementary school teachers, who suggested that a child with strabismus would not be easily accepted into social groups. In order to generalize this study's findings, a follow-up study should be conducted that includes a larger sample population with a wider spread through the different school quintiles.

5.4.2 Educational barriers

The results of this study highlighted some conflicting statements made by Grade R teachers. Most of the teachers (64.52%) believed that a child with strabismus would have learning difficulties at a Grade R level, especially with mathematics. However, a large proportion of the teachers (41.93%) felt that a child with strabismus would have difficulties in languages, mathematics and life skills. All three of the subjects depend heavily on visual perceptual skills. Tonge *et al.* (1984), demonstrated that children with strabismus have problems with visual perceptual skills that may lead to educational problems. A nearly similar proportion of the teachers (45.16%) responded that they would give extra classroom attention to all three of these subjects. Uretmen *et al.* (2003) reported similar findings, where elementary school teachers indicated that a child with strabismus would have more difficulty in learning than a 'normal' child. However, in another question about the attitudes of the teachers towards strabismus, 22 out of 31 teachers (70.97%) disagreed with the statement that a child with strabismus would not succeed or be capable of learning as a 'normal' child. This contradicts the results of this study and Uretmen *et al.*'s (2003) findings.

In retrospect, the two questions related to the academic capabilities of a child with strabismus might have caused a response bias. A large proportion of the teachers (64.52%) agreed that a child with strabismus could have learning difficulties. However, in a follow-up question, a similar proportion of teachers (70.97%) disagreed with the statement that a child with strabismus would not be capable of learning like a 'normal' child. Therefore, the second response might have been affected by the first question. This study's results cannot conclusively comment about the teacher's perceptions of the academic capabilities of a child with strabismus.

In a follow-up question, the teachers had to indicate how a child with strabismus views their activity book. An example of an image (Figure 3.1, p. 52) that depicts split vision was presented in the questionnaire. The teachers had to indicate whether a child with strabismus would see a blurred image or not. Uncertainty was clearly evident in the responses: 35.48% indicated that a strabismic child would see a blurred image, and 35.48% indicated that the child would see a normal image, and 25.81% of the participants did not know what the child will experience.

Some, but not all, children with strabismus will experience a split image or blurred image of an activity book. If the strabismus was of early-onset, the brain would automatically suppress the eye so that the child only perceives vision out of the aligned eye. In cases of late-onset strabismus, the child will experience double vision (Griffin & Grisham, 2002).

In a similar question, the teachers did not know if a child with strabismus would be able to watch a 3D movie at the cinema. Uncertainty was also evident in the responses: 35.48% indicated that a child with strabismus would be able to watch the 3D movie, and 25.81% indicated that the child would not be able to watch a 3D movie, and 38.71% did not know whether the child would be able to do so. Strabismus negatively affects stereopsis and depth perception, which is needed for three-dimensional visual perception.

To summarize, although the majority of the teachers could correctly identify a child with strabismus, most of them still struggle to conceptualise how a child with strabismus experiences the “outside world”. This uncertainty can influence their approach to teaching a child with strabismus, and ultimately hinder the child’s educational development.

5.5 OBJECTIVE THREE: THE ATTITUDES OF GRADE R SCHOOL TEACHERS TOWARDS STRABISMUS AND THE STIGMA OF STRABISMUS

Although the majority of the participants (51.62%) suggested that strabismus is cosmetically acceptable, a large proportion (41.38%) still believes that the condition is cosmetically unacceptable and embarrassing in the public view. Physical appearances greatly influence ‘first impressions’ and have significant impacts on social interactions (Reis *et al.*, 1982) and future employment possibilities (Coats *et al.*, 2000). Strabismus is problematic for all age groups, including both children and adults, as it leads to negative social biases. Simply stated, a prejudice based only on a child’s misaligned eyes, as occurs in strabismus, causes them to be treated unfairly.

Negatively biased attitudes towards strabismus are well documented in previous research. Negative feelings towards strabismus have been described in children as early as the age of six years. Paysse *et al.* (2001) demonstrated that children aged six years and older described negative feelings towards strabismic dolls and were hesitant to play with them. Mojon-Azzi *et al.* (2011) investigated the social effects of strabismus and found that children with strabismus, aged six years and older, were less likely to be invited to a birthday party by their 'normal' peers. In another study (Uretmen *et al.* 2003), elementary school teachers suggested that school children with strabismus might find it difficult to be accepted into social groups. A negative attitude towards strabismus is also present in older children. Lukman *et al.* (2010, 2011) demonstrated that children, aged 8 to 12 years, had a higher preference to sit next to a child without strabismus, regardless of the child's age. It is not difficult to imagine a child with strabismus being teased and bullied by their peers at school or at home.

From a Grade R teacher's point of view, the results from this study contradict previous research findings. Most teachers (61.29%) indicated that a child with strabismus would not struggle to make friends with their peers. Furthermore, 25 out of 31 participants (80.65%) felt that a child with strabismus would still be invited to birthday parties. A lot of the teachers (83.87%) also believed that a child with strabismus would be capable of being a class representative. However, 20 out of 31 participants (64.52%) had the opinion that a child with strabismus would be teased and bullied by their peers because of their "funny looking eyes". Bullying and teasing were also listed as one of the main causes preventing children with low vision and strabismus from wearing their spectacles. These findings were not expected as the general opinion in the available literature towards strabismus is mainly negative.

Children with strabismus naturally isolate themselves socially due to the negative influence of their appearance on others. Social isolation worsens their self-esteem, continuously reinforcing social fears, which contribute to the development of mental health problems. Children with strabismus are at a higher risk for developing psychiatric disorders, specifically emotional disorders, due to being teased and bullied at school by their peers (Tonge *et al.*, 1984). Cumurcu *et al.* (2011) described high rates of social phobia and depression in children with strabismus.

The Grade R teachers had to identify the psychological effects associated with strabismus.

They had to choose from a list of four psychological problems: low self-esteem, depression, social anxiety and anger. A large number of teachers noted that a child with strabismus might experience low self-esteem (83.87%) and social anxiety (45.16%). Anger (25.81%) and depression (22.58%) were also noted by some teachers. A large proportion of teachers (41.93%) indicated that a child with strabismus might be affected by more than one psychological effect. Low self-esteem and social anxiety were chosen by six of the teachers. Therefore, not only were they aware that strabismus influences a child's mental health, but they also indicated the relationship between low self-esteem and social anxiety as presented in prior literature.

To summarise, the Grade R teachers demonstrated mainly positive attitudes towards school children with strabismus. The teachers demonstrated awareness of the psychological effects associated with strabismus. Some of them were also concerned about peers bullying and teasing children with strabismus.

5.6 LIMITATIONS OF THE STUDY

The researcher recognises the following limitations in the study:

- The study sample was small (n=31).
- The study sample was selected from the Bloemfontein area only, which has a limited number of rural schools in comparison with the rest of the Free State.
- Some of the schools were in dangerous areas of the town. Certain schools were difficult to reach due to bad road conditions.
- The principals from the schools were not always readily available for obtaining and signing of consent documents.

CHAPTER 6

CONCLUSION

6.1 OVERVIEW OF THE STUDY

This study aimed to determine the knowledge and attitudes of Grade R teachers towards the psychosocial impact of strabismus in school children, in Bloemfontein. The teachers demonstrated a good understanding about the clinical aspects of strabismus. The majority of them were able to recognise a child with strabismus, based only on a picture given to them in the questionnaire. The results from this study indicate that these teachers would be able to identify a child with strabismus and refer them to the correct medical professionals. However, the teachers were uncertain about how a child with strabismus views their “outside world”.

In our setting, the Grade R teachers are the ideal candidates to fight negative biases against strabismus. They can help children with strabismus to adjust in our society, but also guide their educational development. To do this, any negative teacher bias towards strabismus should be identified and addressed first.

The results depicted that the Grade R teachers have an overall positive attitude towards children with strabismus. This contradicts the overall negative feelings described in previous research literature. The teachers suggested that a child with strabismus will be able to make friends and integrate into social groups without difficulty. Furthermore, they also believed that a child with strabismus will be able to fulfil leadership positions and comply with tasks allocated to them during activities. The teachers were well informed regarding the psychological effects of strabismus. Previous research suggested that a child with strabismus is at risk for developing a low self-esteem and social anxiety (Cumurcu *et al.*, 2011). Most of the teachers also identified that children with strabismus might be at risk for developing a low self-esteem and social anxiety.

The data obtained, although from a small sample size ($n=31$), is of relevance, because at this moment, there is no comparative data available from studies done in South Africa regarding the prevalence and epidemiological characteristics of strabismus. Larger epidemiological studies, using a similar school quintile classification methodology, are needed in South Africa to ascertain the true prevalence of strabismus in school children.

These results can be used by both the Department of Health and Education to plan future treatment initiatives, including both lower and higher socio-economic classes.

6.2 CONTRIBUTIONS OF THE STUDY

The research will make a contribution to the platform information available about the psychosocial effects on pre-school children in South Africa.

6.3 FUTURE RECOMMENDATIONS

- There is a need to evaluate the state of eye and vision disorders in pre-school children and raise awareness of strabismus among children
- The findings of the study should be used as an opportunity to educate teachers to create an understanding of strabismus that will address negative social biases worsening the psychosocial impact of strabismus.
- Training programs for teachers to do their own visual screening in their classrooms.
- The findings of the study will be submitted to the Free State Department of education for consideration for future screening initiatives.
- A follow-up study should be performed on a larger sample population.

6.4 CONCLUSIVE REMARK

Early identification and referral to the appropriate medical professional could prevent all of the negative effects of strabismus listed in this study. Providing health education to teachers will empower them to be on the lookout for any child with a vision problem, not only strabismus. By doing this, we are empowering our teachers to be part of the multidisciplinary team. This study should be seen as an attempt to give direction to educators at a pre-school level so that they can help a child with strabismus to achieve excellence in their social and educational milestones.

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APPENDICES

- Appendix A: Primary schools with Grade R classes in Bloemfontein, Free State Province**
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- Appendix H: Approval to conduct research primary schools: The Principal**

Primary schools with Grade R classes in Bloemfontein, Free State Province

Primary School	Quintile (Q) classification	Medium of instruction	Number of learners in Grade R classes
Arbeidsgenot PF/S	Q1	English	76
Ditlatse PF/S	Q1	English	19
Dr Bethuel Setai IF/S	Q1	English	14
Eersteling PF/S	Q1	No information	30
Kaalspruit PF/S	Q1	Sesotho	10
Kgotsofalo IF/S	Q1	Sesotho	7
Phuthanang P/S	Q1	English	26
Semajan IF/S	Q1	English	44
Uitkoms PF/S	Q1	English	8
Waterbron P/S	Q1	English	21
Willows PF/S	Q1	Sesotho	22
Total Q1 = 11			
Botlehadi P/S	Q2	English	151
Rekgonne P/S	Q2	English	97
Relebeletse P/S	Q2	Parallel English/ Sesotho	83
Tjhebelopele P/S	Q2	English	0
Total Q2 = 4			
Atang P/S	Q3	English	40
Batho P/S	Q3	English	51
Bloemfontein-Oos P/S	Q3	English	87
Bochabela P/S	Q3	English	61
Daluxolo I/S	Q3	English	70
Gonyane P/S	Q3	English	77
Grassland P/S	Q3	English	106
Ihobe I/S	Q3	English	58
Joe Solomon P/S	Q3	Afrikaans	40
Kamohelo P/S	Q3	Parallel English/ Sesotho	89
Karabelo P/S	Q3	English	88
Kgabane P/S	Q3	Sesotho	86
Kgato P/S	Q3	English	123
Koot Niemann I/S	Q3	Afrikaans	106
Legae I/S	Q3	Setswana	55
Lesedi P/S	Q3	English	52
Mabeoana I/S	Q3	English	53
Mabolela P/S	Q3	Sesotho	45
Maboloka P/S	Q3	English	83
Mangaung P/S	Q3	English	86
Marang P/S	Q3	Setswana	58
Matla P/S	Q3	English	160
Monyatsi P/S	Q3	English	51
Morafe P/S	Q3	Setswana	35
Nozala I/S	Q3	English	53
Olympia P/S	Q3	Parallel Afrikaans/ English	72
Pelonomi Hospital P/S	Q3	Sesotho	5
Phahamisang P/S	Q3	English	64
Rutanang I/S	Q3	English	96
Tebelelo P/S	Q3	English	58

Tsholetsang I/S	Q3	English	57
Unity P/S	Q3	Parallel English/ Sesotho	148
Universitas Hospital P/S	Q3	English	2
Total Q3 = 33			
Credence P/S	Q4	Afrikaans	65
Fauna P/S	Q4	English	81
Heide P/S	Q4	Afrikaans	87
Mothusi P/S	Q4	English	59
Nzame P/S	Q4	English	125
St Mary's P/S	Q4	English	111
Total Q4 = 6			
Bloemfontein P/S	Q5	Afrikaans	56
Brandwag P/S	Q5	Parallel Afrikaans/ English	144
C&N P/Meisieskool Oranje	Q5	Afrikaans	76
Dr CF Visser P/S	Q5	Afrikaans	79
Dr Viljoen C/S	Q5	English	49
Eunice P/S	Q5	English	111
Fichardtpark P/S	Q5	Afrikaans	136
Jim Fouché P/S	Q5	Afrikaans	121
Kruitberg	Q5	English	104
Lourierpark I/S	Q5	English	62
Onze Rust P/S	Q5	Parallel Afrikaans/ English	95
President Brand P/S	Q5	Afrikaans	80
President Steyn C/S	Q5	Afrikaans	21
Sentraal P/S	Q5	Parallel Afrikaans/ English	107
St Andrew's C/S	Q5	English	107
St Michael's C/S	Q5	English	50
Wilgehof P/S	Q5	English	55
Total Q5 = 17			

Questionnaire in English

The knowledge and attitudes of grade R school teachers regarding the psychosocial impact of strabismus amongst school children.

Instructions:

This survey is being conducted to establish the knowledge and attitudes of Grade R teachers regarding the psychosocial impact of squint among school children.

There are no right or wrong answers to these questions.

Some questions have more than one answer.

Mark the appropriate block (s) with a X or write your answer on the space (s) provided.

SECTION A

1 What is your gender?

☐	Male (1)
☐	Female (2)

2 How old are you?

3 What is your highest qualification?

4 How many years have you been teaching?

5 What is your school quintile classification?

☐	1 Q1
☐	2 Q2
☐	3 Q3
☐	4 Q4
☐	5 Q5

6 Which language (s) do you use for teaching?

Mark all that apply

☐	1 Afrikaans
☐	2 English
☐	3 isiXhosa
☐	4 SeSotho
☐	5 Setswana
☐	6 Other, specify _____

SECTION B

7 Have you noticed any child in your class with eye problems?

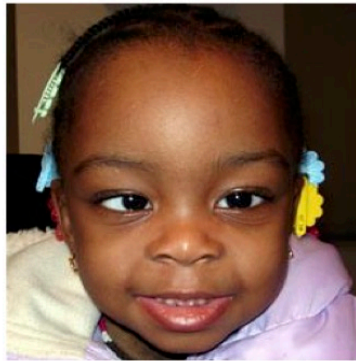
Yes (1)
No (2)

8 What eye problems have you noticed in your class?

Mark all that apply

- | | |
|----|---|
| 1 | Children in my class do not have any problems with their eyes |
| 2 | Walking closer to the activity board to look at something |
| 3 | Holding a picture book very close to the face |
| 4 | Squinting their eye |
| 5 | Tilting their head |
| 6 | Closing one eye when reading or looking at things |
| 7 | One eye turned in or out (squint) |
| 8 | Sensitivity to light |
| 9 | Difficulty with eye-hand-body coordination when playing with a ball |
| 10 | Avoid coloring activities, puzzles and other detailed activities |
| 11 | Red/ brown discolouration of the eyes |
| 12 | Frequent rubbing of the eyes |
| 13 | Tearing of the eyes |
| 14 | Other, specify _____ |

Refer to Picture A for Question 9 to Question 13



Picture A

9 When you look at the child in **Picture A**, would you say something is wrong with her?

Yes (1)
No (2)
Don't know (3)

10 Would you say the child in **Picture A** is ...

Mark all that apply

- | | |
|---|-----------------------|
| 1 | Intelligent |
| 2 | Healthy |
| 3 | Trustworthy |
| 4 | A hard worker |
| 5 | Happy |
| 6 | Cute |
| 7 | Hesitant to work hard |
| 8 | Aggressive |

11 Would you recommend the parents of the child in **Picture A** to see a Health Care Professional?

Yes (1)
No (2)
Don't know (3)

- 12 Which Health Care Professional (s) would you recommend the parents of this child in **Picture A** to go and see?

Mark all that apply

- | | |
|---|---|
| 1 | A child with a squint eye doesn't need any help with their eyes |
| 2 | Doctor or other medical worker |
| 3 | Social worker |
| 4 | Psychologist |
| 5 | Ophthalmologist (Eye specialist) |
| 6 | Optometrist (Does an eye examination and prescribe spectacles) |
| 7 | Other, specify _____ |

- 13 What treatment do you think does the child in **Picture A** need for her eyes?

Mark all that apply

- | | |
|----|---|
| 1 | I don't think there is any cure or treatment for this child's eye problem |
| 2 | Spectacle correction (Eye glasses) |
| 3 | Contact lens |
| 4 | Medicine |
| 5 | Eye drop |
| 6 | Surgery |
| 7 | Eye exercise |
| 8 | To cover or to close one eye |
| 9 | Need of a special visual aid for example a magnifier |
| 10 | Increased font size on an activity book |
| 11 | Other, specify _____ |

- 14 What do you think are the causes of a squint eye?

Mark all that apply

- | | |
|---|--------------------------|
| 1 | Exposure to bright light |
| 2 | Trauma |
| 3 | Hereditary (Born with) |
| 4 | Diet |
| 5 | Pregnancy related |
| 6 | Eye diseases |
| 7 | Other, specify _____ |

- 15 Can anybody get a squint eye?

Yes (1)
No (2)
Don't know (3)

- 16 Will a child with a squint eye have any difficulty in learning?

Yes (1)
No (2)
Don't know (3)

- 17 In which areas would a child with a squint eye have difficulties learning in at a pre-primary level?

Mark all that apply

- | | |
|---|--|
| 1 | A child with a squint eye will have no difficulties in any learning area |
| 2 | Language |
| 3 | Mathematics |
| 4 | Life Skills |

- 18 Would you as a grade R teacher pay any special attention when teaching a child with a squint eye?

Yes (1)
No (2)
Don't know (3)

19 In which areas of learning would you pay special attention to when teaching a child with a squint eye?

- | | | |
|--------------------------|---|--|
| ☐ | 1 | No specific special attention is needed to a child with a squint eye |
| ☐ | 2 | Language |
| ☐ | 3 | Mathematics |
| ☐ | 4 | Life Skills |

Refer to Picture B for Question 20

Most children have no idea how they are supposed to see. So when words look like this, they assume everyone sees the same way they do. Imagine how frustrating that would be.

Picture B

20 Will a child with a squint eye experience their activity book as seen in **Picture B**?

- | | |
|--------------------------|----------------|
| ☐ | Yes (1) |
| ☐ | No (2) |
| ☐ | Don't know (3) |

21 Will a child with a squint eye be able to watch a 3D Movie at the cinema?

- | | |
|--------------------------|----------------|
| ☐ | Yes (1) |
| ☐ | No (2) |
| ☐ | Don't know (3) |

SECTION C

Refer to Question 22 to Question 27

For each of the following statements, indicate whether you ...

- | | | |
|--------------------------|---|-------------------|
| ☐ | 1 | Strongly agree |
| ☐ | 2 | Strongly disagree |
| ☐ | 3 | Neutral |
| ☐ | 4 | Moderately agree |
| ☐ | 5 | Disagree |

22 Strabismus is cosmetically **UN**acceptable and embarrassing in the public opinion.

- | | | |
|--------------------------|---|-------------------|
| ☐ | 1 | Strongly agree |
| ☐ | 2 | Strongly disagree |
| ☐ | 3 | Neutral |
| ☐ | 4 | Moderately agree |
| ☐ | 5 | Disagree |

23 A child with a squint eye will not succeed, be capable to do the task or have the same learning capabilities in a classroom as a child without a squint.

- | | | |
|--------------------------|---|-------------------|
| ☐ | 1 | Strongly agree |
| ☐ | 2 | Strongly disagree |
| ☐ | 3 | Neutral |
| ☐ | 4 | Moderately agree |
| ☐ | 5 | Disagree |

24 A child with a squint eye can be a class representative.

- | | |
|---|-------------------|
| 1 | Strongly agree |
| 2 | Strongly disagree |
| 3 | Neutral |
| 4 | Moderately agree |
| 5 | Disagree |

25 A child with a squint eye is less likely to be invited to a birthday party by his/ her peers.

- | | |
|---|-------------------|
| 1 | Strongly agree |
| 2 | Strongly disagree |
| 3 | Neutral |
| 4 | Moderately agree |
| 5 | Disagree |

26 A child with a squint eye will struggle making friends with their peers.

- | | |
|---|-------------------|
| 1 | Strongly agree |
| 2 | Strongly disagree |
| 3 | Neutral |
| 4 | Moderately agree |
| 5 | Disagree |

27 A child with a squint eye is teased and bullied by their peers, because of their funny looking eyes.

- | | |
|---|-------------------|
| 1 | Strongly agree |
| 2 | Strongly disagree |
| 3 | Neutral |
| 4 | Moderately agree |
| 5 | Disagree |

28 Would you assign a child with a squint eye to a duty during a cultural activity in your school?

- | |
|----------------|
| Yes (1) |
| No (2) |
| Don't know (3) |

29 A child with a squint eye may experience ...

Mark all that apply

- | | |
|---|-------------------|
| 1 | A low self-esteem |
| 2 | Depression |
| 3 | Social anxiety |
| 4 | Anger |

30 Many students with a squint eye or poor vision do not wear spectacles.

Why do you think so?

- | | |
|---|--|
| 1 | I don't know |
| 2 | Spectacles prevent the normalization of the eyes |
| 3 | Cosmetically unacceptable and embarrassing in public |
| 4 | Cost |
| 5 | Fear of being teased |
| 6 | Other, specify _____ |

Questionnaire in Afrikaans

Die kennis en sienwyse van Graad R skool onderwysers met betrekking tot die psigososiale impak van strabisme (skeelheid) tussen skool kinders.**Instruksies:**

Die opname word gedoen om die kennis en sienwyse van Graad R onderwysers met betrekking tot die psigososiale impak van strabisme (skeelheid) tussen skool kinders te meet.

Daar is geen regte of verkeerde antwoorde vir die vraagstuk nie.

Van die vrae het meer as een antwoord.

Merk die toepaslike blok/ blokke met 'n X of skryf die antwoord op die toepaslike plek verskaf.

Afdeling A

1 Wat is jou geslag?

☐ Manlik (1) ☐ Vroulik (2)

2 Hoe oud is jy?

- ☐ 1 20-29 jaar
☐ 2 30-39 jaar
☐ 3 40-49 jaar
☐ 4 50-59 jaar
☐ 5 60-69 jaar
☐ 6 ≥ 70 jaar

3 Wat is jou hoogste kwalifikasie?

4 Hoeveel jaar gee jy al skool?

- ☐ 1 0-4 jaar
☐ 2 5-9 jaar
☐ 3 10-14 jaar
☐ 4 15-19 jaar
☐ 5 20-24 jaar
☐ 6 25-29 jaar
☐ 7 30-34 jaar
☐ 8 ≥ 35 jaar

5 Wat is jou skool kwintiel klassifikasie?

- ☐ 1 Q1
☐ 2 Q2
☐ 3 Q3
☐ 4 Q4
☐ 5 Q5

6 In watter taal/ tale gee jy skool in?

Merk alles wat van toepassing is

- ☐ 1 Afrikaans
☐ 2 English
☐ 3 isiXhosa
☐ 4 SeSotho
☐ 5 Setswana
☐ 6 Ander, spesifiseer _____

Vir Kantoor Gebruik
ID 1 - 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

☐ 8

AFDELING B

7 Het jy al 'n kind met oog probleme in jou klas kamer waargeneem?

☐ Ja (1) ☐ Nee (2)

☐ 9

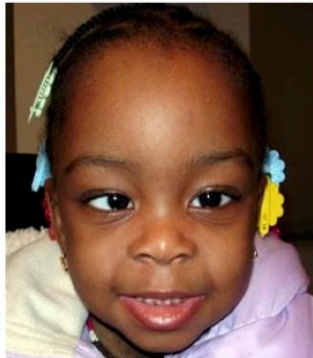
8 Watter tipe oog probleme het jy al in jou klas kamer waargeneem?

Merk alles wat van toepassing is

- ☐ 1 Kinders in my klas kamer het nie probleme met hulle oë nie
- ☐ 2 Stap nader aan die aktiwiteit bord om na iets te kyk
- ☐ 3 Hou 'n prent boek baie naby aan die gesig
- ☐ 4 Trek oë op skrefies wanneer hulle na iets kyk
- ☐ 5 Draai hulle kop
- ☐ 6 Maak een oog toe wanneer hulle lees of na iets kyk
- ☐ 7 Een oog na binne of buite toe draai (skeelheid)
- ☐ 8 Sensitief vir lig blootstelling
- ☐ 9 Probleem met oog-hand-lyf koördinasie wanneer daar met 'n bal gespeel word
- ☐ 10 Vermoë inkleur aktiwiteite, legkaart bou en fyn detail aktiwiteite
- ☐ 11 Rooi/ bruin verkleuring van die oë
- ☐ 12 Herhaalde vryf van die oë
- ☐ 13 Traanerigheid van die oë
- ☐ 14 Ander, spesifiseer _____

☐ 10 - 11

Verwys na Prent A vir Vraag 9 tot Vraag 13



Prent A

9 Wanneer jy na die kind in **Prent A** kyk, sal jy sê dat daar iets fout is met haar?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 12

10 Sal jy se die kind in Prent A is ...

Merk alles wat van toepassing is

- ☐ 1 Intelligent
- ☐ 2 Gesond
- ☐ 3 Betroubaar
- ☐ 4 Hardwerkend in haar skool aktiwiteite
- ☐ 5 Gelukkig
- ☐ 6 Oulik
- ☐ 7 Huiwerig om te werk aan haar skool aktiwiteite
- ☐ 8 Aggresief

☐ 13

11 Sal jy die ouers van die kind in **Prent A** verwys na 'n Gesondheidsorg Professionele?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 14

12 Na watter Gesondheidsorg Professionele sal jy die ouer aanbeveel om die kind in **Prent A** na te verwys?

Merk alles wat van toepassing is

- ☐ 1 'n Kind met 'n skeel oog het nie hulp nodig met sy/ haar oë nie
- ☐ 2 Dokter of 'n mediese werker
- ☐ 3 Maatskaplike werker
- ☐ 4 Sielkundige
- ☐ 5 Oog spesialis
- ☐ 6 Oogkundige (Doen 'n oogtoets en skryf brille voor)
- ☐ 7 Ander, spesifiseer _____

☐ 15

13 Watter tipe behandeling dink jy het die kind in Prent A nodig vir haar oë?

Merk alles wat van toepassing is

- ☐ 1 Ek dink nie daar is 'n kuur of behandeling vir die kind se oog probleem nie
- ☐ 2 Bril korreksie
- ☐ 3 Kontaklense
- ☐ 4 Medisyne
- ☐ 5 Oogdruppels
- ☐ 6 Operasie
- ☐ 7 Oog oefeninge
- ☐ 8 Om een oog toe te maak
- ☐ 9 Benodig 'n spesiale visuele toestel bv. 'n vergrootglas
- ☐ 10 Vergroting van die aktiwiteit boek
- ☐ 11 Ander, spesifiseer _____

☐ 16 - ☐ 17

14 Wat dink jy is die oorsaak van 'n skeel oog?

Merk alles wat van toepassing is

- ☐ 1 Blootstelling aan skerp lig
- ☐ 2 Trauma
- ☐ 3 Oorerflik (Gebore daarmee)
- ☐ 4 Dieët
- ☐ 5 Verwant aan die swangerskap
- ☐ 6 Oogsiekte
- ☐ 7 Ander, spesifiseer _____

☐ 18

15 Kan enige persoon 'n skeel oog kry?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 19

16 Sal 'n kind met 'n skeel oog leer probleme ervaar?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 20

17 In watter areas sal 'n kind met 'n skeel oog leer probleme ervaar op 'n pre-primêre vlak?

Merk alles wat van toepassing is

- ☐ 1 'n Kind met 'n skeel oog sal geen leer probleme ervaar nie
- ☐ 2 Tale
- ☐ 3 Wiskunde
- ☐ 4 Lewensvaardighede

☐ 21

18 Sal jy as 'n graad R onderwyser enige spesiale aandig gee aan 'n kind met 'n skeel oog in jou klas?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 22

19 In watter areas sal jy spesiale aandig gee aan 'n kind met 'n skeel oog?

Merk alles wat van toepassing is

- ☐ 1 Geen ekstra spesiale aandag is nodig vir 'n kind met 'n skeel oog nie
- ☐ 2 Tale
- ☐ 3 Wiskunde
- ☐ 4 Lewensvaardighede

☐ 23

Verwys na Prent B vir Vraag 20

Most children have no idea how they are supposed to see. So when words look like this, they assume everyone sees the same way they do. Imagine how frustrating that would be.

Prent B

20 Sal 'n kind met 'n skeel oog 'n soortgelyk beeld ervaar soos in Prent B wanneer in sy/ haar in aktiwiteit boek werk?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 24

21 Sal 'n kind met 'n skeel oog 'n 3D movie kan sien by die teater?

☐ Ja (1) ☐ Nee (2) ☐ Ek weet nie (3)

☐ 25

AFDELING C

Verwys na Vraag 22 tot Vraag 27

Vir elk van die volgende stellings, dui aan of jy ...

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

22 Strabisme is kosmeties **ON**aanvaarbaar en 'n verleentheid volgens die publiek se opinie.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 26

23 'n Kind met 'n skeel oog sal nie 'n sukses maak nie, in staat wees om 'n taak te voltooi nie of dieselfde leer vermoë het as 'n kind sonder 'n skeel oog in dieselfde klas.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 27

24 'n Kind met 'n skeel oog kan 'n klas kaptein wees.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 28

25 'n Kind met 'n skeel oog is minder geneig om na 'n verjaarsdag partytjie uitgenooi word deur sy/ haar klasmaats.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 29

26 'n Kind met 'n skeel oog sukkel om maats te maak met sy/ haar klasmaats.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 30

27 'n Kind met 'n skeel oog word gespot en geboelie deur klasmaats, omdat hulle oë snaaks lyk.

- | | |
|---|-----------------------------|
| 1 | Stem heeltemal saam |
| 2 | Stem heeltemal nie saam nie |
| 3 | Neutraal |
| 4 | Matig verskil |
| 5 | Verskil |

☐ 31

28 Sou jy 'n kind met 'n skeel oog 'n plig toewys tydens 'n kulturele geleentheid in jou skool?

Ja (1)	Nee (2)	Ek weet nie (3)
--------	---------	-----------------

☐ 32

29 'n Kind met 'n skeel oog mag ... ervaar

Merk alles wat van toepassing is

- | | |
|---|-----------------|
| 1 | n Lae selfbeeld |
| 2 | Depressie |
| 3 | Sosiale angs |
| 4 | Aggresie |

☐ 3330 Baie kinders met 'n skeel oog of swak visie dra nie 'n bril nie.
Hoekom dink jy so?

- | | |
|---|---|
| 1 | Ek weet nie |
| 2 | 'n Bril voorkom die normalisering van die oë |
| 3 | Kosmeties onaanvaarbaar en 'n verleentheid in die publiek |
| 4 | Kostes betrokke |
| 5 | Vrees om gespot te word |
| 6 | Ander, spesifiseer _____ |

☐ 34

Questionnaire in Sesotho

Tsebo le maitshwaro a matitjhere a kereite ya R mabapi le tshusumetso ya kelello ya botho baneng ba sekolo ba nang le bohloko ba ho pelekana mahlo (strabismus).

Ditaelo:

Hlahlobo/ tekolo ena e etswa mabapi le ho fumana tsebo le maitshwaro a matitjhere a kereite R mabapi le tshusumetso ya kelello ya botho baneng ba sekolo ba nang le bohloko ba ho pelekana mahlo (squint eye).

Dipotsong tsena, ha ho na karabo e nepahetseng kapa e fosahetseng.

Dipotso tse ding di na le dikarabo tse fetang bonngwe.

Tshwaya lebokosaneng le nepahetseng ka X kapa o ngole karabo ya hao sebakeng seo ho fanwang ka sona.

KAROLO YA A

1 Bong ba hao ke eng?

☐ Botona (1) ☐ Botshehadi (2)

2 Dilemo tsa hao di kae?

☐ 1 20-29 dilemo

☐ 2 30-39 dilemo

☐ 3 40-49 dilemo

☐ 4 50-59 dilemo

☐ 5 60-69 dilemo

☐ 6 ≥ 70 dilemo

3 O felletse kae ka tsa thuto?

4 Ke dilemo tse kae o ruta?

☐ 1 0-4 dilemo

☐ 2 5-9 dilemo

☐ 3 10-14 dilemo

☐ 4 15-19 dilemo

☐ 5 20-24 dilemo

☐ 6 25-29 dilemo

☐ 7 30-34 dilemo

☐ 8 ≥ 35 dilemo

5 Tlhophiso ya sehlopha sa sekolo sa hao ke efe?
(school quintile classification)

☐ 1 Q1

☐ 2 Q2

☐ 3 Q3

☐ 4 Q4

☐ 5 Q5

6 O sebedisa puo efe bakeng sa ho ruta?

Tshwaya tsohle tseo e leng tsona

☐ 1 Afrikaans

☐ 2 English

☐ 3 isiXhosa

☐ 4 SeSotho

☐ 5 Setswana

☐ 6 E nngwe, hlalosa _____

Mona ho tlatša ofisi
ID 1 - 2

☐ 3

☐ 4

☐ 5

☐ 6

☐ 7

☐ 8

KAROLO YA B

7 O kile wa lemoha ngwana tlelaseng ya hao ya nang le bothata ba mahlo?

Ee (1) ☐ Tjhe (2) ☐

☐ 9

8 Ke mathata afe a mahlo ao o kileng wa a lemoha tlelaseng ya hao?

Tshwaya tsohle tseo e leng tsona

- 1 Bana ba tlelaseng ya ka ha ba na bothata ka mahlo a bona
- 2 Ho atamela pela boto eo ho ngollwang ho yona bakeng sa ho sheba ntho e itseng
- 3 Ho tshwarela buka ya ditshwantsho haufinyane haholo le sefahleho
- 4 Ho pelekanya mahlo a bona
- 5 Ho dumela ka hlooho
- 6 Ho kwala leihlo le le leng ha a bala kapa a sheba dintho
- 7 Leihlo le le leng le shebetse kahare kapa kantle (peleki)
- 8 Boyi bakeng sa kganya
- 9 Bothata bakeng sa tsebedisano mmoho ya leiho-letsoho-mmele ha a bapala ka bolo
- 10 Ho iphapanya mesebetsi ya ho khalaria, ya malepa le mesebetsi e meng e hlaloswang
- 11 Mahlo a nang le mmala o mokgubedu kapa o sootho
- 12 Ho pikitla mahlo kgafetsa
- 13 Ho lla ha mahlo
- 14 E nngwe, hlalosa _____

☐ 10 - 11

Sheba setshwantso sena bakeng sa potso ya 9 ho fihlella potsong ya 13



Setshwantsho sa A

9 Ha o sheba ngwana ya **setshwantshong sa A**, o ka re ho na le phoso e itseng ka ena?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 12

10 O ka re ngwana ya **Setshwantshong sa A** o...

Tshwaya tsohle tseo e leng tsona

- 1 Bohlale
- 2 Phetse hantle
- 3 Tshaphala
- 4 Sebetse ka thata
- 5 Thabile
- 6 Motle
- 7 Lesisitheho ho sebetse ka thata
- 8 Rata ntwana

☐ 13

11 Na o ka kgothalletsa batswadi ba ngwana ya **Setshwantshong sa A** ho bona Mohlokomedi wa tsa bophelo wa Profeshenale?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 14

12 Ke Mohlokomedi o feng wa tsa Bophelo wa Profeshenale eo o ka kgothalletsang batswadi ba ngwana ya **Setshwantshong sa A** hore a ile mo bona?

Tshwaya tsohle tseo e leng tsona

- 1 Ngwana ya nang le leihlo le peleaneng ha a hloke thuso ka mahlo a hae
- 2 Ngaka kapa mosebeletsi e mong wa tsa bophelo
- 3 Mosebeletsi wa setjhaba
- 4 Ngaka ya mahloko a keello
- 5 Setsebi sa meriana ya mahlo (Eye specialist)
- 6 Ngaka ya mahlo (Does an eye examination and prescribe spectacles)
- 7 Tse ding, hlalosa _____

☐ 15

- 13 Ke pheko e feng eo o nahanang hore ngwana ya **Setshwantshong sa A** a ka e hloka bakeng sa mahlo a hae?

Tshwaya tsohle tseo e leng tsona

- 1 Ha ke nahane hore ho na le kalafo kapa pheko bakeng sa bothata ba ngwana ba mahlo
- 2 Tokiso ka diborekele (Diborele tsa mahlo)
- 3 Dilense tsa ka mahlong
- 4 Moriana
- 5 Marothodi a mahlo
- 6 Opereishene
- 7 Boikwetiso ba mahlo
- 8 Ho kgurumetsa kapa ho kwala leihlo le le leng
- 9 Tlhoko ya thuso e ikgethileng bakeng sa pono, mohlala: sesebediswa se hodisang dintho
- 10 Mongolo o ekeditsweng bukeng ya tsebetso
- 11 E nngwe, hlalosa

☐ 16 - 17

- 14 O nahana ke eng sesosa sa ho pelekana ha leihlo?

Tshwaya tsohle tseo e leng tsona

- 1 Ho kopana le kganya e bohale
- 2 Tlokotsi
- 3 Lefutso (O hlahile ka lona)
- 4 Dijo
- 5 Ho amana le boimana
- 6 Mafu a mahlo
- 7 E nngwe, hlalosa

☐ 18

- 15 Na motho e mong le e mong a ka pelekana leihlo?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 19

- 16 Na ngwana ya pelekane leihlo a ka ba le bothata bo itseng ba ho ithuta?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 20

- 17 Ngwana ya nang le leihlo le pelekane a ka fumana mathata kae bakeng sa ho ithuta keretjheng?

Tshwaya tsohle tseo e leng tsona

- 1 Ngwana ya nang le leihlo le pelekane a ka se be le bothata thutong efe kapa efe
- 2 Puong
- 3 Thutong ya Dipalo
- 4 Thutong ya mahlale a tsa bophelo

☐ 21

- 18 Wena jwalo ka tithere ya kereite ya A o ka fana ka tlhokomelo e ikgethileng bakeng sa ngwana ya nang le leihlo le pelekane?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 22

- 19 Ke dikarolong dife tsa thuto tseo ho tsona o ka fanang ka tlhokomelo e ikgethileng ha o ruta ngwana ya nang le leihlo le pelekane?

- 1 Ha ho hloka hlahle tlhokomelo e ikgethileng bakeng sa ngwana ya nang le leihlo le pelekane
- 2 Puong
- 3 Thutong ya Dipalo
- 4 Thutong ya mahlale a tsa bophelo

☐ 23

Sheba Setshwantsho sa B bakeng sa Potso ya 20

Most children have no idea how they are supposed to see. So when words look like this, they assume everyone sees the same way they do. Imagine how frustrating that would be.

Setshwantsho sa B

- 20 Na ngwana ya nang le leihlo le pelekane a ka bona buka ya hae ya tsebetso e le jwalo ka **Setshwantshong sa B**

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 24

- 21 A na ngwana ya nang le leihlo le pelekane a ka kgona ho shebella setshwantsho sa 3D baeskopong?

Ee (1) ☐ Tjhe (2) ☐ Ha ke tsebe (3) ☐

☐ 25

KAROLO YA C**Re lebisitse potsong ya 22 ho fihla ho ya 27****Bakeng sa polelo e nngwe le e nngwe ho tsena tse latelang, bontsha hore na o ...**

- ☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele
- 22 Bohloko ba ho pelekana mahlo (strabismus) ha bo amohelehe ho tsa botle, mme hape bo a swabisa maikutlong a setjhaba.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 26
- 23 Ngwana ya nang le leihlo le peleaneng a ka se kgone ho tswella, a ka se kgone ho etsa mosebetsi kapa ho ba le bokgoni ba ho ithuta jwalo ka ngwana ya sa peleanang.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 27
- 24 Ngwana ya nang le leihlo le peleaneng a ka kgona ho ba moemedi wa tlelase.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 28
- 25 Ha ho bonolo hore ngwana ya nang le leihlo le peleaneng a ka mengwa ke bana ba dilemong tsa hae moketeng wa tswalo.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 29
- 26 Ngwana ya nang le leihlo le peleaneng o tla sokola ho etsa setswalle le bana ba dilemong tsa hae.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 30
- 27 Ngwana ya nang le leihlo le peleaneng o a kenellwa/rumolwa, le ho tshosetswa ke bana ba dilemong tsa hae, ka lebaka la mahlo a hae a sa shebahaleng hantle.
☐ 1 Dumela haholo
☐ 2 Ha o dumele ho hang
☐ 3 Mahareng
☐ 4 Dumela hannyane
☐ 5 Ha o dumele ☐ 31
- 28 Na o ka laela ngwana ya nang le leihlo le peleaneng hore a etse mosebetsi o itseng nakong ya tshebetso ya tsa setso sekolong sa hao?

Ee (1)	Tjhe (2)	Ha ke tsebe (3)
--------	----------	-----------------

☐ 32
- 29 Ngwana ya nang le leihlo le peleaneng a ka ba le ...
Tshwaya tsohle tseo e leng tsona
☐ 1 Ho hloka boitshepo
☐ 2 Kgatello ya maikutlo
☐ 3 Ngongoreho ka lebaka la setjhaba
☐ 4 Mosito/ kgalefo ☐ 33
- 30 Baithuti ba bangata ba nang le leihlo le peleaneng kapa pono e fokolang ha ba rwale diborele. Hobaneng o nahana jwalo?
☐ 1 Ha ke tsebe
☐ 2 Diborele di thibela mahlo hore a kgutlele setlwaeding
☐ 3 Ha di amohelehe ho tsa botle hape di a tlointlola setjhabeng
☐ 4 Di theko e thata, di a tura
☐ 5 Tshabo ya ho kenellwa/rumolwa
☐ 6 E nngwe, hlalosa ☐ 34

Information document in English

Dear Participant,

I am inviting you to participate in a research study titled 'The knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus (a squint eye) amongst school children'.

Research is just the process to learn the answer to a question. Before you decide to continue with the questionnaire, it is important that you understand why the research study is conducted and what it will involve. Please take the time to read through the following information document.

The aim of the research study is to determine the knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus amongst school children. The research data will be collected with the completion of a hard copy questionnaire. The completion of the questionnaire will not last longer than 15 minutes.

Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which the participant is otherwise entitled to. Participation may also be discontinued at any time without penalty or loss of benefits to which the participant is otherwise entitled to. The response (s) is (are) anonymous and the data will be treated confidentially at all times. No personal information will be obtained or asked from the participant.

The results of this research study will be used to increase school teachers' knowledge about strabismus and to make more awareness amongst school teachers about children with strabismus. The results of the study may be published and/ or presented at a meeting/ congress.

You may contact Liza-Marié Venter Jansen at liza-marie.optometrist@gmail.com any time if you have questions about the research.

You may contact the Secretariat of the Ethics Committee of the Faculty of Health Sciences, UFS at telephone number (051) 4052812, if you have questions about your rights as a research subject.

If you do continue with the survey, you are giving consent and have read through the information document. You may now continue with the hard copy questionnaire given to you.

I appreciate your participation.

Kind regards,
Liza-Marié Venter Jansen

Information document in Afrikaans

INLIGTINGSDOKUMENT:

Beste Deelnemer,

U is versoek om aan 'n navorsingstudie deel te neem, 'Die kennis en sienswyse van Graad R skool onderwysers met betrekking tot die psigososiale impak van strabisme (skeelheid) tussen skool kinders.'

Navorsing is slegs die proses waardeur die antwoord op 'n vraagstuk verkry word. Voor u besluit om die vraagstuk te beantwoord, is dit belangrik om die informasiedokument noukeurig deur te lees en te verstaan hoekom die navorsingstudie uitgevoer word en wat dit behels.

In hierdie studie wil ons die kennis en sienswyse van Graad R skool onderwysers met betrekking tot die psigososiale impak van strabismus (skeelheid) tussen skool kinders leer. Die navorsing data word ingevorder deur middel van 'n harde kopie vraagstuk. Die voltooiing van die vraagstuk sal nie langer as 15 minute neem nie.

U deelname aan hierdie navorsing is vrywillig, en u sal nie gepeenaliseer word of voordele verbeur as u weier om deel te neem of besluit om deelname te staak nie. Die antwoorde is vertroulik teen alle tye. Geen persoonlike inligting sal vereis word van u as die deelnemer af nie.

Die resultate van die navorsingstudie sal gebruik word vir die bewusmaking van strabisme onder skool kinders en om die kennis rakende strabisme (skeelheid) te versterk tussen onderwysers. Die resultate van die studie mag gepubliseer word en/ of by vergaderings/ kongresse voorgelê word.

U is oor die studie ingelig deur Liza-Marié Venter Jansen. U kan Liza-Marié enige tyd kontak by liza-marie.optometrist@gmail.com indien u vrae oor die navorsing het.

U kan die Sekretariaat van die Etiekkomitee van die Fakulteit Gesondheidswetenskappe, UV by telefoonnommer (051) 4052812 kontak indien u enige vrae het oor u regte as 'n proefpersoon.

As u instem om deel te neem, gee u toestemming en het u die inligtingsdokument deurgelees. U mag nou voortgaan met die voltooiing van die vraagstuk.

U deelname word opreg waardeur.

Groete,
Liza-Marié Venter Jansen

Information document in Sesotho

TOKOMANE EA BOITSEBISO:

Ratehang Mohoeletsi,

Ke u mema hore u kopanele thuputso ea lipatlisiso 'Tsebo le maitshwaro a matitjhere a kereite ya R mabapi le tshusumetso ya kelello ya botho baneng ba sekolo ba nang le bohloko ba ho pelekana mahlo (strabismus)'.

Phuputso ke mokhoa feela oa ho ithuta karabo ea potso. Pele o etsa qeto ea ho tsoela pele ka lipotso, ke habohlokoa ho utloisisa hore na ke hobanen'ng ha thuto ea lipatlisiso e khannoa le hore na e tla ama eng. Ka kopo, iphe nako ea ho bala ka boitsebiso bo latelang boitsebiso.

Sepheo sa phuputso ea lipatlisiso ke ho 'Tsebo le maitshwaro a matitjhere a kereite ya R mabapi le tshusumetso ya kelello ya botho baneng ba sekolo ba nang le bohloko ba ho pelekana mahlo (strabismus)'. Boitsebiso ba lipatlisiso bo tla bokelloa le ho phethoa lipotso tsa lipotso tse thata. Ho phethoa ha lipotso ho na nako e telele ho feta metsotso e 15.

Ho nka karolo ke ka boithatelo, 'me ho hana ho nka karolo ho ke ke ha e-ba le kotlo kapa tahlehelo ea melemo eo motho ea kenang letsoho a nang le tokelo ea eona. Kabelo e ka boela ea khaotsa ka nako leha e le efe ntle le kotlo kapa tahlehelo ea melemo eo mohoeletsi a nang le tokelo ea eona. Karabelo (s) ke (e) e sa tsejoeng 'me data e tla tšoaroa ka lekunutu ka linako tsohle. Ha ho tlhahisoleseling ea botho e tla fumanoa kapa ho botsoa ho motho ea kenang letsoho.

Liphello tsa thuto ena li tla sebelisetsoa ho eketsa mesuoe ea sekolo tsebo ka ts'oaetso le ho etsa tsebo e eketsehileng har'a mesuoe ea sekolo ka bana ba nang le bothata. Liphello tsa thuto li ka phatlalatsoa le/ kapa tsa hlalisoa libokeng/ likopanong.

U ka ikopanya le Liza-Marié Venter Jansen ho liza-marie.optometrist@gmail.com neng kapa neng ha u e-na le lipotso ka lipatlisiso.

U ka ikopanya le eona the Secretariat of the Ethics Committee of the Faculty of Health Sciences, UFS ka nomoro ea thelefono (051) 4052812, haeba o e-na le lipotso mabapi le litokelo tsa hau joaloka taba ea lipatlisiso.

Haeba u tsoelapele ka lipatlisiso, u fana ka tumello 'me u balile tokomane ea tlhahisoleseding. Hona joale o ka tsoela pele ka lipotso tse thata tseo u li fuoeng.

Ke ananela karolo ea hau.

Litumeliso tse mofuthu,
Liza-Marié Venter Jansen

Consent document in English

INFORMED CONSENT TO PARTICIPATE IN RESEARCH:

Dear Participant,

PROJECT TITLE: The knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus amongst school children.

You have been asked to participate in a research study.

You have been informed about the study by Liza-Marié Venter Jansen. You may contact Liza-Marié at liza-marie.optometrist@gmail.com any time if you have questions about the project.

You may contact the Secretariat of the Ethics Committee of the Faculty of Health Sciences, UFS at telephone number (051) 4052812, if you have questions about your rights as a research subject.

Please note that by completing this questionnaire you are voluntarily agreeing to participate in this research study and you will not be penalized or lose benefits if you refuse to participate or decide to terminate your participation.

You will remain anonymous and your data will be treated confidentially at all times.

You may withdraw from this study at any given moment during the completion of the questionnaire.

The results of the study may be published and/ or presented at a meeting/ congress.

If you agree to participate, you will be given a signed copy of this document as well as the participant information sheet, which is a written summary of the project.

The research study, including the above information has been verbally described to me. I understand what my involvement in the study means and I voluntarily agree to participate.

Signature of Participant

Date

Signature of Researcher

Date

Consent document in Afrikaans

TOESTEMMING TOT DEELNAME AAN NAVORSING:

Beste Deelnemer,

PROJEKTITEL: Die kennis en sienswyse van Graad R skool onderwysers met betrekking tot die psigososiale impak van strabisme (skeelheid) tussen skool kinders.

U is versoek om aan 'n navorsingstudie deel te neem.

U is oor die studie ingelig deur Liza-Marié Venter Jansen. U kan Liza-Marié enige tyd kontak by liza-marie.optometrist@gmail.com indien u vrae oor die navorsing het.

U kan die Sekretariaat van die Etiekkomitee van die Fakulteit Gesondheidswetenskappe, UV by telefoonnommer (051) 4052812 kontak indien u enige vrae het oor u regte as 'n proefpersoon.

U deelname aan hierdie navorsing is vrywillig, en u sal nie gepeenaliseer word of voordele verbeur as u weier om deel te neem of besluit om deelname te staak nie.

Die resultate van die studie mag gepubliseer word en/ of by vergaderings/ kongresse voorgelê word.

As u instem om deel te neem, sal 'n ondertekende kopie van hierdie dokument sowel as die deelnemerinligtingsblad, wat 'n geskrewe opsomming van die navorsing is aan u gegee word.

Die navorsingstudie, insluitend die bogenoemde inligting is verbaal aan my beskryf. Ek begryp wat my betrokkenheid by die studie beteken en ek stem vrywillig in om deel te neem.

Handtekening van die Deelnemer

Datum

Handtekening van die Navorser

Datum

Consent document in Sesotho

TSEBISO E TSEBAHALANG EA HO KENYA LETSOHO LIPATLISISONG:

Ratehang Mohoeletsi,

SEHLOOHO SA MORERO: Tsebo le maitshwaro a matitjhere a kereite ya R mabapi le tshusumetso ya kelello ya botho baneng ba sekolo ba nang le bohloko ba ho pelekana mahlo (strabismus).

U 'nile ua kōpua hore u kopanele thuputsona ea lipatlisiso.

U tsebisitsoe ka thuto eo Liza-Marié Venter Jansen. U ka ikopanya le Liza-Marié Venter Jansen ho liza-marie.optometrist@gmail.com neng kapa neng ha u e-na le lipotso ka lipatlisiso.

U ka ikopanya le eona the Secretariat of the Ethics Committee of the Faculty of Health Sciences, UFS ka nomoro ea thelefono (051) 4052812, haeba o e-na le lipotso mabapi le litokelo tsa hau joaloka taba ea lipatlisiso.

Ka kopo hlokomela hore ha u tlatse lipotso tse na u ikemiselitse ho kopanela thuputsona ena ea lipatlisiso 'me u ke ke ua fua phoso kapa ua lahlehela ke melemo haeba u hana ho nka karolo kapa u etsa qeto ea ho khaotsa ho kenya letsoho.

U tla lula u sa tsejoe ka lebitso mme dintlha tsa hau li tla tšoaroa ka lekunutu ka linako tsohle.

U ka tlohela thuto ena ka nako leha e le efe nakong ea phepele ea lipotso.

Liphello tsa thuto li ka phatlalatsoa le/ kapa tsa hlahisoa libokeng/ likopanong.

Haeba o lumellana ho nka karolo, o tla fua kopi e ngotsoeng e ngotsoeng hammoho le lethathamo la boitsebiso ba barupelua, e leng kakaretso e ngotsoeng ea morero.

Phuputso ea lipatlisiso, ho kenyelletsa le boitsebiso bo ka holimo e hlaloso ka mantsoe. Kea utloisisa hore na karolo ea ka ea thuto e bolela'ng 'me ke ithaopela ho lumela ho nka karolo.

Ho Saena Mohoeletsi

Letsatsi

Ho Saena Mofuputsi

Letsatsi

Health Sciences Research Ethics Committee Application Approval Letter

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

Health Sciences Research Ethics Committee

22-Feb-2018

Dear Miss Liza-Marié Venter

Ethics Clearance: **The knowledge and attitudes of grade R school teachers regarding the psychosocial impact of strabismus amongst school children**

Principal Investigator: **Miss Liza-Marié Venter**

Department: **Optometry (Bloemfontein Campus)**

APPLICATION APPROVED

Please ensure that you read the whole document

With reference to your application for ethical clearance with the Faculty of Health Sciences, I am pleased to inform you on behalf of the Health Sciences Research Ethics Committee that you have been granted ethical clearance for your project.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2017/0966**

The ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the HSREC for approval to ensure we are kept up to date with your progress and any ethical implications that may arise. This includes any serious adverse events and/or termination of the study.

A progress report should be submitted within one year of approval, and annually for long term studies. A final report should be submitted at the completion of the study.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act, No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4017794/5 or email EthicsFHS@ufs.ac.za.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Dr. SM Le Grange

Chair : Health Sciences Research Ethics Committee

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

T: +27 (0)51 401 7795/7794 | E: ethicsfhs@ufs.ac.za

IRB 00006240; REC 230408-011; IORG0005187; FWA00012784

Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa



Appendix F

Application to register and conduct research in the Free State Department of Education

Ref: Research Application

**APPLICATION TO REGISTER AND CONDUCT RESEARCH IN THE FREE STATE
DEPARTMENT OF EDUCATION**

- Please complete all the sections of this form that are applicable to you. If any section is not applicable please indicate this by writing N/A.
- If there are too few lines in any of the sections please attach the additional information as an addendum.
- Attach all the required documentation so that your application can be processed.
- Send the completed application to:

DIRECTOR: STRATEGIC PLANNING, POLICY AND RESEARCH

Room 319, 3rd Floor
Old CNA Building
Bloem Plaza
Charlotte Maxeke Street
BLOEMFONTEIN, 9300

OR

Free State Department of Education
Private Bag X20565
BLOEMFONTEIN, 9300

Email: berthakitching@gmail.com and B.Kitching@fseducation.gov.za

PLEASE DO NOT EMAIL ANYTHING IN PICTURE FORMAT

Tel: 051 404 9283 / 9211 / 082 454 1519

RESEARCH APPLICATION VENTER-JANSEN LM FORM SEND 12 SEPT 2017

Private Bag X20565, Bloemfontein, 9300 Room 319, 3rd Floor, Old CNA Building, Charlotte Maxeke Street, Bloemfontein, 9301

Tel: (051) 404 9283 / 9221 **Fax:** (086) 6678 678

1. **TITLE** (eg Ms, Mrs, Mr, Dr, Prof, etc):

M	R	S	
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2. **INITIALS**

L				
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3. **SURNAME**

V	E	N	T	E	R		J	A	N	S	E	N			
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4. **TELEPHONE HOME:**

N	/	A													
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5. **TELEPHONE WORK:**

N	/	A							
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6. **TELEPHONE CELL:**

0	8	4	3	6	8	8	3	0	4
---	---	---	---	---	---	---	---	---	---

7. **FAX:**

N	/	A							
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8. **E-MAIL**

L	M	V	E	N	T	E	R	@	G	M	A	I	L	.	C
O	M	/		L	I	Z	A	-	M	A	R	I	E	V	@
M	E	L	L	I	N	S	.	C	O	.	Z	A			

9. **ADDRESS HOME:**

1	1		S	P	R	I	N	G	F	I	E	L	D		
P	A	D	D	Y		G	O	O	D	R	I	C	K		
S	T	R	E	E	T										
P	E	N	T	A	G	O	N	P	A	R	K				
B	L	O	E	M	F	O	N	T	E	I	N				
Postal Code												9	3	0	1

10. **ADDRESS WORK:**

S	H	O	P		1	1		A							
2	N	D		F	L	O	O	R							
L	O	C	H		L	O	G	A	N						
W	A	T	E	R	F	R	O	N	T						
C	/	O		C	H	A	R	L	E	S					
S	T	R	E	E	T		&		F	I	R	S	T		
A	V	E	N	U	E										
B	L	O	E	M	F	O	N	T	E	I	N				

Postal Code	9	3	0	1
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11. POSTAL ADDRESS

S	A	M	E		A	S		H	O	M	E			
A	D	D	R	E	S	S								
Postal Code											9	3	0	1

12. NAME OF TERTIARY INSTITUTION / RESEARCH INSTITUTE AND STUDENT NUMBER

U	N	I	V	E	R	S	I	T	Y		O	F		
T	H	E		F	R	E	E		S	T	A	T	E	
D	E	P	A	R	T	M	E	N	T		O	F		
O	P	T	O	M	E	T	R	Y						
2	0	0	8	0	0	6	7	3	7					

13. OCCUPATION

O	P	T	O	M	E	T	R	I	S	T				

14. PLACE OF EMPLOYMENT

M	E	L	L	I	N	S	-	I	-	S	T	Y	L	E
L	O	C	H		L	O	G	A	N					

15. NAME OF COURSE

M	A	S		T	E	R		D	E	G	R	E	E		I	N
O	P	T	O	M	E	T	R	Y								

16. NAME OF SUPERVISOR / PROMOTER

P	R	O	F		T	A		R	A	S	E	N	G	A	N
E															

17. TITLE OF RESEARCH PROJECT

THE KNOWLEDGE AND ATTITUDES OF GRADE R SCHOOL TEACHERS REGARDING THE PSYCHOSOCIAL IMPACT OF STRABISMUS AMONGST SCHOOL CHILDREN.

18. CONCISE EXPLANATION OF THE RESEARCH TOPIC

APPENDIX A PLEASE FIND ATTACHED.

19. APPLICATION VALUE THAT THE RESEARCH MAY HAVE FOR THE FREE STATE EDUCATION DEPARTMENT

NEGATIVE SOCIAL BIAS DUE TO STRABISMUS CAN AFFECT THE SELF-ESTEEM AND THE LEARNING PROCESS OF A CHILD. ONE OF THE MOST IMPORTANT AREAS WHERE SOCIAL AND EDUCATIONAL MILESTONES ARE LAID DOWN AS A FOUNDATION IS AT A PRIMARY SCHOOL LEVEL.

THE ULTIMATE GOAL AND RECOMMENDATION FOR THIS RESEARCH STUDY IS TO GATHER ENOUGH INFORMATION ABOUT THE KNOWLEDGE AND ATTITUDES ABOUT STRABISMUS IN ORDER TO CREATE AN EDUCATIONAL LEAFLET FOR THE USE BY TEACHERS.

IT IS IMPORTANT TO CREATE MORE AWARENESS UNDER THE BROADER PUBLIC ABOUT THE PSYCHOSOCIAL IMPLICATIONS OF STRABISMUS. THE AWARENESS OF THESE PSYCHOCIAL FACTORS WILL MAKE IT POSSIBLE TO CREATE A BETTER QUALITY OF LIFE FOR THE CHILDREN LIVING WITH STRABISMUS. BY IMPROVING THERE QUALITY OF LIFE, THESE CHILDREN WILL BE MORE WILLING AND ABLE TO LEARN, CONTRIBUTE TO A SOCIETY'S SENSE OF WELL-BEING AND MAY GO ON TO BECOME HEALTHY ADULTS WHO WILL POWER THE ECONOMY AND CONTRIBUTE TO THE CONTINUED VITALITY OF THE SOCIETY THEY LIVE IN.

THEY MOST IMPORTANT IMPLEMENTATION IS THE ROLE THE TEACHER CAN PLAY IN THE SUPPORT SYSTEM FOR THE CHILD LIVING WITH STRABISMUS.

20. LIST OF SCHOOLS AND DISTRICTS INVOLVED IN THE RESEARCH
(If not enough space, please add more rows)

1.	A	R	B	E	I	D	S	G	E	N	O	T	
	P	F	/	S									
2.	K	A	A	L	S	P	R	U	I	T		P	F
	/	S											
3.	B	O	T	L	E	H	A	D	I		P	/	S
4.	W	A	T	E	R	B	R	O	N		P	/	S
5.	T	J	H	E	B	E	L	O	P	E	L	E	
	P	/	S										
6.	A	T	A	N	G		P	/	S				
7.	D	A	L	U	X	O	L	O		I	/	S	
8.	K	A	M	O	H	E	L	O		P	/	S	
9.	L	E	G	A	E		I	/	S				
10.	M	A	N	G	A	U	N	G		P	/	S	
11.	N	O	Z	A	L	A		I	/	S			
12.	T	E	B	E	L	E	L	O		P	/	S	
13.	C	R	E	D	E	N	C	E		P	/	S	
14.	N	Z	A	M	E		P	/	S				
15.	B	L	O	E	M	F	O	N	T	E	I	N	
	P	/	S										
16.	C	&	N		M	E	I	S	I	E	S	K	O
	O	L		O	R	A	N	J	E				
17.	D	R		V	I	L	J	O	E	N		C	/
	S												
18.	L	O	U	R	I	E	R		P	A	R	K	
	I	/	S										
19.	S	T		A	N	D	R	E	W	'	S		

1 SEPTEMBER 2017 – 30 SEPTEMBER 2017

25. WILL THE RESEARCH BE CONDUCTED DURING OR AFTER SCHOOL HOURS?

Please bear in mind that research is usually not allowed to be conducted in schools during normal teaching time.

THE SELF-ADMINISTERED QUESTIONNAIRE WILL BE DELIVERED TO THE PARTICIPATING SCHOOLS, WHICH WILL BE COMPLETED IN THE SPECIFIC PRE-SCHEDULED TIME SLOT ARRANGED, JUST BEFORE OR AFTER SCHOOL AS ONLY 15 MINUTES IS NEEDED TO COMPLETE THE QUESTIONNAIRE.

26. HOW MUCH TIME IS NEEDED WITH THE TARGET GROUP/S TO CONDUCT THE RESEARCH?

Target Group	Activity (ie interview, questionnaire, etc)	Time Needed
PRE-PRIMARY GRADE R SCHOOL TEACHERS	QUESTIONNAIRE	15 MINUTES

27. HAVE YOU INCLUDED / ATTACHED?

27.1 A letter from your supervisor confirming your registration for the course you are following?

Yes	No
SUPPLIED APPENDIX C	

27.1 A draft letter / specimen that will be sent to principals requesting permission to conduct research in their schools?

Yes	No
SUPPLIED APPENDIX D	

27.2 A draft letter / specimen that will be sent to parents requesting permission for their children to participate in the research project?

Yes	No
	N/A

27.3 A draft letter / specimen that will be sent to research participants to give their consent to take part in the research project?

Yes	No
SUPPLIED APPENDIX E	

27.4 A copy of the questionnaires that you wish to distribute to the target group/s?

Yes	No
SUPPLIED APPENDIX B	

27.5 A list of questions that will be asked during interviews with the target group/s?

Yes	No
	N/A

27.6 Ethical clearance certificate from higher education institution

Yes	No
	TO BE SUPPLIED

THE HSREC ADMINISTRATION TO NEED A LETTER OF APPROVAL FROM THE DEPARTMENT OF EDUCATION TO SUPPLY AN ETHICAL CLEARANCE CERTIFICATE.

28 I LIZA-MARIE VENTER JANSEN herewith confirm that all the information in this application form is correct and that I will abide by the ethical code and the conditions under which the research may be undertaken, ie:

28.1 I will abide by the ethical research conditions in the discourse of my study in the FSDoE.

28.2 I will abide by the period in which the research has to be done

28.3 I will apply for extension if I cannot complete the research within the specified period

28.4 If I fall behind with my schedule by three months to complete my research project in the approved period, I will apply for an extension.

28.5 I will not conduct research during the fourth quarter of the academic year

28.6 I will not disrupt normal learning and teaching times at schools to undertake my research

28.7 I will submit a bound copy or CD of the research document to the Free State Department of Education, Room 319, 3rd Floor, Old CNA Building, Charlotte Maxeke Street, Bloemfontein, upon completion of the research.

28.8 I will upon completion of my research study make a presentation to the relevant stakeholders in the Department as per the arrangements of the Department.

28.9 The ethics documents (attached) will be adheared to in the discourse of my study in your department.

28.10 The costs relating to all the conditions mentioned above are for my own responsibility.

SIGNATURE: _____



DATE: 12 SEPTEMBER 2017

ETHICAL REQUIREMENTS : FREE STATE DEPARTMENT OF EDUCATION

The scientific research enterprise is built on a foundation of trust and that the reports by others are valid. The reports should reflect an honest attempt by the researcher to describe the world accurately and without bias; this trust will endure only if the researcher devotes himself or herself to exemplifying and transmitting the values associated with ethical research conduct.

There are many ethical issues to be taken into serious consideration when conducting research. The Free State Department of Education believes that the researchers conducting research in this department would, amongst others, adhere to the following ethical conduct:

ETHICS GENERAL APPLICATION

1. Be aware of having the responsibility to secure the actual permission and interests of all those involved in the study;
2. Not misuse any of the information discovered
3. Moral responsibility maintained towards the participants
4. Embracing corporate social responsibility
5. Protecting the rights of people in the study as well as their privacy and sensitivity
6. Confidentiality of those involved in the observation must be carried out, keeping their anonymity and privacy secure.
7. Follow the ethical clearance guideline of the institution that granted such.

Amplifying the voice of the participants

Enhancing collective plurality.

ETHICS: INHERENT PRINCIPLES

8. Reliability
9. Informing the participants about the importance of the research
10. Values of trust, fairness and integrity are maintained in the study.

ETHICS

11. The value of transparency is considered.
12. The research is committed to delivering the intended promise as informed by the objectives.
13. The research accentuate the values of reputation and respect.

RESEARCHER: L VENTER JANSEN

SIGNATURE:



DATE: 12 SEPTEMBER 2017

RESEARCH APPLICATION VENTER-JANSEN LM FORM SEND 12 SEPT 2017

Page | 9

Approval to conduct research in the Free State Department of Education

Enquiries: KK Motshumi
 Ref: Research Permission: ML Venter-Jansen
 Tel. 051 404 9283 / 9221 / 079 503 4943
 Email: K.Motshumi@fseducation.gov.za



education
 Department of
 Education
 FREE STATE PROVINCE

ML Venter-Jansen
 11 Springfield
 Paddy Goodrick Street
 Pentagon Park
BLOEMFONTEIN, 9301

084 368 8304

Dear Mrs Venter-Jansen

APPROVAL TO CONDUCT RESEARCH IN THE FREE STATE DEPARTMENT OF EDUCATION

1. This letter serves as an acknowledgement of receipt of your request to conduct research in the Free State Department of Education.
2. **Topic:** The knowledge and attitudes of grade R school teachers regarding the psychosocial impact of strabismus amongst school children.

Schools involved: Arbeidsgenot, Atang, Botlehadi, C&N Oranje Meisieskool, Credence, Daluxolo, Dr Viljoen, Kaalspruit, Kamohelo, Legae, Louierpak, Mangaung, Nozala, Nzame, Bloemfontein Primary School, St Andrews, Tebelelo, Tjhebelopele and Waterbron schools in Motheo district.

Target Population: All Grade R Teachers in the selected schools will be invited to participate in the research survey

Period of research: From the date of signature of this letter until 30 September 2018. Please note the department does not allow any research to be conducted during the fourth term (quarter) of the academic year.

3. Should you fall behind your schedule by three months to complete your research project in the approved period, you will need to apply for an extension.
4. The approval is subject to the following conditions:
 - 4.1 The collection of data should not interfere with the normal tuition time or teaching process.
 - 4.2 A bound copy of the research document or a CD, should be submitted to the Free State Department of Education, Room 319, 3rd Floor, Old CNA Building, Charlotte Maxeke Street, Bloemfontein.
 - 4.3 You will be expected, on completion of your research study to make a presentation to the relevant stakeholders in the Department.
 - 4.4 The attached ethics documents must be adhered to in the discourse of your study in our department.
5. Please note that costs relating to all the conditions mentioned above are your own responsibility.

Yours sincerely


 DR JEM SEKOLANYANE
 CHIEF FINANCIAL OFFICER

DATE: 08/02/2018

RESEARCH APPLICATION VENTER JANSEN ML NOTIFICATION 20 SEPT 2017 EDITED 5 FEB 2018 MOTHEO DISTRICT
 Strategic Planning, Policy & Research Directorate
 Private Bag X20565, Bloemfontein, 9300 - Room 318, Old CNA Building, 3rd Floor, Charlotte Maxeke Street, Bloemfontein
 Tel: (051) 404 9283 / 9221 Fax: (086) 6678 678

Enquiries: KK Motshumi
Ref: Notification of research: LM Venter Jansen
Tel. 051 404 9221 / 079 503 4943
Email: K. Motshumi@fseducation.gov.za



**The District Director
Motho District**

Dear Mr Moloi

NOTIFICATION TO CONDUCT RESEARCH PROJECT IN YOUR DISTRICT BY LM VENTER JANSEN

1. The above mentioned candidate was granted permission to conduct research in your district and your Chief Directorate as follows:

Topic: The knowledge and attitudes of Grade R school teachers regarding the psychosocial impact of strabismus amongst school children.

Schools involved: Arbeidsgenot, Atang, Botlehadi, C&N Oranje Meisieskool, Credence, Daluxolo, Dr Viljoen, Kaalspruit, Kamohelo, Legae, Lourierpak, Mangaung, Nozala, Nzame, Bloemfontein Primary School, St Andrews, Tebelelo, Tjhebelopele and Waterbron schools in Motheo district.

Target Population: All Grade R Teachers in the selected schools will be invited to participate in the research survey.

Period: From date of signature to 30 September 2018. Please note the department does not allow any research to be conducted during the fourth term (quarter) of the academic year nor during normal school hours.

2. **Research benefits:** The ultimate goal and recommendation for this research study is to gather enough information about the knowledge and attitudes about strabismus in order to create an educational leaflet for the use by teachers. It is important to create more awareness under the broader public about the psychosocial implications of strabismus which will make it possible to create a better quality of life for the children living with strabismus. By improving the quality of life, these children will be more willing and able to learn, contribute to a society's sense of well-being and may go on to become healthy adults who will power the economy and contribute to the continued vitality of the society they live in. The most important implementation is the role the teacher can play in the support system for the child living with strabismus.
3. Logistical procedures were met, in particular ethical considerations for conducting research in the Free State Department of Education
4. The Strategic Planning, Policy and Research Directorate will make the necessary arrangements for the researcher to present the findings and recommendations to the relevant officials in your district.

Yours sincerely


DR JEM SEKOLANYANE
CHIEF FINANCIAL OFFICER

DATE 08/02/2018

RESEARCH APPLICATION VENTER JANSEN ML NOTIFICATION 20 SEPT 2017 EDITED 5 FEB 2018 MOTHEO DISTRICT
Strategic Planning, Policy & Research Directorate
Private Bag X20565, Bloemfontein, 9300 - Room 318, Old CNA Building, 3rd Floor, Charlotte Maxeke Street, Bloemfontein
Tel: (051) 404 9283 / 9221 Fax: (086) 6678 678

Approval to conduct research primary schools: The Principal



DEPARTEMENT VAN OPTOMETRIE
DEPARTMENT OF OPTOMETRY

14 August, 2017

The Principal

Dear Sir/ Madam

A REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY AMONGST GRADE R SCHOOL TEACHERS

RESEARCH TITLED: 'THE KNOWLEDGE AND ATTITUDES OF GRADE R SCHOOL TEACHERS REGARDING THE PSYCHOSOCIAL IMPACT OF STRABISMUS AMONGST SCHOOL CHILDREN'.

I, Liza-Marié Venter Jansen, a post-graduate student in Optometry at the University of the Free State, am doing a research study on the knowledge and attitudes of grade R school teachers regarding the psychosocial impact of strabismus (a squint eye) amongst school children.

The aim of the research study is to determine the knowledge and attitudes of grade R school teachers regarding the psychosocial impact of strabismus amongst school children. The research data will be collected with the completion of a hard copy questionnaire. The completion of the questionnaire will not last longer than 15 minutes.

Participation is voluntary, and refusal to participate will involve no penalty or loss of benefits to which the participant is otherwise entitled to. Participation may also be discontinued at any time without penalty or loss of benefits to which the participant is otherwise entitled to. The response (s) is (are) anonymous and the data will be treated confidentially at all times. No personal information will be obtained or asked from the participant.

The results of this research study will be used to increase school teachers' knowledge about strabismus and to make more awareness amongst school teachers about children with strabismus. The results of the study may be published and/ or presented at a meeting/ congress.

I am asking your consent to perform this study on your grade R teachers as per approval of the Director: Strategic Planning, Policy and Research, Free State Department of Education.

Please find attached the information document with regards to the project.

Sincerely,

Liza-Marié Venter Jansen
Principle Investigator

Prof TA Rasengane, National District Hospital,
White Block, 1st floor, room 106, Roth Avenue, Willows, Bloemfontein
339, Bloemfontein 9300,
☎ +27 (0)51 405 2680
☎ +27 (0)51 430 9108,
✉ rasenganeta@ufs.ac.za / rasenganta@universitas.fs.gov.za

Tuwani A. Rasengane, PhD
Head of Department : Optometry

P.O. Box/Posbus 339
Bloemfontein 9300
South Africa/Suid-Afrika

P.O. Box/Posbus 339
Bloemfontein 9300
South Africa/Suid-Afrika
T: +27(0)51 401 9111
www.ufs.ac.za



UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIBESITHI YA FREISTATA