

UNIVERSITY OF THE WESTERN CAPE  
FACULTY OF COMMUNITY AND HEALTH SCIENCES

**TITLE:**

**THE MANAGEMENT OF BELL'S PALSY AT SELECTED COMMUNITY  
HEALTH CENTRES IN THE CAPE METROPOLITAN DISTRICT OF  
THE WESTERN CAPE, SOUTH AFRICA**



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## ABSTRACT

Bell's palsy (BP), a fairly common disorder predominantly prevalent in the adult age group, affects nerves and muscles in the face causing paralysis or dropping of one side of the face. Clients with Bell's palsy face many challenges, including psychological, physical and emotional. A long recovery period and/or delayed complete healing could lead to a negative effect on many aspects of an individual's life. How society perceives the person could negatively influence the client's self-confidence. The management of Bell's palsy depends on the individual case and may include medication, physiotherapy and as a last option, surgery. **The aim** of the study was to investigate the management of Bell's palsy at primary health care level in the Cape Metropolitan District of the Western Cape. The study **specific objectives** was to investigate the management or treatment protocol of clients with Bell's palsy, to determine the tendency for referral for physiotherapy, to determine whether an association exists between the type of management or treatment received and the recovery of clients with Bell's palsy and to explore the impact Bell's Palsy has on the clients. The **over-arching design** of the study was the sequential explanatory mixed methods design where qualitative data was used to assist in explaining and interpreting the findings of a primarily quantitative study. Stratified random sampling was done proportionately to ensure equal representation. A self-administered questionnaire, comprising of four sections, was used to collect quantitative data that was analysed using SPSS version 21. Descriptive statistics was employed to summarise the data on the socio-demographic information of the clients. Inferential statistics was used to determine the distributions of cases in the various groups. Significant differences tested for using the Chi-square test and effect size through Cramer's V tests. A semi-structured interview guide was developed based on the results of the analysis of the quantitative data. Focus group discussions were employed to a sub-sample of the clients with Bell's palsy. Permission an ethical clearance will be obtained from Senate Higher Degrees Committee at the University of the Western Cape

(UWC), the Western Cape Department of Health and the facility managers of the participating CHCs. **Results** showed that most of the participants (61.8%) had the symptoms of Bell's palsy for more than a year. Only 19.5% (n=24) of the participants underwent special investigations to diagnose the disease, of which more than half (n=14, 58.3%) had blood tests done. Anxiety and being concerned about the symptoms were reported by 29.3% and 35.0% of the participants respectively. The majority of the participants received physiotherapy treatment (n=110, 89.4%) for the symptoms. Therapeutic exercises were received by all the participants referred for physiotherapy. The psychological impact of the diseases was significantly higher in participants with a low physical function score and a fairly low effect size was calculated (Cramer's  $V = 0.237$ ). Participants with a low social well-being score had a significant longer duration of symptoms and the psychological impact of the disease were more distinct in these participants. Significantly more participants with a lower total FDI reported to have a negative psychological impact of the disease. Results of the qualitative data indicate that Bell's palsy negatively affects the clients' physical health as they experience difficulty with eating, drinking, vision and speech. Furthermore, the psychological impact of the disease should not be underestimated as the participants were negatively affected, both emotionally and economically. The participants reported a positive experience with the combination of medication and physiotherapy treatment. Physiotherapy treatment on its own, especially exercises also contributed to a very positive outcome of results. Not all the participants were aware of physiotherapy services offered in the management of Bell's palsy and the long waiting periods for an appointment to see a doctor at the CHCs were identified as problematic. **Conclusion:** There is a need to increase awareness about the management of Bell's palsy, especially the role physiotherapy interventions could play in the management of the disease at primary health care level. The development and implementation of policy guidelines for the management of Bell's palsy to incorporate aspects of international research and policy is recommended. In addition, psychological treatment should be offered for each client.

**DECLARATION**

I hereby declare that **“THE MANAGEMENT OF BELL'S PALSY AT SELECTED COMMUNITY HEALTH CENTRES IN THE CAPE METROPOLITAN DISTRICT OF THE WESTERN CAPE, SOUTH AFRICA”** is my own work, that it has not been submitted, or part of it, for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

Lutfia Ali Ellsahli

Signature.....

May 2015



Witness.....

.....

Dr Tania Steyl (supervisor)



## **DEDICATION**

My husband Omar, whose unwavering support stirred me into the future even if it looked bleak at times. My dedication is also due to our daughter Besan for being the source of courage and happiness during my studies in South Africa. I dedicate this thesis also to my parents for their unreserved encouragement, love and sacrifice for my success. A special mention also goes beyond doubt to my brothers and sisters who also motivated me during each step of this thesis.



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## TABLE OF CONTENTS

KEYWORDS.....	i
ABSTRACT.....	ii
DECLARATION.....	iv
DEDICATION.....	v
AKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF APPENDICES.....	xiii
LIST OF FIGURES.....	XIV
LIST OF TABLES.....	XV

### CHAPTER ONE

### INTRODUCTION

1.1 Background.....	1
1.2 Problem Statement.....	4
1.3 Research Question.....	4.
1.4 Aim of the study.....	5
1.5 Objectives of the study.....	5
1.6 Significance of the study.....	5
1.7 Description of the terms.....	6.
1.8 Abbreviations.....	7
1.9 Summary of the chapters.....	7

### CHAPTER TWO

### LITERATURE REVIEW

2.1 Introduction.....	10.
2.2 Background, Definition and Prevalence of Bell's Palsy.....	10
2.3 Factors associated with the development of Bell's palsy.....	12

2.3.1 Auto-immune System .....	12
2.3.2 Viral infection.....	12
2.3.3 Inflammatory disorder.....	13
2.3.4 Pregnancy.....	13
2.3.5 Vascular ischemia.....	14
2.4 Pathophysiology and Etiology of Bell’s palsy.....	14
2.5 Psychological impact of Bell’s palsy.....	16
2.6 Diagnosis of Bell’s palsy.....	17
2.7 Evaluation of Bell’s palsy.....	18
2.8 Differentials Diagnosis.....	20
2.9 Prognosis of the disease.....	21
2.10 Management of Bell’s palsy.....	22
2.10.1 Pharmacological Management.....	22
a) Corticosteroids.....	22
b) Anti-viral medication.....	23
2.10.2 Non-pharmacological Management.....	24
a) Physiotherapy.....	24
a.1) Short wave diathermy.....	24
a.2) Electro-stimulation.....	25
a.3) Biofeedback.....	27
a.4) Exercise therapy.....	28
a.5) Kabat rehabilitation.....	28
a.6) Ultrasound.....	29
a.7) Laser therapy.....	29
b) Complementary therapy.....	30
b.1) Acupuncture.....	30



b.2) Aromatherapy.....	31
c) Surgery .....	31
d) Eye care.....	32
e) Botox.....	33
2.11 Residual effect of Bell’s palsy.....	33
2.13 Summary of the chapter.....	34

**CHAPTER THREE                      METHODOLOGY**

3.1 Introduction.....	36
3.2 Research Setting.....	36
3.3 Study Design.....	37
3.4 Study Population and Sampling.....	38
3.4.1 Quantitative Component.....	38
3.4.2 Qualitative Component.....	40
3.5 Instrument and Methods of Data Collection.....	40
3.5.1 Quantitative component.....	40
3.5.2 Qualitative component.....	43
3.6 Data Collection Procedures.....	43
3.6.1 Quantitative Component.....	43
3.6.2 Qualitative Component.....	44
3.7 Data Analysis.....	47
3.7.1 Quantitative Component.....	47
3.7.2 Qualitative Component.....	47
3.8 Ethical Considerations.....	48
3.9 Summary of the chapter.....	50



## **CHAPTER FOUR**

## **QUANTITATIVE RESULTS**

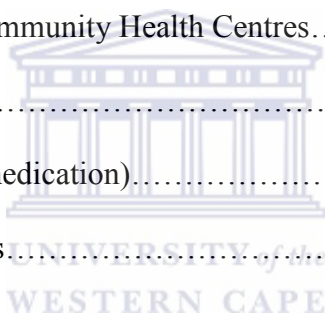
4.1 Introduction.....	51
4.2 Socio-demographics Characteristic of clients with Bell’s palsy.....	51
4.3 Percentage of clients with BP per Community Health Centre (CHCs).....	53
4.4 Self-reported co-morbidities of clients with Bell’s palsy .....	54
4.5 Duration of symptoms of Bell’s palsy of participants.....	55
4.6 Special investigation done to confirm the diagnosis of Bell’s palsy.....	56
4.7 The psychological impact of Bell’s palsy on participants.....	57
4.8 The managements of Bell’s palsy of the participants.....	58
4.8.1 Medication used in the management of Bell’s palsy.....	59
4.8.2 Physiotherapy interventions used in the management of Bell’s palsy ..	60
a) Therapeutic exercises.....	61
b) Therapeutic massage.....	63
c) Ultrasound.....	64
d) Electrical therapy.....	64
e) Heat therapy.....	65
4.8.3 Surgery.....	66
4.9 Results of Facial Disability Index (FDI).....	66.
4.10 Summary of the chapter.....	69

## **CHAPTER FIVE**

## **QUALITATIVE RESULTS**

5.1 Introduction.....	71
5.2 Description of the participants.....	71
5.3 The impact of Bell’s palsy on the client’s physical health.....	72
5.3.1 Difficulty with eating and drinking.....	73.

5.3.2 Difficulty with vision.....	74
5.3.3 Difficulty with speech.....	75
5.3.4 Problems relating to the affected ear.....	75
5.4 Clinical picture of Bell’s palsy.....	76
5.4.1 Similarity with stroke (CVA).....	76
5.4.2 Incorrect diagnosis.....	77
5.4.3 Signs of stress.....	78
5.5 Life changing experience.....	79
5.5.1 Psychological impact.....	79
5.5.2 Social / emotional impact.....	79
5.5.3 Economic difficulties.....	81
5.6 Quality of services received at Community Health Centres.....	81
5.6.1 Physiotherapy treatment.....	81
5.6.2 Pharmacologic treatment (medication).....	83
5.6.3 Obstacles faced at the CHCs.....	84
5.7 Summary of the chapter.....	85



## **CHAPTER SIX           DISCUSSION OF THE RESULTS**

6.1 Introduction.....	86
6.2 Gender, Age and Occupation of study sample.....	86
6.3 Co-Morbidities of Bell’s palsy.....	87
6.4 Diagnosis of Bell’s palsy.....	88
6.5 Impact of Bell’s palsy on patient’s psychology.....	88
6.6 The management of Bell’s palsy.....	90
6.6.1 Pharmacological management.....	90
6.6.2 Physiotherapy management.....	91

6.7 Facial Disability Index (FDI).....	94
6.8 Awareness of rehabilitation and physiotherapy services.....	95
6.9 Summary of the chapter.....	95

**CHAPTER SEVEN                      CONCLUSION, STUDY LIMITATIONS AND  
RECOMMENDATIONS**

7.1 Introduction.....	96
7.2 Summary of the study.....	96
7.3 Limitations of the study.....	98
7.4 Recommendations.....	99

<b>REFERENCES.....</b>	<b>103</b>
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## LIST OF APPENDICES

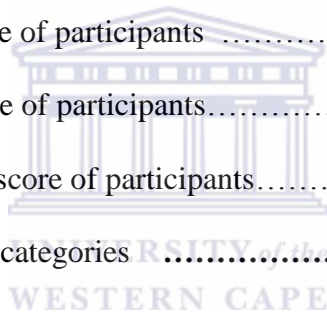
<b>Appendix 1</b>	Ethical clearance letter: University of the Western Cape
<b>Appendix 2a</b>	Ethical clearance letter: Western Cape Department of Health (Southern and Western districts)
<b>Appendix 2b</b>	Ethical clearance letter: Western Cape Department of Health (Klipfontein and Mitchells Plain)
<b>Appendix 2c</b>	Ethical clearance letter: Western Cape Department of Health (Northern and Eastern districts)
<b>Appendix 3a</b>	Consent form: Afrikaans
<b>Appendix 3b</b>	Consent form: English
<b>Appendix 3c</b>	Consent form: isiXhosa
<b>Appendix 4a</b>	Information sheet: Afrikaans
<b>Appendix 4b</b>	Information sheet: English
<b>Appendix 4c</b>	Information sheet: isiXhosa
<b>Appendix 5a</b>	Confidentiality binding form: Afrikaans
<b>Appendix 5b</b>	Confidentiality binding form: English
<b>Appendix 5c</b>	Confidentiality binding form: isiXhosa
<b>Appendix 6a</b>	Questionnaire: Afrikaans
<b>Appendix 6b</b>	Questionnaire: English
<b>Appendix 6c</b>	Questionnaire: isiXhosa
<b>Appendix 7</b>	Interview Guide

## LIST OF FIGURES

Figure 1.1	Facial nerve anatomy.....	15
Figure 3.1	Map of the Western Cape district municipalities.....	37
Figure 4.1	Duration of symptoms of Bell’s palsy.....	55
Figure 4.2	Percentage of participants that underwent special investigations..	56
Figure 4.3	Special investigation done.....	57
Figure 4.4	Psychological impact of the disease.....	57
Figure 4.5	Types of medications used in the study sample.....	59
Figure 4.6	Duration of use of medication.....	60
Figure 4.7	Physiotherapy interventions employed.....	61
Figure 4.8	Prescribed therapeutic exercises.....	61
Figure 4.9	Duration of prescribed therapeutic exercises.....	62
Figure 4.10	Prescribed therapeutic massage.....	63
Figure 4.11	Duration of prescribed therapeutic massage.....	64
Figure 4.12	Electrical therapy modules employed.....	65

## LIST OF TABLES

Table 2.1	Classification of dysfunction according to modified House-Brackmann Scale.....	19
Table 2.2	Differential diagnosis of Bell’s palsy.....	21
Table 2.3	Classification of nerve injury.....	26
Table 4.1	Socio-demographic characteristic of study sample.....	52
Table 4.2	Percentage of clients with Bell’s palsy per participating CHCs.....	53
Table 4.3	Self-reported co-morbidities of clients with Bell’s palsy.....	54
Table 4.4	Interventions used in the management of participants with Bell’s palsy .....	58
Table 4.5	Physical function score of participants .....	66
Table 4.6	Social well-being score of participants.....	67
Table 4.7	Total facial disability score of participants.....	68
Table 5.1	Emerging themes and categories .....	72

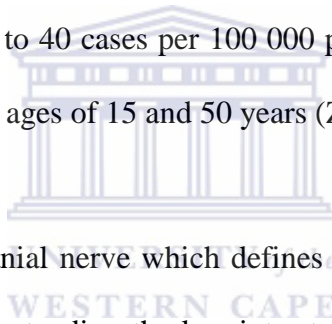


# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Bell's palsy (BP) is a fairly common disorder that affects nerves and muscles in the face causing paralysis or the dropping of one side of the face. The disease was first described by Nicolaus Friedrich in 1797 and named after Sir Charles Bell who explained the disease (Greco et al., 2012). Viral infections are the most common reason for the development of BP as opposed to tumors, immune disease or drugs (Liu, Li, Yuan & Lin, 2009). It is considered a devastating disease as it harms many aspects of an individual, both physical and psychological. The annual incidence of Bell's palsy globally is approximately 11 to 40 cases per 100 000 people per year (Hato, et al., 2007) with peak incidence usually between the ages of 15 and 50 years (Zandian et al., 2014).



The facial nerve is the seventh cranial nerve which defines facial expressions. The passageways of the nerve are changeable and understanding the key intra-temporal and extra-temporal indicators is fundamental for exact physical diagnosis and reliable and influential surgical interference. Facial nerves consist of about ten thousand neurons, seven thousands of which are myelinated and compose the facial expression nerves. It has been estimated that three thousand of the nerve fibers are somato-sensory and secreto-motor which compose the nervous intermedius. In addition to its significant function of somatic facial musculature motion, facial nerves also produce the taste sensation (fibres from the nucleus tractus solitarius) and have a parasympathetic secreto-motor function (fibres from superior salivary nucleus). Facial nerves split into different segments as it emerges from its origin in the brain stem and path along the temporal bone and through the stylomastoid foramen. Axons take

control of parasympathetic and sensory functions of the facial nerves allowing the patient to have some upper motion regardless of a central lesion (Pham, Young & Makishima, 2012). Facial nerves have a large motor branch which innervate the facial expression muscles, as well as a tiny sensory branch, transmitting sensations of taste from the frontal two-thirds of the tongue through the chorda tympani nerve (Greco et al., 2012). Vascular supply of the facial nerves is provided by the middle meningeal artery, the superficial petrosal branch and stylomastoid branch of the posterior auricular arteries as well as the stylomastoid artery (Dyck , 2010). Due to the complex functional anatomy and the inter-cranial paths of facial nerves, it is susceptible to much pathology, including trauma, infections and vascular pressure, amongst others.

Bell's palsy affects females and males of all age groups (Ivona, Dusan, Gordana, Lidija & Hristina., 2010). A higher prevalence is noticed in people 40 years and older (Finsterer, 2008) as well as in clients with diabetes (Riga, Kefalidis & Danielides, 2012) and pregnant women (Hawood-Nuss, Wolfson, Hendey, Ling & Rosen, 2009; Hilsinger, Adour & Doty, 1975). The symptoms manifest following irritation to the facial nerve (7<sup>th</sup> cranial nerve) that supplies the muscles of the face, including the muscles that raise the eyebrow, close the eye, wrinkle the nose, and assist with smiling and opening and closing of the mouth. The sensation of the front part of the tongue and the tear ducts of the eyes are also affected. The diagnosis of BP depends on eliminating other diseases as soon as possible, as delayed treatment and inappropriate therapy methods could hamper the client's outcome (Liu et al., 2009; Greco et al., 2012).

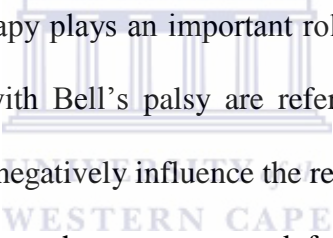
The majority of patients with facial nerve paralysis are expected to recover 85% within the first three weeks after the onset, while about 15% of recovery only starts after 2 to 3 months from onset

(Peitersen, 2002). Complete recovery without medical or/and physiotherapy intervention is expected for most of the patients with the disease. However, some cases remain complicated and result in incomplete recovery of symptoms.

The management of Bell's palsy depends on the individual case and it could include drug therapy (corticosteroids, anti-viral drugs and pain medication), physiotherapy treatment, surgical management, botox injections and other treatments. Generally, physiotherapy has an influential role to play in the management of Bell's palsy by reducing the physical effect and psychosocial implication of the disease (Elliot, 2006). Some studies suggest that physiotherapy can be useful in maintaining the tone of the affected facial muscles by stimulating the facial nerve (Shafshak, 2006). Physiotherapy modalities include electrotherapy, neuromuscular retraining, manual massage, facial exercise, Kabat rehabilitation and acupuncture therapy. Manikandan (2007) reported that neuromuscular re-education was more effective in improving facial symmetry in clients with BP than conventional therapeutic management. In 2006, Ohtake, Zafron, Poranki and Fish investigated the efficacy of electro-stimulation (ES) to reduce neuromuscular conduction latencies and minimise clinical impairments in patients with chronic BP. Improvements in facial motor dysfunction ranged between mild (minor abnormalities such as minimal synkinesis) and moderate (symmetry at rest with mild disfigurement at movement). A recent study by Barbara, Antonini, Vestri, Volpini & Monini (2010) regarding the role of the Kabat technique (proprioceptive neuromuscular rehabilitation) on improving clinical symptoms of clients with BP, reported a more complete and speedy recovery rate for clients that received this mode of management compared to other treatment modalities, hence the question proposed by the researcher regarding the role different treatment modalities play in the recovery of clients with Bell's palsy.

## **1.2 Problem statement**

Clients with Bell's palsy face many challenges, including psychological, physical and emotional challenges. A long recovery period and/or delayed complete healing of a client with Bell's Palsy could lead to a negative effect on many aspects of an individual's life. How society perceives the person, for instance staring at the person or making statements because the person looks different may make the client feel uncomfortable and embarrassed. This could negatively influence the client's self-confidence as he or she can become anxious to appear in social situations. Moreover, individuals often worry about the social stigma related to facial asymmetry, a secondary result of the disease. The aforementioned problem is furthermore enhanced by the physical impact the paralysis may have on the client's eating and drinking practices.



Literature indicates that physiotherapy plays an important role in the recovery of clients with Bell's palsy. However, not all clients with Bell's palsy are referred for physiotherapy as part of their rehabilitation protocol. This could negatively influence the recovery process and outcome. Although all the treatment modalities aim to enhance motor and facial functions of the clients with BP, different implementation strategies could contribute to sub-standard outcomes for the client. It is therefore necessary to determine the factors related to the management of the disease that may influence the recovery process of clients with Bell's palsy.

## **1.3 Research question**

How are clients with Bell's palsy managed at primary health care level in the Western Cape, South Africa?

#### **1.4 Aim of the study**

The overall aim of the study is to investigate the management of Bell's palsy at primary health care level in the Western Cape, South Africa.

#### **1.5 Objectives of the study**

1.5.1 To investigate the management or treatment protocol of clients with Bell's palsy at selected Community Health Centres (CHCs) in the Cape Metropolitan District of the Western Cape.

1.5.2 To determine the tendency for referral for physiotherapy of clients with Bell's palsy at selected Community Health centres (CHCs) in the Cape Metropolitan District of the Western Cape.

1.5.3 To determine whether an association exists between the type of management or treatment received and the recovery of clients with Bell's palsy at selected Community Health Centres (CHCs) in the Cape Metropolitan District of the Western Cape.

1.5.4 To explore the impact Bell's palsy has on the clients at selected Community Health Centres (CHCs) in the Cape Metropolitan District of the Western Cape.

#### **1.6 Significance of the study**

The study could enlighten health care professionals on the role physiotherapy can play in the management of clients with Bell's palsy. It could provide valuable information of the best practices that should be followed to obtain better recovery results of these clients. In addition, all health care professionals managing clients with Bell's palsy could see the importance of multi-disciplinary management strategies in order to improve the recovery of clinical symptoms and hence reduce the



physiological burden of the disease on these clients. Furthermore, the results of the study could be a guiding source of information to the government or decision-makers when enacting policies involving clients with Bell's palsy.

## 1.7 Description of terms

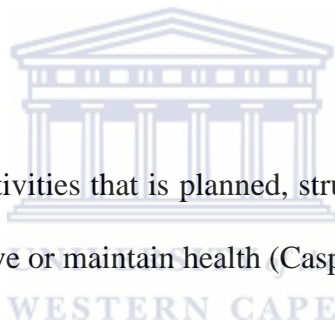
**Corticosteroids:** It is an anti-inflammatory medication prescribed for multiple causes and diseases (Salinas, Alvarez , Daly & Ferreira , 2010).

**EMG Testing:** It is a test in which a needle electrode is inserted into the affected muscles in order to record both spontaneous depolarisation and the responses to voluntary muscle contraction (Shafshak, 2006).

**Exercise:** A subset of physical activities that is planned, structured and repetitive and has as a final or intermediate objective to improve or maintain health (Caspersen, Powell & Christenson, 1985).

**Infrared:** It is a treatment modality that uses invisible light with wavelengths between 750 nanometers (nm) and 1 millimeter (mm) (Stuart, 2005).

**Physiotherapy:** The inspection, treatment and direction of individuals to reveal, determine, block, modify and border physical disability in order to decrease the prevalence and seriousness of bodily disorder and pain (Kumar, 2010).



**Syknosis:** It is the most disagreeable consequence of Bell's palsy and the outcome of irregular restoration of facial nerve in the affected facial muscle (Azuma et al., 2012).

## 1.8 Abbreviations

BP:	Bell's Palsy
ES:	Electrical Stimulation
CHCs:	Community Health Centres
CT Scanning:	Computer Tomography Scanning
FS:	Faradic Stimulation
HSV:	Herpes Simplex Virus
IR:	Infrared
MRI:	Magnetic Resonance Image
PHC:	Primary Healthcare System
SWD:	Short Wave Diathermy
RCTs:	Randomised Control Trials
US:	Ultrasound



## 1.9 Summary of the Chapters

**Chapter One** provides the background of the study and highlights the incidence of Bell's palsy. The problem statement, research question, aim, specific objectives and significance of the study are also outlined. The chapter ends with the definitions of terms and abbreviations used in the study.

**Chapter Two** presents a review of existing literature on Bell's palsy. The global prevalence as well as signs and symptoms of the disease are presented. Also reviewed are the factors associated with the development of the disease, etiology and pathophysiology of the disease, the psychological impact of Bell's palsy, diagnosis and differential diagnosis and the classification of the severity of the disease. Lastly, the pharmacological and non-pharmacological management of the disease, with special reference to physiotherapy modalities are reviewed.

**Chapter Three** describes the methods used in the study. The study setting, research approach and research designs for both quantitative and qualitative phases are given. Furthermore, the study population and sampling method, data collection instruments and the procedure for data collection for both quantitative and qualitative phases are described. Last but not least, the data analyses for both quantitative and qualitative as well as the ethical considerations for the study are outlined.

**Chapter Four** outlines the results of the quantitative part of the study. Descriptive statistics are used to describe the results in terms of frequencies, means, ranges and standard deviation using tables, graphs and pie charts. Chi square tests are used to indicate the association between variables.

**Chapter Five** presents the qualitative results of the interviews that attempted to explore the impact Bell's palsy has on the clients. Pre-determined and emerging themes are illustrated with the use of verbatim quotes.

**Chapter Six** presents the discussion of the quantitative and qualitative results. It furthermore provides a summary of the study and draws conclusions based on the findings. Limitations to the

study are also outlined. In addition, recommendations based on the main findings of the study are made.

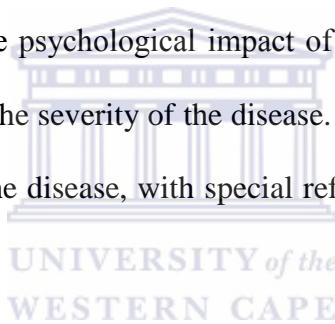


## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

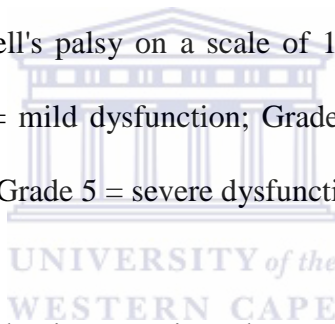
This chapter provides an overview of existing literature regarding aspects of Bell's palsy. The literature review was done based on articles and studies sourced mainly from search engines including CINAHL Plus, Pub med, Medicine, Science Direct and Google Scholar. The information was searched using the following key words: Bell's palsy, facial paralysis, management, intervention, physical therapy and physiotherapy. The researcher reports on the prevalence of Bell's palsy, signs and symptoms of the disease, factors associated with the development of the disease, etiology and pathophysiology of the disease, the psychological impact of Bell's palsy, diagnosis and differential diagnosis and the classification of the severity of the disease. Finally, the pharmacological and non-pharmacological management of the disease, with special reference to physiotherapy modalities, are discussed.



#### **2.2 Background, definition and prevalence of Bell's palsy**

Bell palsy, a lower motor neuron lesion, is a complex neuromuscular facial disorder of unknown etiology which affects the 7<sup>th</sup> cranial nerve or facial nerve (Eliot, 2006), causing ipsilateral paralysis or paresis of the muscles of facial expression. The paralysis caused by Bell's palsy present the same as for facial paralysis due to a head injury. The pathophysiology process can be described as an inflammation of the facial nerve resulting in demyelination of the axons and disruption of the blood supply to the facial nerve, affecting the facial expression muscles, salivary glands as well as sensory fibers that supply taste sensation (Elliot, 2006).

Signs and symptoms of Bell's palsy include (on the affected side): facial drooping, altered sensation, difficulty with closing the eye or finding it hard to blink, excessive tearing or dryness of the eye, drooling from the mouth, headaches, dizziness, a dull ache behind the ear and around the jaw, impaired taste and speech and difficulty eating and drinking. The clinical appearance of BP is normally sufficient for a prompt diagnosis, but sometimes doctors prefer to perform a facial CT scan or x-rays to rule out growths such as tumors. Furthermore, the diagnostic process includes the following: an otology examination (pneumatic otoscopy and tuning fork examination) particularly if there is evidence of acute or chronic otitis media, an ocular examination (client often unable to completely close eye on affected side), an oral examination (taste and salivation often affected) as well as neurological examination of all the cranial nerves. The grading system developed by House and Brachmann (1985) classify Bell's palsy on a scale of 1 to 6 (Sarhan et al., 2012): Grade 1 = normal facial function; Grade 2 = mild dysfunction; Grade 3 = moderate dysfunction; Grade 4 = moderately to severe dysfunction; Grade 5 = severe dysfunction and Grade 6 = total paralysis.



Globally the incidence of Bell's palsy is approximately 20 to 30 cases per 100 000 people per year (Hato et al., 2007). In developed countries, the highest incidence (approximately 18 725 patients per year) was found in Seckori, Japan while the lowest incidence (approximately 1 300 patients per year) was found in Sweden (Perry, Potter, Rambo & Short, 2011). In the United States of America (USA) the incidence is ranging between 13 and 34 cases per 100 000 people per year. There is however a lack of information regarding the prevalence of Bell's palsy in developing countries, including South Africa.

Bell's palsy is more likely to occur in clients between the ages of 15 and 45 years (Sarhan et al., 2012) and is three times more likely to affect pregnant women (Ragupathy & Emovon, 2013). At the same time studies report that BP's wide spread affects women in the adolescence stage and in their twenties. However the prevalence seems to be the same for both genders in their thirties, with a higher incidence after the age of 40 years (Garg, Gupta, Singh & Chaudhury, 2012).

### **2.3. Factors associated with the development of Bell's palsy**

#### **2.3.1 Auto-immune system**

Greco et al. (2012) proposed that the process of auto-immune cell interceded may be associated with the development of BP. Some evidence showed modifications in the lymphocytes divisions of tangential blood as well as gaps in cellular and humoral immunologic alterations' during the acute phase of BP. In addition, a decline of the proportion of T-cells (CD3) and helper-cells (CD4) are evident in BP. Many studies proposed a correlation between facial palsy and Guillain-Barre syndrome. This disorder influences the peripheral nerves causing paralysis that commence in the feet and hands, spreading to the back. In both conditions researchers found a significant decline in T-lymphocytes (Greco et al., 2012). Neuromuscular diseases are common in clients with human immunodeficiency virus (HIV). It can occur at any stage of the disease and affect any part of the peripheral nervous system. Bell's palsy has been observed in clients who are already known to be infected with HIV (Robinson-Papp & Simpson, 2009).

#### **2.3.2 Viral infection**

A viral infection, especially the type 1 Herpes simplex virus (HSV) is recognised to be the major cause of idiopathic facial palsy. Epidemiological data reported an estimation of three (3) months of

this virus since the onset of the paralysis and laboratory test can provide its presence in the saliva of the client (Kennedy, 2010). Furthermore, electrophysiological assessments found that the highest level of the infection is between the first and fourteenth day after the onset of the paresis (Barbara et al., 2010).

### **2.3.3 Inflammatory disorder**

An inflammatory response caused by viruses such as Herpes Simplex or Herpes Zoster for instance may cause swelling in the affected area. In Bell's palsy, the swelling results in disruption in the conduction of the nervous system, all as a result of the viral infection or auto-immune system response (Salinas et al., 2010).

### **2.3.4 Pregnancy**

According to Aditya (2014) pregnant women are 2 - 4 times more prone to the development of BP compared to non-pregnant women. Ragupathy and Emovon (2013) reported an incidence of Bell's palsy in 45.1 per 100 000 pregnant women, with the highest frequency occurring during the third trimester of pregnancy. Researchers furthermore reported a powerful relationship between BP and pre-eclampsia, with 22% of women with BP indicating pre-eclampsia in their pregnancy which may be explained by the equivalent in pathogenesis of extra-cellular oedema (Hawood-Nuss et al., 2009; Mountain, Murray, Quaba & Maynard, 1994). Therefore, females who are diagnosed with BP are advised to conduct tests for pre-eclampsia, including urine dipstick to determine protein levels as well as examination of the function of the liver and kidneys (Ragupathy & Emovon, 2013). Some obstetricians do not think of Bell's palsy as a diagnosis for pregnant women with pre-eclampsia and facial paralysis as a stroke also manifests in signs and symptoms related to BP. The last trimester of



pregnancy is characterised by increased cortisol hormones, which could stimulate the herpes virus (HV) that is situated in the geniculate nucleus of the facial nerve (Hawood-Nuss et al., 2009).

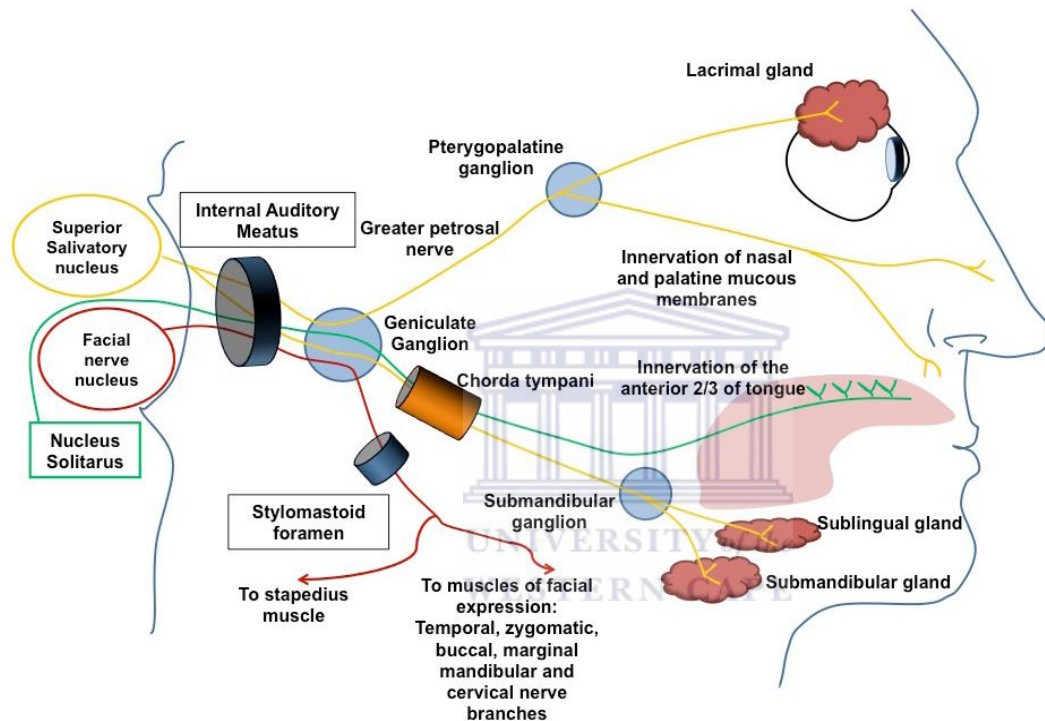
### **2.3.5 Vascular Ischemia**

Swelling around the facial nerve can be caused from ischemia, infections, inflammatory diseases or mass lesions which lead to consequential compression within the bony confines of the facial nerve, as it departs the skull. The result of pressure and ischemia (because of continual decreasing blood flow from the vasa nervorum) are blocking of the transmission of neural signals, or damage to the facial nerve (Sarhan et al., 2012). The pathogenesis of the paralysis can be a viral neuropathy alone or ischaemic neuropathy due to a viral infection, although acute paralysis can happen during many viral illnesses like mumps, rubella, herpes simplex and Epstein-Barr virus (Greco et al., 2012).

### **2.4. Pathophysiology and aetiology of Bell's palsy**

From the point that BP is considered to cause weakness or paralysis in the face due to unknown causes, it is critical to exclude other reasons for facial paralysis. It is essential to have done a thorough evaluation as it would impact on the choice of management of the disease (Garg et al., 2012). It is proposed that BP occurs due to oedema around and inflammation in the facial nerve (7<sup>th</sup> cranial nerve). The consequences of persistent compression (pressure and oedema) obstruct conduction of neural signals (Sarhan et al., 2012). The reason for the inflammation is still unknown, although some theories suggest viral infections. Sanchez-Chapul, Cadena and Caprera (2011) reported on the role of diabetes mellitus, hypertension, vascular disorders, viral infection and inflammation as causes of BP. The correlation between cases of BP and nerve ischemia has been recognised due to the increased prevalence of the disease in elderly people and patients with diabetes

(Sarhan et al., 2012). Magnetic Resonance Investigation (MRI) of the affected nerve shows impaired density located next to geniculate ganglion which affects sensory, motor and parasympathetic fibers, as it shows in the Figure 1 below (Sarhan et al., 2012).

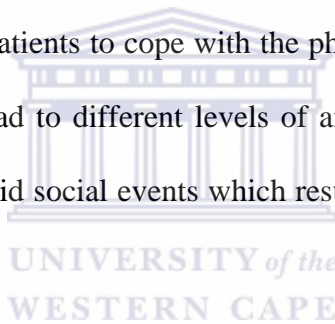


**Figure 1 Facial nerve anatomy**

In a study conducted by Liu et al. (2009) it was reported that the development of Bell’s palsy may be associated with the presence of a bacterial infection and not always with a viral infection.

## **2.5. Psychological impact of Bell's palsy**

Facial appearance is considered one of the most important aspect of the clients with Bell's palsy and the most vital factor of achieving self-notion (Alayat, Elsodany, Elfiky & Raouf, 2014). Bell's palsy can also be described as a blemish disease which affects the patient's psychological and emotional status, especially in the case of long term symptoms and delayed improvement despite treatment. The damage or dysfunction of the facial nerve can result in paralysis, changes in the muscles tone, drooling, abnormal muscles patterns, a decline in facial expression as well as difficulty with eating, drinking and speaking, all of which negatively impact on a patient's psychological status (Cronin & Steenerson, 2003). The most common sign is the psychological distress which appears after the onset of the disease that gradually increases causing disruption in social actions and problems with social communication. The inability of patients to cope with the physical facial changes and the consistent feeling of embarrassment could lead to different levels of anxiety, worry and depression. Patients with facial disfigurement often avoid social events which results in isolation from society (Huang, et al., 2012).



Facial muscles play a critical role in communication and it affects social interaction, perceived intelligence and the inter-personal transference of emotions. Psychological distress has been noticed in people with facial disfigurement as it manifests into anxiety, depression, all which results in reduced emotional well-being of the individual (Fu, Bundy & Sadiq, 2011). In addition, psychological difficulties may exist due to the perception of a changed body image. Observable facial deformity may result in social embarrassment in clients with Bell's palsy which may present with manifestations of social anxiety and awkwardness. Furthermore, clients with Bell's palsy could face

big challenges in social situations due to incomprehensible speaking and facial expressions, resulting in changed self-image (Haltiwanger, Huber, Chang & Stuart, 2009).

## **2.6. Diagnosis of Bell's palsy**

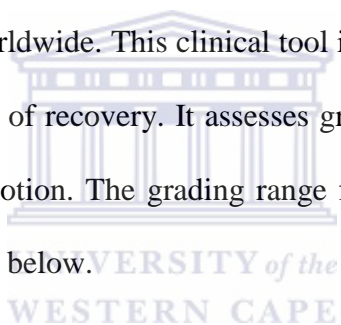
It is of utmost importance to determine whether the facial paralysis is due to a lesion in the central nervous system or in the peripheral nervous system. It is well known that central nervous system diseases, including tumors and multiple sclerosis, present with similar symptoms as paralysis due to BP (Greco et al., 2012). According to Sarhan et al. (2012) additional special tests, apart from the immediate and past medical history and physical assessment of the patient could be necessary, especially in the case of delayed recovery. The aim of these tests are to assess the patient for infections, ischemia and other infections, ischemia and inflammation illnesses (Sarhan et al., 2012). MRI and computer tomography (CT) scanning is suggested and done if there is no improvement in the facial nerve palsy after one month from the injury. In addition, if the patient presents with signs of loss of hearing and loss of sensation (Garg et al., 2012), a hearing test is indicated to rule out acoustic neuroma (Greco et al., 2013). Laboratory assessments are an effective way for diagnosis of Bell's palsy in patients who have not improved after four weeks from the onset of the facial paralysis or for patients who had an association with other systemic diseases (Garg et al., 2012). Tests include a fasting glucose test to exclude diabetes mellitus (Sarhan et al., 2012); a complete blood count to exclude a case of suspected lymphoreticular malignancy (Garg et al., 2012); serum calcium and angiotensin converting enzyme where increased levels is an indication of sarcoidosis; and cerebral spinal fluid to determine neoplastic and inflammation diseases. Electroneurography should also be obtained after three days from the onset as it assists to define the degree of facial nerve injury as well as help predict the outcomes of the treatment (Sarhan et al., 2012).

## **2.7 Evaluation of Bell's palsy**

Medical assessment for Bell's palsy is considered to be the main factor for evaluating the severity of the facial palsy and predict signs of impairments (Garg et al., 2012). The assessment aims to measure the result of Bell's palsy by evaluating the following factors: synkinesis, facial regularity, muscle rigidity, labial movement, mental, social and physical effects regarding facial palsy incidence (Pereira et al., 2011). A variety of tools are available to use during the evaluation.

### **2.7.1 The Modified House-Brackmann scale**

One of the most common methods for evaluating facial nerve injuries was adapted by House and Brackmann in 1985 and is used worldwide. This clinical tool is used to document the degree of facial paralysis and to predict probability of recovery. It assesses gross facial features and symmetry, both at rest and during movement or motion. The grading range from 1 to 6, with the latter being total paralysis, as illustrated in Table 2.1 below.



**Table 2.1 Classification of dysfunction according to the Modified House-Brackmann scale**

<b>Description</b>	<b>Function percentage</b>	<b>Category</b>	<b>Degree</b>
Normal facial movement	100	Normal	1
Slight irregularity consist of small synkinesis	76-99	Mild	2
Symmetry at relax but deformity at motion	51-75	Moderate	3
Symmetry in the relax position, motion deformity when conduct facial movement, weakness in the eye and forehead movement	26-50	Moderately severe	4
Asymmetry at relax with fall of mouth corner with missing of nasal labial fold minimum facial movement at motion	1-25	Severe	5
Lacking any signs of movement	0	Complete paralysis	6

### **2.7.2 The Linear measurement index**

Developed by Burres and Fisch, the Liner index has a similar function as the modified House-Brackmann scale. It is employed to evaluate facial muscle regulation and overall muscle motion using a quantitative approach. The total score that can be obtained is 100 points with a higher score indicating less impairment and handicap (Pereira et al., 2011).

### **2.7.3 The Facial Disability Index (FDI)**

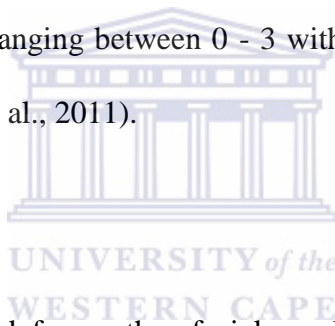
This tool, developed by Van Swearingen and Brach, are used to determine the physical and social features of patients with Bell's palsy. This questionnaire includes ten questions related to the physical function and social well-being of the patients. The scale has a score of 0 - 200, with a higher score indicating minimum deformity and less difficulty with tasks (Pereira et al., 2011) An in-depth description of the FDI is available in Chapter Three of the thesis.

#### **2.7.4 Five Point Scale**

The Five Point Scale measures the abnormal movements of facial and muscles rigidity, by recording the degree of patients muscle's rigidity on a scale of one to five, with a higher score indicating a high level of facial muscle rigidity (Pereira et al., 2011).

#### **2.7.5 Sunnybrook Facial Grading System**

This scale comprises of three sections of abnormal facial movements which include: symmetry at relaxation position, ranging from 0 - 4 with a higher score indicating better symmetry; symmetry of controlled motion ranging between 0 – 5 with a higher score indicating better symmetry. The last part of this scale measures synkinesis ranging between 0 - 3 with a higher score indicating an increased prevalence of synkinesis (Pereira et al., 2011).



#### **2.8. Differential diagnosis**

Bell's palsy must be differentiated from other facial paralysis, as there is a 13 – 20% rate of misdiagnosis (Runge & Greganti, 2009). A number of diseases can cause facial nerve palsy (Sarhan et al., 2012). Therefore the importance of a thorough history of the onset of symptoms cannot be overstated to assist with the correct diagnosis (Mooney, 2013). The conditions are categorised in two criteria, namely peripheral and central lesions. When the paresis and the weakness affect the upper and lower facial muscles it is a sign of a unilateral peripheral lesion. On the other hand, if the weakness appears in the lower facial muscles it is proof of an affected unilateral central lesion. A summary of possible conditions that may cause facial paralysis are presented in Table 2.2 below.

**Table 2.2 Differential diagnosis for Bell's palsy**

<b>CHARACTERISTIC</b>	<b>CAUSE</b>
	<b>PERIPHERAL LESIONS</b>
Re-ordered of marks of being contact with prevalence area , symptoms include itching and inflammation	Lyme disease
Steady start of the injury associated with ear soreness, fever, loss of hearing	Otitis media
Pain accompanying with ear canal and pharynx eruption	Ramsay-Hunt syndrome
Affect both sides of facial nerve	Sarcoidosis
Affect both sides of facial nerve	Guillain-Barre syndrome
Signs expand gradually	Tumours (e.g. cholesteatoma, parotid gland tumors)
	<b>CENTRAL LESIONS</b>
Neurological impairment	Multiple sclerosis
Usually linked with paralysis and limitation in the same side	Stroke
Signs expand gradually	Tumors (brain cancer, metastasis)

### **2.9. Prognosis of the disease**

According to Murthy and Saxena (2011), approximately 71% of clients with BP achieve full motor function spontaneously within six months from the onset without any kind of intervention. There are many possible reasons for a delayed healing process, including hypertension, diabetes mellitus, aging and full facial paresis. However, patients who have partial improvement in symptoms may face further complications such as muscle contracture, synkinesis, post-paralytic hemi-facial seizures, sweat during eating and physical actions (Murthy & Saxena, 2011).

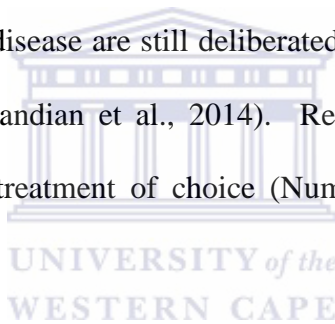


## **2.10. Management of Bell's palsy**

Because the exact cause of Bell's palsy is still unknown, the disease has no prevention of cure (Shannon & Meadows, 2003). Attempts at management are thus geared towards reducing inflammation to the facial nerve and the prevention of corneal complications (Runge & Greganti, 2009). The preferred management of Bell's palsy includes groups of treatments such as medication treatment, physiotherapy for retraining facial neuromuscular and surgical interference (Mehta, 2009).

### **2.10.1 Pharmacological management**

Medication is usually prescribed in the acute phase of Bell's palsy to assist with maximal restoration of function and to avoid any future problems (Murthy & Saxena, 2011). However, the preferred and optimal medical treatment for the disease are still deliberated, with several randomised control trials (RCTs) showing mixed results (Zandian et al., 2014). Recently evidence has been mounting in support of corticosteroids as the treatment of choice (Numthavaj, Thakkinstian, Dejthevaporn & Attia, 2011; Browning, 2010).



#### **a) Corticosteroids**

For many years surgeons that performed nerve decompression surgery observed oedema and inflammation around the facial nerve, while a MRI also confirmed swelling in the area of the nerve. It was concluded that inflammation plays in major role in the development of Bell's palsy (Quant et al., 2009). Because of this evidence, corticosteroids have shown to have an anti-inflammatory effect that helps in decreasing chances of nerve damage as well as enhance nerve improvements, at the same time it consequently results in easing facial nerve compression when surgery is indicated (Murthy & Saxna, 2011). Prednisolone is considered the most common type of corticosteroids

prescribed for patients with BP in a period of 72 hours from the onset, with a recommended dosage of 60mg for five days. The role of prednisolone in patients with BP was determined by its capability of declining inflammation and swelling of facial nerve, assisting with the recovery process of the patient (De Almeida et al., 2009). The finding corroborated with a Cochrane review by Salinas et al. (2010) where patients that received corticosteroids had better recovery of facial motor function at six months as well as a significant reduction in motor synkinesis compared to their counterparts.

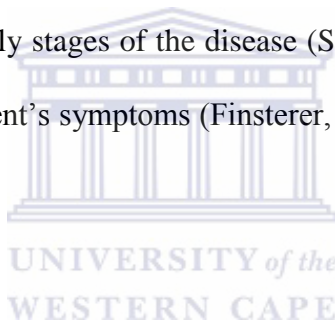
**b) Anti-viral medication**

Anti-viral medication such as Acyclovir, are indicated for treatment of patients with Bell's palsy when suspected that client affected by Herpes Simplex Virus (HSV) (Greco et al., 2012). However, its effectiveness has been disputed based on recent studies. A Cochrane systematic review conducted in 2009 concluded that anti-herpetic antivirals provide no significant benefit when compared with the placebo in generating complete recovery from the disease (Lockhart, Daly, Pitkethly & Comerford et al., 2009). The effect of anti-viral drugs includes the restriction of viral DNA polymerase which results in a declined viral DNA synthesis. Furthermore, there has been some disagreement among health care professionals about the efficacy of steroids (Prednisolone), anti-viral medication (Acyclovir) or a combination of both on the recovery of clients with BP. According to Sarhan et al. (2012) the combination of anti-viral medication and steroids does not provide strong evidence of achieving better recovery of the facial muscle paralysis compared to steroids alone. This result is in contrast to a network meta-analysis of six studies who found that a combination of corticosteroids and anti-virals had a marginal benefit over corticosteroids alone (Numthavaj et al., 2011). Since the finding was not statistical significant, the authors concluded that prednisone remains the single best evidence-based treatment for Bell's palsy.

## **2.10.2 Non-pharmacological management**

### **a) Physiotherapy**

According to Manikandan (2007), physiotherapy plays an important role in the rehabilitation of clients with BP. It has been used extensively as treatment for BP since 1927. Several modalities are appropriate for the treatment of Bell's palsy, including heat therapy, electro-stimulation, therapeutic exercises, acupuncture and laser therapy. The benefits of using physiotherapy can be summarised as follows: it assists with decrease in pain, enhances muscle contraction, develops facial symmetry, and prevents the development of complications (Finsterer, 2008). A study conducted by Nicastrì et al. (2013) showed that physiotherapy has an important impact on the severe degrees of Bell's palsy, especially when applied in the early stages of the disease (Shafshak, 2006). The time of the session depends on the severity of the patient's symptoms (Finsterer, 2008). The different modalities will be discussed below.



#### **a.1) Short wave diathermy**

Short wave diathermy (SWD) is a method of thermotherapy that is used to treat patients with Bell's palsy. Ochs (2002) don't recommend the use of continuous SWD due to the possible viral infection causing the disease, so the application of deep heat on a swollen, inflamed nerve may worsen the condition and hamper the recovery process. On the other hand, the author stated that the use of pulsed SWD can be beneficial and support the recovery process.

## **a.2) Electro-stimulation**

The injury of a nerve is categorised depending on the specific nerve elements involved, lack of functionality, and capability to cure naturally. According to Quinn and Cramp (2003), the following nerve injuries are identified:

### **Neuropraxia**

Neuropraxia is an impaired obstruction in the nerve transmission while the axon is still fully intact. This type of nerve injury usually recovers fully with the assistance of various treatment modalities (e.g. Ultrasound and Laser Therapy) that decrease swelling and inflammation, hence enhancing normal recovery. Quinn and Cramp (2003) reported that the application of electrical stimulation (ES) or galvanic currents are not recommended, except in the case of signs of deprived recovery. On the other hand, using short wave diathermy (SWD), especially the pulsed setting could have a positive influence on the nerve healing by reducing oedema.

### **Axonotmesis**

Axonotmesis is a more severe stage of nerve injury, and could be described as partial disruption of the axon with no damage to the nerve sheath. Total healing is possible as the regeneration rate of the axon is approximately one millimetre per day. The most effective approaches to treat this condition are Laser therapy and Electromyography Biofeedback (EMG), which is used particularly when the voluntary movement is retained. These therapies assist in circumventing synkinesis.

### **Endo-neurotmesis**

Endo-neurotmesis is when the axon and endoneurium are damaged but the perineurium is intact. Although the axon regenerate, scar tissue can result in limitation of nerve regeneration and the client can present with synkinesis and only partial recovery.

## **Peri-neurotmesis**

Peri-neurotmesis is the complete disruption of all the components of nerve tissue, except for the epineurium. It also leads to irregular regeneration of the nerve (partial improvement) and synkinesis.

## **Neurotmesis**

Neurotmesis is the most severe nerve injury with total nerve breakage, combined with small amounts or no signs of restoration. In this condition electro-stimulation and EMG could enhance muscle tone and increase blood flow, especially when a nerve grafting is needed. A summary of the Seddon and Sundeland classification of a nerve injury is presented in Table 2.3 below.

**Table 2.3 Classification of nerve injuries**

<b>Tissues injured</b>	<b>Sundeland classification</b>	<b>Seddon classification</b>
Myelin	Grade 1	Neuropraxia
Myelin, axon	Grade 2	Axonotmesis
Myelin, axon, endoneurium	Grade 3 axon continuity is disrupted by loss of endoneurial tubes, but perineurium is protected	Endo-neurotmesis
Myelin, axon, endoneurium, perineurium	Grade 4 nerve fascicle is damaged, but sheath continuity is maintained	Peri-neurotmesis
Myelin, axon, endoneurium, perineurium, epineurium	Grade 5 substantial perineural hemorrhage and scarring occur	Neurotmesis

Although there is lack of evidence regarding the efficacy of electrical stimulation (ES) as a treatment modality for patients with Bell's palsy (Alakram & Puckree, 2010), it is still a common approach used by many physiotherapists (Shafshak, 2006). Some literature discourages the use of ES in the acute phase of Bell's palsy, as it states that the modality may obstruct regeneration of the facial nerve

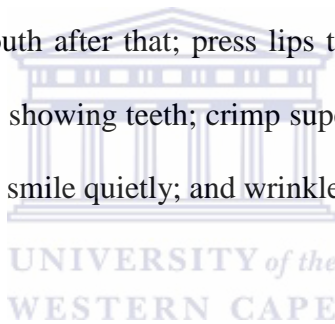
(Alakram & Puckree, 2010). Contrary to the aforementioned belief, Sarhan (2012) reported that applying ES for patients with chronic Bell's palsy could protect muscle bulk, particularly in the case of total paralysis and therefore improve the patient's functional outcome. In addition, ES can stimulate axonal restoration (Shafshak, 2006). The researcher concludes that the type of ES which is applied for treatment must be determined by the degree of the paralysis, as well as the knowledge of the therapist. However, in the case of no electrophysiological features of the muscle it is suggested that galvanic current with a duration pulse between 0.1 - 1 millisecond frequencies is used. When there are signs of electrophysiological features, a TENS current with a duration pulse less than 1 millisecond are recommended (Shafshak, 2006).

### **a.3) Biofeedback**

Facial neuromuscular re-education can be depicted as a traditional facial treatment. The purpose of this technique is to improve symmetrical facial function and prevent or reduce eating difficulties (Manikandan, 2007). Biofeedback training in front of a mirror helps to avoid synkinesis (Shafshak, 2006), a condition defined as "abnormal involuntary facial movement that occurs with voluntary movement of different facial muscles groups" (Husseman & Mehta, 2008, pg. 242). This technique assists to maintain facial balance and functional improvement, particularly in clients with signs of re-innervation of facial muscles. According to Elliot (2006), EMG is believed to be an influential method for muscle reconstruction during facial disfigurement. However, if biofeedback is not available, patients could just exercise in front of a mirror in order to assist imaging patterns for facial feedback. The facial exercises are done repetitively for a period of time with the aim of this approach to stimulate muscles in the affected side of the face that will inhibit modals of synkinesis. This way of doing exercise has proven positive outcomes regarding prevention or a decline in the development of synkinesis (Elliot, 2006).

#### **a.4) Exercise therapy**

The role of exercise therapy is described in a study conducted by Pereira, et al., (2013). It is an effective approach for treating patients with Bell's palsy. The benefits of this type of therapy are two-fold: maintaining muscle function and enhancing total oxygen distribution to the affected muscle tissue in order to stimulate facial improvement. Exercise can be done at home and is therefore low cost. Therapeutic exercise can be also done under the supervision of a physiotherapist. The authors proposed that the exercises should involve various groups of facial muscles. In addition, it should be conducted consistently to avoid muscle vertigo. A few examples of exercise are: moving eyebrows together and descending like in scowling; lifting eyebrows like in being shocked; shut eyes softly and after that, strongly; smile; shut mouth after that; press lips together; wrinkle lips; try to hiss; smile unaccompanied by teeth then smile showing teeth; crimp superior lip above and lift; emerge superior lip; attempt shifting lips into a little smile quietly; and wrinkle the forehead.



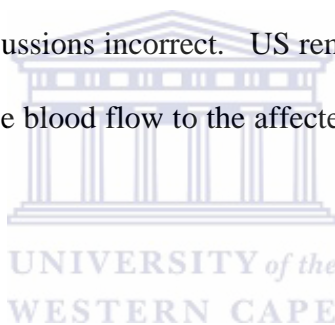
#### **a.5) Kabat rehabilitation**

Harmony, coordination and optimal strength are the main strategies applied in the Kabat technique for patients with Bell's palsy (Barbara et al., 2010). The Kabat technique can be described as a method using stimulant voluntary movements of weak muscles. It is one of the motor control rehabilitation approaches resting on proprioceptive neuromuscular facilitation (PNF). The results depend on the correlation between diagonal lines and the sagittal axis of the body. During the application of the Kabat technique, a quick stretch is followed by light resistance of movement through the full available range of the muscle. It is important before starting this technique to use ice to stimulate the facial muscles to enhance contractile power. Three areas of the face should be

focused on when applying Kabat to clients with Bell's palsy, namely the top area (forehead and eyes), intermediate area (nose), and lower area (mouth) (Shafshak, 2006). According to Barbara et al., (2010) the Kabat approach can help accelerate patient's healing and achieve the best kind of improvement when applied in the early phase of the disease.

#### **a.6) Ultrasound**

Ultrasound (US) may improve patient outcomes, especially when applied in the early stage of the weakness, before deterioration of the affected nerve sets in. US are applied to the mastoid muscle, the area around the ear (Shafshak, 2006). Although there are controversial discussions about its use due to chances of disruptions in the cranium that could result in coagulation of the blood (Alayat et al., 2014), Diels (2000) proved the discussions incorrect. US remains one of the preferred modalities for the management of BP as it enhance blood flow to the affected muscles and assist in the reduction of inflammation and oedema.



#### **a.7) Laser therapy**

According to studies conducted by Alayat et al. (2014), laser therapy is considered one of the many treatment modalities for BP. It can help to treat patients by using non-persistent and pointless approaches of lasers, applications also more suitable for patients with diabetes mellitus and hypertension. As the use of corticosteroids is not recommended for patients with diabetes and hypertension, laser therapy has an important role to play in assisting with regeneration of peripheral nerves in neuro-motor or neuro-sensory nerve injuries. Two types of laser therapy are available, namely high intensity laser therapy (HILT) and low level laser therapy (LLLT). Due to modern improvements in laser modalities it has been suggested that high intensity pulsed neodymium yttrium



aluminum garnet (ND-YAG laser) are used as renewal treatment because of its ability to decrease pain and inflammation (Alayat et al., 2014).

## **b) Complementary therapy**

According to Haltiwanger et al. (2009), 7% of patients with BP experience constant deterioration in symptoms, despite the use of medication. Some specialist recently introduced the use of alternative modalities such as acupuncture, aromatherapy and reflexology. The purpose of utilising complementary therapy is to reinstate sensory and motor facial muscle function and to maintain the ability of muscle movement. The relaxation that accompanies some of the complementary therapy also assists with decreasing the state of depression that may arise due to the chronic nature of the disease.



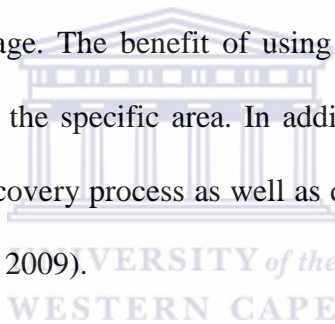
### **b.1) Acupuncture**

Despite the advocacy of its use by some researchers, acupuncture has not been proven to have any effect on the recovery process of Bell's palsy (Chen, Zhou, He & Li., 2010). A recent RCT conducted in 2013 by Xu et al., however reported better 6-month outcome in patients undergoing acupuncture in combination with corticosteroids. Acupuncture is defined by Chen et al. (2010) as a type of traditional Chinese medicine that consists of the application of needles into certain points of the body, the acu-points, which assist to increase the sufficient flow of vital energy over the body. Traditional Chinese medicine identified 365 acu-points on the human body. According to Kwon et al. (2011) traditional Chinese medicine build on balancing an individual's energy system, an aspect of medicine which is not looked at in Western medicine. The obstruction of Qi causes a disease like Bell's palsy due to restriction of blood supply. Therefore by inserting very thin needles at points over

energy passages (meridian) could increase the flow of blood and bring back the balance. Chen et al. (2010) suggested that better results were found in the treatment of Bell's palsy when a combination of physical therapy, acupuncture and medication are included in the management protocol of a patient.

### **b.2) Aromatherapy**

According to Haltiwanger et al. (2009) aromatherapy is known as the art of science that employs essential oils as treatments of choice. Essential oils have the power to increase the body's ability to cure by facilitating the immune system, endocrine system, nervous system and psychological aspects of a person. The aim is to decrease swelling in the face by using essential oils on the affected area, combined with infrared and massage. The benefit of using heat is to assist the face in absorbing essential oils into the skin cells in the specific area. In addition, this intervention aims to reinstate facial function and speed up the recovery process as well as decrease inflammation and compression of facial nerves (Haltiwanger et al., 2009).



### **c) Surgery**

Literature shows no consensus on the benefit of surgery in the treatment of Bell's palsy due to the risks associated with an operation (McAllister, Walker, Donnan & Swan, 2011). Risks include seizures, unilateral hearing loss, and CSF leak. Although there is controversial discussion regarding surgical procedures for Bell's palsy, there is little evidence related to facial nerve decompression operations for patient in the acute stage of the disease (Shafshak, 2006). Patients with Bell's palsy with poor electro-neurography readings who also underwent nerve decompression, had a much better outcome compared with those who did not receive surgery (McAllister et al., 2011). According to

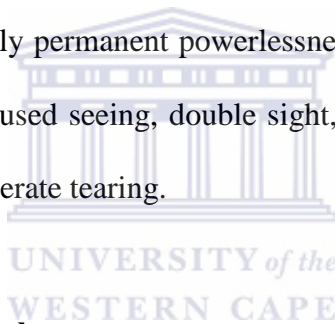
Sarhan et al. (2012) some studies suggested that surgery may be beneficial in the cases of facial nerve deterioration, especially if the degree of nerve degeneration is more than 90%. Another study argued that surgery is not indicated unless the deterioration is 100% (Shafshak, 2006). There are different kinds of surgeries available for patients with Bell's palsy, namely facial nerve decompression, subocularis oculus fat lift, tarsorrhaphy, implantable devices, facial nerve grafting and direct brow lift. Facial reconstructive surgery is indicated for severe degree of nerve compression. It only assists with facial symmetry, not with the re-establishment of normal motion and natural appearance of the face. On the other hand, practices like transposition of nerves and muscles may progress muscle functions and also improve facial appearance.

#### **d) Eye care**

Protecting the cornea from excessive dryness and abrasions should be through education of the patient (Lee, Currie & Collin, 2004). Damage to the eye is considered to be one of the major threats that patient are faced with. Eye injury can be treated by using artificial tears which protect the eye from dryness, a side effect from paralysis of the orbicularis oculi muscle (improper closure of the eye lid). The most important goal of eye care is to make sure of corneal preservation in both short and long term, as well as taking conservative strategies which consist of using eye patches and the use of lubrication drops during the day and eye ointment at night (Murthy & Saxena, 2011). Ophthalmologist has an influential impact on recognising potential eye problems and rehabilitating patients. At the same time, some ophthalmologists recommend that patients wear sunglasses to defend their eyes from the air, sand and daylight. However, in the case of delayed spontaneous eye closure patients may need an operation. Surgical intervention includes lateral canthoplasty, tarsorrhaphy as well as inserting gold weight to the upper lid (Shafshak, 2006).

**e) Botox**

According to Diels (2000), Botox was applied in the 1970's to a hypertonic eyelid of a patient with Bell's palsy in order to relax the muscles to allow the eye to close properly. Since then, it has been used for many complications associated with Bell's palsy, including contractures of neck, face, and eyelid muscles. If Botox is injected into the eyelid muscle it may reduce muscle synkinesis. A small measure of Botox is inserted into the muscles with a tiny sized needle, which starts to take effect within 24-72 hours after therapy. Total impact reinforcement through duration of time generally begins after a couple of months. Botox is considered a non-permanent treatment which acts for 3-6 months whereafter the injection must be repeated (Diels, 2000). Unfortunately, there are also known side effects to this treatment, namely permanent powerlessness or an unpleasant feeling in eyelids, a decline in eyelid movement, unfocused seeing, double sight, difficulty in shutting eyes, drop of the mouth, fall of the brow, and intemperate tearing.



**2.11. Residual effects of Bell's Palsy**

Residual effect happens in the situation of delayed improvement after three months of onset of the disease. Residual markers include incomplete motor recovery, synkinesis, hemi-facial convulsion, contractures, salivation and lacrimation modification. The effect of these markers could negatively impact on the life standards of patients due to its influential role in the psychological and emotional aspects (Nicastri et al., 2013). Other complications include impairments of the eye such as a decline or rising of the lid shutting, dehydration/over-watering of the eye, a runny or dry nose as well as problems with eating, drinking or speaking (Diels, 2000).

### 2.13. Summary of the chapter

This chapter summarised the relevant literature pertaining to Bell's palsy and the factors associated with the development of the disease. Also reviewed were the signs and symptoms of the disease, the psychological impact of Bell's palsy on the client, diagnosis and differential diagnosis and the classification of the severity of the disease. Finally, the pharmacological and non-pharmacological management of the disease, with special reference to physiotherapy modalities, were discussed. The summary is highlighted below:-

- Bell's palsy is a neuromuscular disease with unknown etiology resulting in unilateral facial muscle weakness or paralysis.
- Globally the incidence of Bell's palsy is approximately 20 to 30 cases per 100 000 people per year, affecting both males and females.
- The disease is more likely to occur in clients between the ages of 15 and 45 years.
- Medical assessment for Bell's palsy is considered to be the main factor for evaluating the severity of the facial palsy and predict signs of impairments.
- Bell's palsy must be differentiated from other facial paralysis, as there is a 13 – 20% rate of misdiagnosis.
- It is of utmost importance to exclude other causes of facial paralysis, e.g. tumours and to commence with appropriate treatment as soon as possible.
- Approximately 71% of clients with Bell's palsy achieve full motor function spontaneously within six months from the onset.
- Bell's palsy has no prevention or cure. Management is thus geared towards reducing inflammation to the facial nerve and the prevention of corneal complications.

- Corticosteroids are still the choice of treatment, especially in the acute phase of the disease as a combination of corticosteroids and anti-virals had a marginal benefit over corticosteroids alone.
- Physiotherapy plays an important role in the rehabilitation of clients with Bell's palsy.
- Literature shows no consensus for the benefit of surgery in the treatment of Bell's palsy due to the risks associated with an operation.
- Eye care is a very important aspect in the management of Bell's palsy.

The methodology used to conduct the study will be explained in the following chapter.



## **CHAPTER 3**

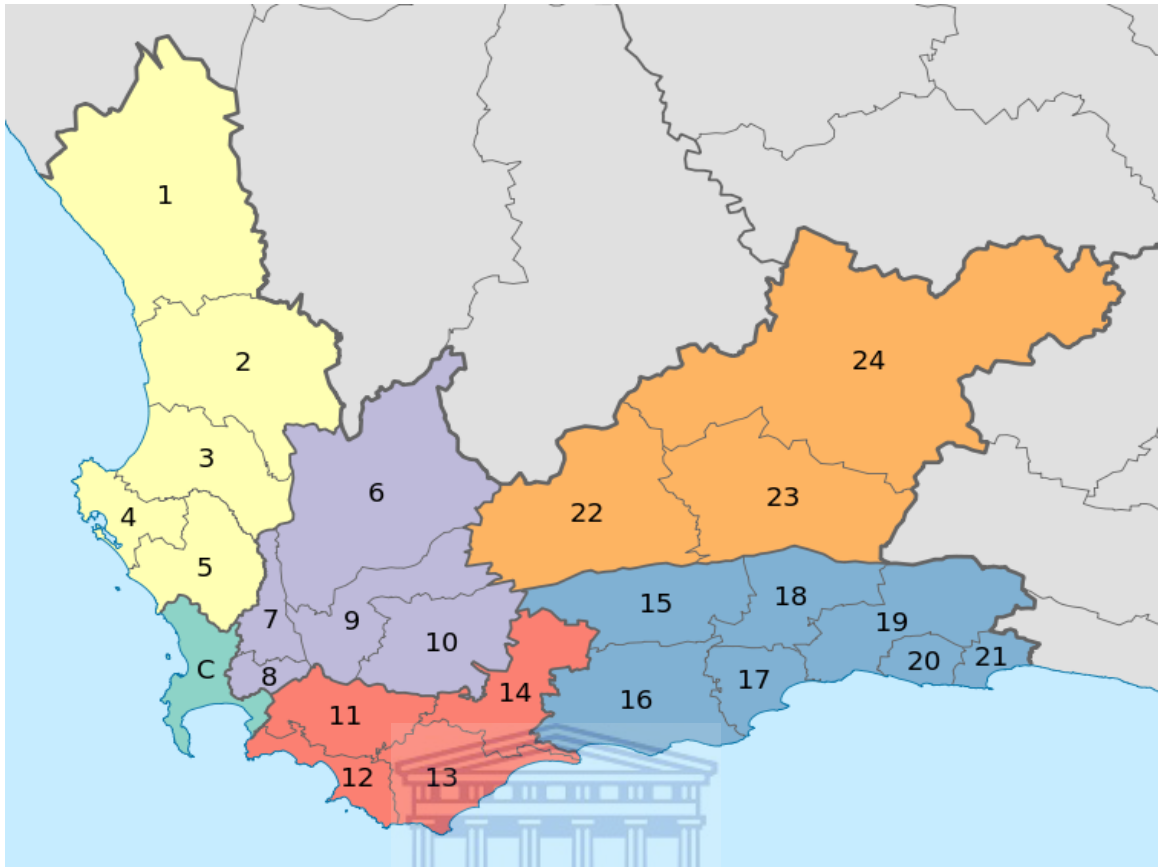
### **METHODOLOGY**

#### **3.1 Introduction**

This chapter will present a discussion on the methodology and procedures used to collect data for the study. It will include a description of the research setting, the study design, a description of the study of the participants and the sampling method used. Furthermore, the chapter describes the methods of data collection, statistical data analysis and ethical issues pertaining to the study.

#### **3.2 Research setting**

The study was conducted in the Cape Metropolitan District of the Western Cape, one of the five (5) district municipalities of the City of Cape Town. The Cape Metropolitan District covers an area of 2 460km<sup>2</sup> and has a population of 3 740 026 million people. The predominant population group in this district is Coloured (42.4%) and others include Black (38.6%), White (15.7%) and Indian/Asian (1.4%). Afrikaans is the language spoken by most of the population, followed by isiXhosa and English (Census, 2011).



**Figure 3.1 Map of the Western Cape District municipalities. ‘C’ represents the Cape Metropolitan District**

### 3.3 Study design

The study utilised a mixed methods approach, specifically the sequential explanatory design. It is characterised by the collection and analysis of both quantitative and qualitative data (Creswell, 2003; Teddlie & Tashakkori, 2009). With this type of design the qualitative and quantitative strands are planned and implemented to answer related aspects of the same over-arching research question (Teddlie & Tashakkori, 2009). The combination of quantitative and qualitative research methodology



is becoming the preferred method as it increase the overall strength and comprehensiveness of study findings compared to a single method (Barbour, 2001; Neuman, 2006).

According to Rauscher and Greenfield (2009) the objective of using this type of design is to assert and explain phenomena by utilising integrated and compared measures with a relatively large sample. The focus in this research design is given to quantitative data. The strategy is characterised by the collection and analysis of quantitative data via a survey (questionnaire) followed by the collection and analysis of qualitative data. The integration of the findings of both approaches is demonstrated in the discussion of the study. The purpose of this strategy is typically to use qualitative data to assist in explaining and interpreting the findings of a primarily quantitative study (Creswell, 2003).

The quantitative approach used self-administered questionnaires (reliability and validity established), to collect data from clients with Bell's palsy regarding their socio-demographic information, physical and psychological (social well-being) function. The qualitative approach used focus group discussions (FGD) to explore clients with Bell's palsy's experiences regarding the disease and the management thereof within the current Primary Health Care (PHC) system.

### **3.4 Study population and sampling**

#### **3.4.1 Quantitative component**

Currently the Cape Metropolitan District is divided into four sub-structures, namely the Eastern and Khayelitsha sub-districts, Klipfontein and Mitchells Plain sub-districts, Northern and Tygerberg sub-districts as well as Southern and Western sub-districts. Twenty two (22) Community Health Centres (CHCs) are allocated in the four sub-structures, i.e. Eastern and Khayelitsha sub-districts (3 CHCs),

Klipfontein and Mitchells Plain sub-districts (4 CHCs), Northern and Tygerberg, sub-districts (3 CHCs) and Southern and Western sub-districts (12 CHCs) (Western Cape Department of Health, 2013). The population for the study consisted of all the clients diagnosed with Bell's palsy at the twenty-two (22) Community Health Centres (day hospitals) in the Cape Metropolitan District. According to personal communication with CHC facility managers, the number of clients with Bell's palsy seen at the CHCs ranged from 15 to 30 clients per year for 2012 and 2013 (documented records at the facilities).

Stratified random sampling was employed for this study. The strata were the four (4) sub-structures. To ensure equal representation from each sub-structure, a random selection of CHCs was done proportionately. Therefore two (2) CHC were selected from each of the following two (2) sub-structures: Western and Southern sub-districts and Klipfontein and Mitchells Plain sub-districts. Another three (3) CHCs were chosen from the Northern and Tygerberg sub-districts and one (1) CHC from the Khayelitsha and Eastern sub-districts. A total of eight (8) CHCs were selected. The study incorporated a probability sample because every client with Bell's palsy who was eligible for inclusion in the study had an equal chance to participate in the study. This type of sample also enabled the researcher to generalise the findings to the designated population. Total population sampling was employed in the study due to the small population. Every client diagnosed with Bell's palsy during 1 January 2009 to 31 December 2014 was contacted telephonically to participate in the study. A total of 140 clients with Bell's palsy were approached to participate in the study. One hundred and thirty (130) agreed to participate. A response rate of 88% was obtained after seven (7) questionnaires were discarded due to incomplete information.

- **Inclusion criteria:**

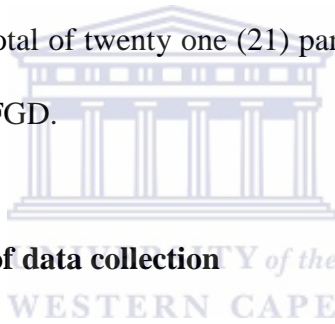
- male and female adult ( $\geq 18$  years) clients diagnosed with Bell's palsy by a medical doctor.

- **Exclusion criteria:**

- Clients with diseases of the central nervous system, e.g. tumors.
- Clients with nerve paralysis due to trauma.

### 3.4.2 Qualitative component

All the clients with Bell's palsy that completed the quantitative phase of the study were approached and invited to participate in the focus group discussions. Participants from six (6) approved CHCs agreed to be part of the FGDs. A total of twenty one (21) participants agreed to participate in six (6) FGDs, thus 3 to 4 participants per FGD.



## 3.5 Instrument and methods of data collection

### 3.5.1 Quantitative component

A developed, self-administered questionnaire (Sections A-C; Section D was completed by the researcher and research assistant with data from the patients records), including existing validated scales (Appendix 6a, 6b, 6c) was used to collect data from the clients meeting the inclusion criteria of the study. It comprised of four (4) sections and will be outlined below.

#### **Section A: Socio-demographic information**

This self-constructed scale measured demographic and socio-economic characteristics of the clients. Age was measured on a continuous scale to assist with analysis and interpretation (i.e. mean age).

Categorical variables were used for ethnic origin/race, marital status, highest level of education and current employment status. Self-description, rather than any other method, was used for classification of race/ethnicity purposes. The race/ethnicity variable was based on the former government's repealed population Registration Act of 1950 (i.e. African/Black, Coloured, White and Indian/Asian).

### **Section B: The Facial Disability Index (FDI)**

The validated FDI scale assesses physical function and social well-being function (Van Swearingen & Brach, 1996). Each component (physical and social well-being) comprises of five (5) Likert-type scale questions. Therefore a total of ten questions could be answered. The physical function section consist of five (5) questions related to difficulties participants face whilst eating or moving food around in their mouth, while drinking from a cup, saying specific sounds while speaking, with the eye tearing excessively or becoming dry as well as brushing teeth or rinsing their mouth. The social well-being section also consist of five (5) questions, including the time they felt calm and peaceful, the time that participants isolated themselves from people around them, the time they felt irritable with people around them, the time they woke up early or woke up several times during the night and how often the facial function kept them from going out or participating in family and social activities. The score of the questionnaire ranges between 0 and 200; with a higher score indicating less impairment.

### **Section C: History of onset and clinical picture**

This section is related to the history of the onset of the paralysis and the clinical picture of the clients (signs and symptoms), including how long the facial paralysis lasted, whether the onset was sudden

or not, any history of head trauma or ear pain, previous medical history (hypertension, heart disease or diabetes mellitus), the psychological impact of BP and whether any special investigations were done.

#### **Section D: Management received**

This section comprised of questions regarding the management/treatment participants received for their facial paralysis, including pharmacological and non-pharmacological approaches.

#### **Reliability and Validity of the questionnaire**

Reliability, according to Polit & Beck (2004, p.35), is “the accuracy and consistency of information obtained from a study”. Validity refers to the idea that an instrument should measure what it is required to measure (Polit & Beck, 2004). The FDI is a valid and reliable tool with a reliability score of 0.88 for physical function, 0.83 for social well-being function (Van Swearingen & Brach, 1996). The compiled questionnaire was subjected to peer review by the study supervisor and colleagues who have experience working with clients with Bell’s palsy. This peer review was done to endorse content validity (Domholdt, 2000).

A draft of the questionnaire for clients with Bell’s palsy, with all the sub-scales, was translated into isiXhosa and Afrikaans by independent persons fluent in the respective language. It was then back translated into English by a linguist in Afrikaans and isiXhosa respectively. A pilot study followed where the questionnaires (English, Afrikaans and isiXhosa versions) were administered to a sub-sample of clients with Bell’s palsy to assess the face validity and applicability of all the items for this population, its level of understandability (clarity of the wording or face validity) and the time it

would take to be completed. These questionnaires were not included in the final study sample. The time taken for the clients to complete the questionnaire ranged from 15 to 20 minutes. A thirty (30) minute focus group discussion followed the completion of the questionnaire to test content validity of the instrument and to see whether it was necessary to rephrase or change any of the questions (Drummond & Campling, 1996). The results indicated that the instrument was relevant to the population and was easily used by the clients. Only a few grammatical changes were made.

### **3.5.2 Qualitative component**

A semi-structured interview guide (Appendix 7) was developed based on literature and the results of the analysis of the quantitative data. Focus group discussions were employed to a sub-sample of clients with Bell's palsy in order to explore the experiences regarding their disease and the management thereof.



## **3.6 Data collection procedure**

### **3.6.1 Quantitative component**

After ethical clearance was obtained from the Senate Higher Degrees Committee of the University of the Western Cape (UWC) (Appendix 1), permission was sought from the Western Cape Department of Health (DoH) (Appendix 2a, 2b, & 2c). Following the clearance from the Western Cape DoH, the facility managers of the approved Community Health Centers (CHCs) were contacted telephonically to arrange for a meeting to communicate the background of the procedure of the study and to arrange for a specific time for data collection. Participants were contacted telephonically and a time convenient for them was arranged to come to the CHC to complete the questionnaire. On the day of data collection, written informed consent was sought from all the clients with Bell's palsy (Appendix

3a, 3b & 3c). Thereafter they could complete the questionnaire in the room at the health care facility allocated for use by the researcher. At the beginning of each session, the researcher informed the participants about the study (Appendix 4a, 4b & 4c) and their right to withdraw from the study at any time. Although the questionnaires had detailed instructions on how to complete it, the researcher also briefly explained how the questionnaire should be filled in and was present during the process of completion. Any information not obtained from the clients was sought from the client's medical folder.

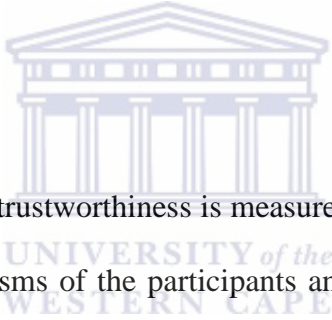
### **3.6.2 Qualitative component**

Focus group discussions (FGD) were used to explore clients with Bell's palsy's experiences regarding the disease and the management thereof. Focus groups, a commonly employed qualitative data collection method, allow the participants, in interaction with each other, to speak for themselves in the context of their own experiences (Bergin, Tally & Hamer, 2003). Its prudence extend from qualitative help to interpret or comprehend data more completely, and it could be used only to better comprehend an event or issue of social life which might be difficult to understand by quantitative methods only (Pope & Mays, 1995). According to Wong (2008), FGDs are described as a type of qualitative research methods that gather a small group of participants in order to debate a particular subject or problem in which the researcher requires certain answers to questions, regarding the research issue to collect information (data). Each FGD was facilitated by two facilitators, namely the researcher acting as discussion leader/observer and the research assistant acting as a scribe/recorder. The participants were informed about the aim of the discussions and that everyone must feel free to participate as there is no right or wrong answer. Interaction among group members is an essential feature for FGD. Using this method assists the researcher to recognise the viewpoint of participants

on the subject being investigated. It is viewed differently from one-on-one interviews because it provides extra aspects of the interaction between group members.

The procedure was explained to the participants and each consenting participant completed a confidentiality binding form (Appendix 5a, 5b, & 5c). The facilitator guided the discussions to permit and encourage participation from everyone in the language used by the majority of the participants. The decision about language medium was made by the group. The sessions were concluded when saturation was reached (when information was repeated and no new information can be obtained if the interview continues) (Polit & Beck, 2004). Each session lasted between 45 minutes to an hour. The responses were audio-taped and recorded on paper.

### **Trustworthiness**



According to Polit & Beck (2004), trustworthiness is measured by credibility which is determined by the match between assembled realisms of the participants and the data drawn from the participants presented by the researcher. Trustworthiness points to the procedures used to determine the validity and reliability of qualitative research and it indicates the range to how results are original and valuable (Curtin & Fossey, 2007). In this study, trustworthiness was enhanced through the strategies detailed below:

1. Credibility (internal validity): During the sessions field notes were compared and discussed (member checking) for their accuracy. Each participant was given a summary of the discussions after the session. Participants were also given time to comment on whether or not they felt the data was interpreted in a manner congruent with their own experiences. The



researcher may gain knowledge about precision, clarity and truth of the data analysis when participants check the findings (Curtin & Fossey, 2007). Furthermore, the transcribed verbatim draft was given to a colleague, who was not involved in the study for her view. Any matters raised by her were incorporated into the written notes.

2. Transferability (external validity): According to Thomas & Magilvy (2011) transferability is the capacity to transmit results or study techniques from one group to another. To determine transferability it is important to assert intensive explanations of the research subjects, as well as details about demographic and geographic borders of the study to be able to define the incidence to which results of a specific question has applicability in other conditions or to other subjects characterised by transferability. A detailed description of the target population and settings in which the study took place were described. Furthermore, several of the data analysis documents are available and give other researchers the ability to transfer the conclusions of this study to other projects/research.
3. Dependability (reliability) refers to "the coherence of internal process and the way the researcher accounts for changing conditions in the phenomena" (Bradley,1993, p.437) . This was achieved by ensuring that the audit trail consisting of the methodology, original transcripts, data analysis documents, field notes and comments from the member checking were transparent so that any researcher that wants to adapt the process in his/her own setting could do so. A code-recode method during data analysis was done to ensure dependability (Guba & Lincoln, 1985).
4. Conformability, a measure of how well the findings are supported by the data collected (Guba & Lincoln, 1985). It refers to "the extent to which the characteristics of the data, as posited by the researcher can be confirmed by others who read or review the research results"

(Bradley, 1993, p.437). The main approach to achieve dependability and conformability is to do an audit of research procedures and finding (Zhang & Wildemuth, 2009). A colleague who was not involved in the study was provided with the verbatim transcripts, analysis and process notes and summaries of the results for her opinion.

### **3.7 Data analysis**

#### **3.7.1 Quantitative component**

Data obtained from the questionnaires was analysed using SPSS version 21. Descriptive statistics was employed to summarise the socio-demographic data of the clients with Bell's palsy. Continuous variables such as age were expressed as mean, standard deviation (SD), range and percentage. Categorical variables such as gender and level of education were expressed as frequencies and percentages. Inferential statistics (cross tabulations) were used to determine the distributions of cases in the various groups. Significant difference was tested for using the Chi-square test. Statistical significance was set at an alpha level of 5% ( $p < 0.05$ ). Cramer's V test was employed to test for effect size. The following guidelines were used for interpretation of the Cramer's V test: 0.1 corresponding to a small effect and 0.3 corresponding to a medium effect (Agresti, 2002).

#### **3.7.2 Qualitative component**

The qualitative data was analysed by the verbatim transcription of audiotapes by an independent person with experience in transcription to produce a manuscript. Hammell and Carpenter (2004) stated that verbatim transcription of the data preserves the words of the participants. The transcriptions were compared several times with the audiotape recordings and field notes to ensure accuracy. Thematic analysis was done manually on two levels; analysis of individual data was carried

out and across all participants comparing all the themes and categories. According to Braun and Clarke (2008), thematic analysis is a method used to identify, analyse and report themes from the data collected. Thematic analysis began whereby the transcriptions of all the interviews and process notes were read a number of times to familiarise the researcher with the content. Common ideas were coded into emerging themes which were then grouped into broad categories. After the derivation of themes, and independent researcher read through the transcripts and generated themes that were then compared to the themes of the researcher. Code-recode process increases trustworthiness in qualitative research (Krefting, 1991).

### **3.8 Ethical considerations**

Approval was sought from the University of the Western Cape's (UWC) Senate Higher Degrees Committee (Appendix 1). Further permission was sought from the Western Cape Department of Health (DoH) (Appendix 2a, 2b, & 2c) and the facility managers of the approved Community Health Centers in Cape Metropolitan District of the Western Cape. The study was conducted according to ethical practices pertaining to the study of human subjects as specified by the Faculty of Community and Health Sciences Research Ethics Committee of the University of the Western Cape and the Western Cape Department of Health as well as the ethical principles outlined in the Declaration of Helsinki.

The following guidelines were followed:

- The aim and objectives of the study were explained and made available to all the participants in the form of an information sheet (Appendix 4a, 4b, 4c).

- Participation was voluntary and participants were given the opportunity to withdraw from the study at any time with no consequences.
- Informed written consent (Appendix 3a, 3b, 3c) was obtained from all participants before participation in the study. The participants were informed of their right to withdraw from the study at any time without any consequences. Participants were also treated with respect and dignity.
- The consent form, information sheet and questionnaire (Appendix 6a, 6b, 6c) were available in Afrikaans, English and isiXhosa.
- Anonymity was assured through the use of identification codes on the questionnaires as well as field notes of the focus group discussions. Information obtained from participants was for the study only and was handled with confidentiality. Pseudonyms were used to protect participants' identity when results are published.
- The researcher collected the questionnaires personally and was responsible for ensuring their storage in a locked and secure place.
- Information obtained from the focus group discussions was handled with confidentiality. All tapes were destroyed once they have been transcribed and documented according to themes.
- Participants in the focus group discussions (FGDs) signed a confidentiality binding form (Appendix 5a, 5b, 5c) where it was stated that they undertook not to disclose any information from the focus group discussions.
- All information will be kept for a minimum of five years where after it will be destroyed.
- Minimal risks were expected in the study. However, if participants were affected by the study and experienced questions that felt to be traumatic, the participants would be referred to a counselor for appropriate management.

- The findings of the study would be made available to the CHC's facility managers and the relevant stakeholders at the Western Cape Department of Health.

### **3.9 Summary of the chapter**

Community Health Centres (CHCs) in the Cape Metropolitan District were the setting for the study. Both quantitative and qualitative methods were employed for data collection from clients with Bell's palsy and are presented in detail in this chapter. Quantitative data was analysed by means of descriptive and inferential statistics to determine clients with Bell's palsy's physical and social well-being function, and the process of management of the condition. Focus group discussions were used to gain insight into clients with Bell's palsy's experience of the management of the condition. The results of the quantitative and qualitative analysis are presented in Chapter Four.

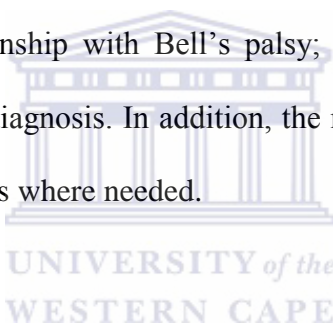


## CHAPTER 4

### RESULTS OF QUANTITATIVE DATA

#### 4.1 Introduction

This chapter contains the results of the statistical analysis that attempted to answer the first three (3) objectives of the study, i.e. to investigate the management or treatment protocol, to determine the tendency of referral for physiotherapy and to determine whether an association exists between the type of management or treatment received and recovery of clients with Bell's palsy from selected CHCs in the Cape Metropolitan District of the Western Cape. The following will be outlined in the chapter: an overview of the socio-demographic profile of the clients with Bell's palsy; the profile of diseases that might have a relationship with Bell's palsy; duration of symptoms and the special investigation done to confirm the diagnosis. In addition, the management of Bell's palsy is outlined. The results are summarised in tables where needed.



#### 4.2 Socio-demographic characteristics of clients with Bell's palsy

Of the 140 participants who were approached to participate in the study, 130 consented and completed the questionnaire. However, seven (7) questionnaires were not included in the data analysis as it was incomplete. A response rate of 87.86% (123/140) was thus achieved.

As shown in Table 4.1 a total of 123 clients with Bell's palsy with a mean age of 51.01years (SD=11.79) from eight randomly selected Community Health Centres (CHCs) participated in the survey, 42 males (34.1%) and 81 females (65.9%). The participants were predominantly (53.2%) from the Coloured population group. Two thirds of the participants (n=82; 66.7%) were between 31

and 60 years. Almost half of the participants (45.5%) highest level of education is secondary school. More than forty percent (n=53, 43.1%) of the participants were unemployed, while just more than one third of the participants (n=42, 34.1%) are working full-time.

**Table 4.1 Socio-demographic characteristics of the study sample (n=123)**

<b>Variable</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
<b>Age (mean =51.01 years SD=11.79)</b>		
20< years	4	3.3
21 - 30	17	13.8
31 - 40	28	22.8
41 - 50	24	19.5
51 - 60	30	24.4
61 - 70	17	13.3
71 and older	3	2.4
<b>Gender</b>		
Male	42	34.1
Female	81	65.9
<b>Ethnic groups</b>		
African	41	33.1
Colored	66	53.2
White	11	8.9
Indian/Asian	4	3.2
Other	1	0.8
<b>Level of education</b>		
No schooling	19	15.4
Primary school	24	19.5
Secondary school	56	45.5
Tertiary education	24	19.5
<b>Employment status</b>		
Working full time	42	34.1
Unemployed	53	43.1
Working part time	11	8.9
Pensioner/retired	13	10.6
Other	4	3.3

### 4.3 Percentage of clients with Bell's palsy per participating Community Health Centre (CHC)

Table 4.2 below shows more than a quarter (26.0%) of the participants in the study was attending the Elsies River CHC, while less than twenty percent were from Bishop Lavis CHC (17%), Delft CHC (13.8%) and Vanguard CHC (13.0%). Khayelitsha CHC had six participants in the study (n=6; 4.9%).

**Table 4.2 Percentage of clients with Bell's palsy per participating Community Health Centre**

<b>Community Health Centre</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Lady Michaels CHC	9	7.3
Vanguard CHC	16	13.0
Bishop Lavis CHC	21	17.1
Elsies River CHC	32	26.0
Delft CHC	17	13.8
Khayelitsha CHC	6	4.9
Mitchells Plain CHC	11	8.9
Heideveld CHC	11	8.9
<b>Total</b>	<b>123</b>	<b>100.0</b>



#### 4.4 Self-reported co-morbidities of clients with Bell's palsy

Table 4.3 shows the number of participants who had one or more of the following diseases that could contribute to the onset of Bell's palsy or had an effect on the participant's recovery, including hypertension, diabetes mellitus, heart diseases and others, less than forty percent 40% of participants (n=48) reported having hypertension while more than a fifth (n=25, 20.3%) reported having diabetes. Other conditions mentioned include osteoarthritis and asthma, as illustrated in Table 4.3.

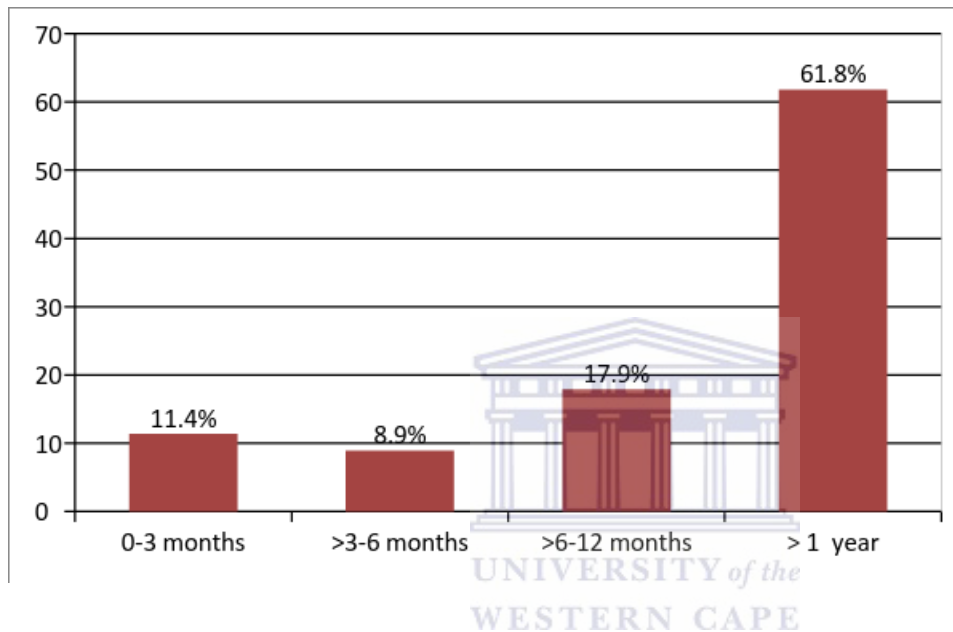
In addition, the results showed that the majority of the participants (n=113, 91.9%) experienced sudden onset of paralysis. Almost one fifth of participants (n=24, 19.5%) also claimed to suffer from ear pain at the time of onset of the symptoms.

**Table 4.3 Self-reported co-morbidities of clients with Bell's palsy**

Variable	Frequency (n)	Percentage (%)
<b>Hypertension</b>	(yes)	48
	(no)	75
<b>Diabetes mellitus</b>	(yes)	25
	(no)	98
<b>Heart diseases</b>	(yes)	5
	(no)	118
<b>Other conditions</b>	(yes)	5
	(no)	118

#### 4.5 Duration of symptoms of Bell's palsy of participants (n=123)

Figure 4.1 illustrates the duration of symptoms of Bell's palsy since the onset of the disease. The majority of participants (n=77, 61.8%) had the symptoms of Bell's palsy for more than one year. Less than a fifth (n=22, 17.9%) of participants had the symptoms for a period of 7-12 months, while just more than a fifth of the participants (n=24, 20.3%) had the symptoms for six months or less.

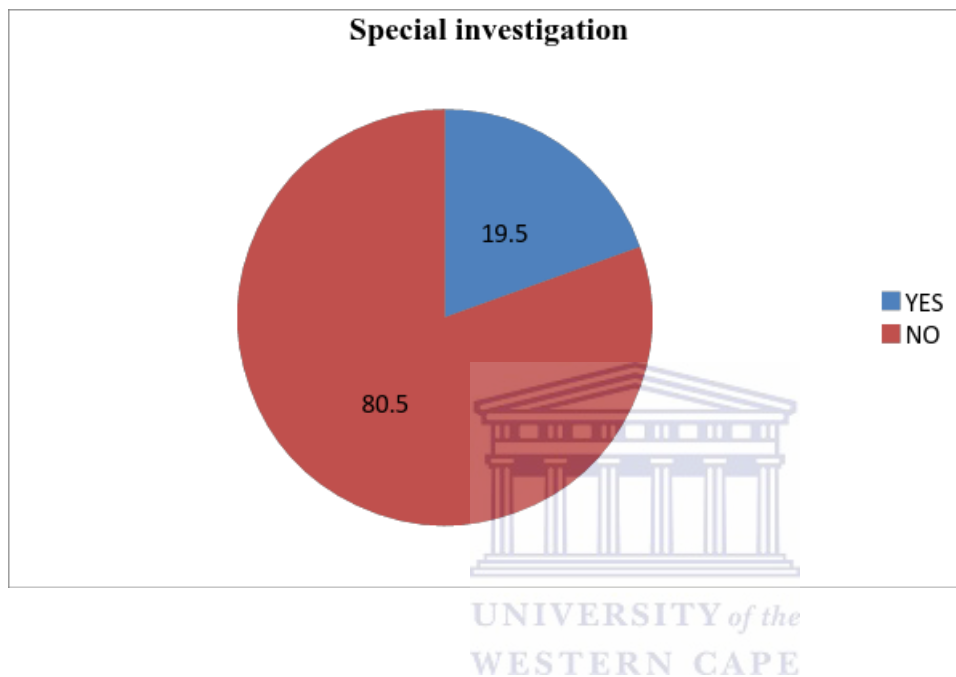


**Figure 4.1 Duration of symptoms of Bell's palsy**

Chi-square tests were performed to test whether there was a statistically significant difference in the duration of symptoms and socio-demographic variables. No significant difference was found for gender ( $\chi^2=7.38$ ,  $p=0.061$ ) and age ( $\chi^2=8.27$ ,  $p=0.763$ ).

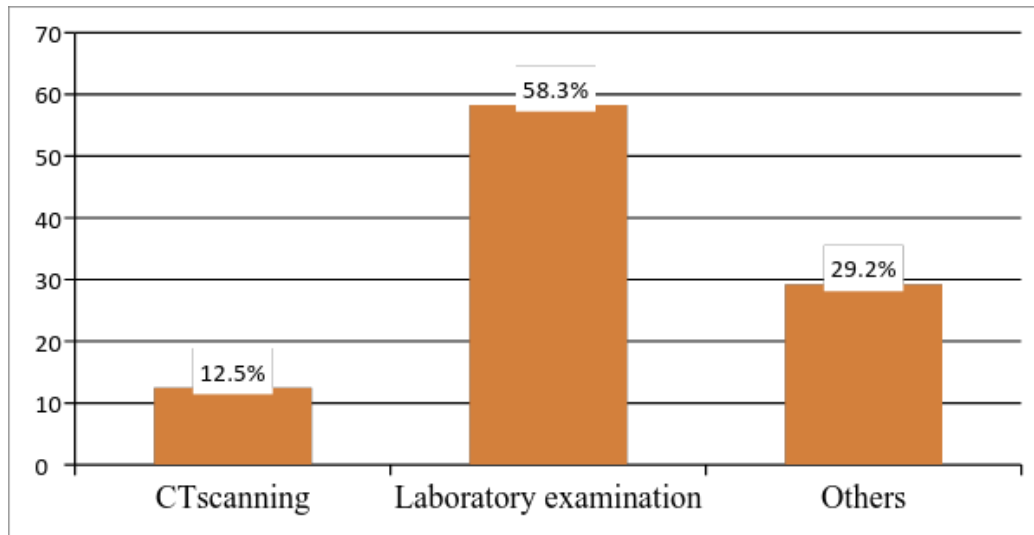
#### 4.6 Special investigation done to confirm the diagnosis of Bell's palsy (n=24)

Less than a fifth (n=24, 19.5%) of the participants underwent special investigation(s) to diagnose the disease, as shown in Figure 4.2. Chi-square tests revealed no statistical significant difference for patients that underwent special investigations and the duration of symptoms ( $\chi^2=0.880$ ,  $p=0.830$ ).



**Figure 4.2 Percentage of participants that underwent special investigation(s)**

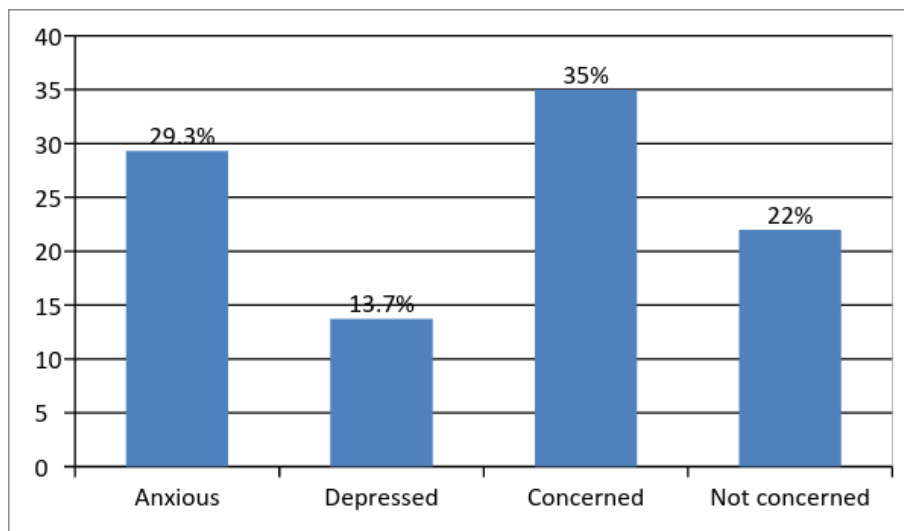
Figure 4.3 illustrates the various special investigations employed to diagnose Bell's palsy in the twenty four (24) participants. Just less than sixty percent (n=14, 58.3%) of the participants that underwent special investigation(s) had laboratory examinations such as blood tests, while 29.2% (n=7) had an ear examination and 12.5% (n=3) received a Computer Tomography (CT) scan.



**Figure 4.3 Special investigation done (n=24)**

#### **4.7 The psychological impact of Bell's palsy on participants (n=123)**

The psychological impact of disease on the participants is illustrated in Figure 4.4 below. More than a third (n=43, 35.0%) of the participants were concerned about the symptoms while less than a third (n=36, 29.3%) were anxious. Just more than a fifth (22.0 %) of the participants was not concerned about the symptoms of the disease.



**Figure 4.4 Psychological impact of the disease**

No statistical significant difference was found for the psychological impact of the disease and duration of symptoms ( $\chi^2 = 4.745$ ,  $p = 0.856$ ), gender ( $\chi^2 = 0.200$ ,  $p = 0.978$ ) and age ( $\chi^2 = 9.252$ ,  $p = 0.682$ ).

#### 4.8 The management of Bell's palsy of the participants (n=123)

The interventions used in the study sample are illustrated in Table 4.4. The majority of the participants (n=110, 89.4%) received physiotherapy treatment while almost two thirds of the participants (n=77, 62.6%) received medication. Only a small percentage (7.3%) of the participants was referred for occupational therapy while a mere 0.8% (n=1) underwent surgery.

**Table 4.4 Interventions used in the management of participants with Bell's Palsy**

Type of management	YES n (%)	NO n (%)
Medication	77 (62.4)	46 (36.6)
Physiotherapy	110 (89.4)	12 (10.6)
Surgery	1 (0.8)	122 (99.2)
Occupational Therapy	9 (7.3)	114 (92.7)

Chi-square tests revealed no statistical significant difference for duration of symptoms in participants that received medication ( $\chi^2 = 1.579$ ,  $p = 0.664$ ), physiotherapy treatment ( $\chi^2 = 4.078$ ,  $p = 0.253$ ) and a combination of medication and physiotherapy treatment ( $\chi^2 = 2.492$ ,  $p = 0.477$ ) respectively.

#### 4.8.1 Medication used in the management of Bell's palsy of the study sample (n=77)

The results presented in Figure 4.5 below show the different types of medication that was used in the management of the symptoms of Bell's palsy of the study sample that received medication. Corticosteroids were the most frequent prescribed medication (n=45, 58.4%), while just less than a quarter of the participants (n=13, 16.8%) received analgesics. Other medication includes vitamins such as vitamin B12.

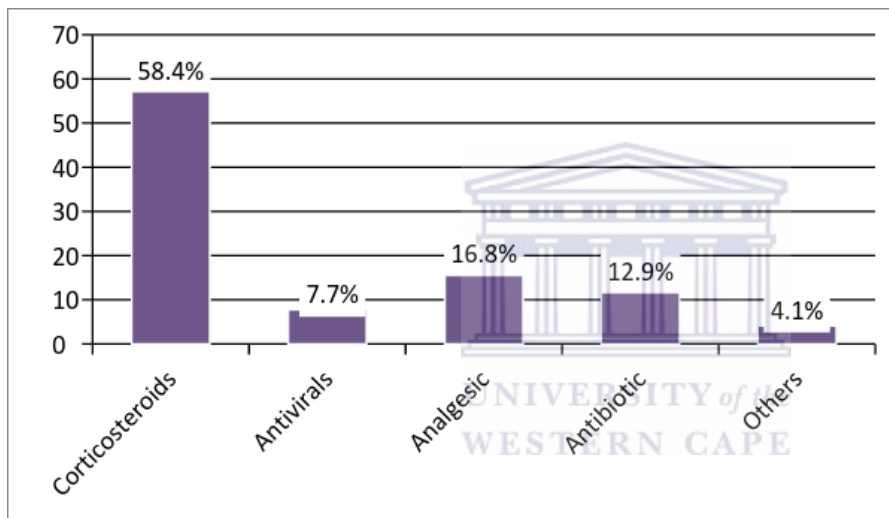
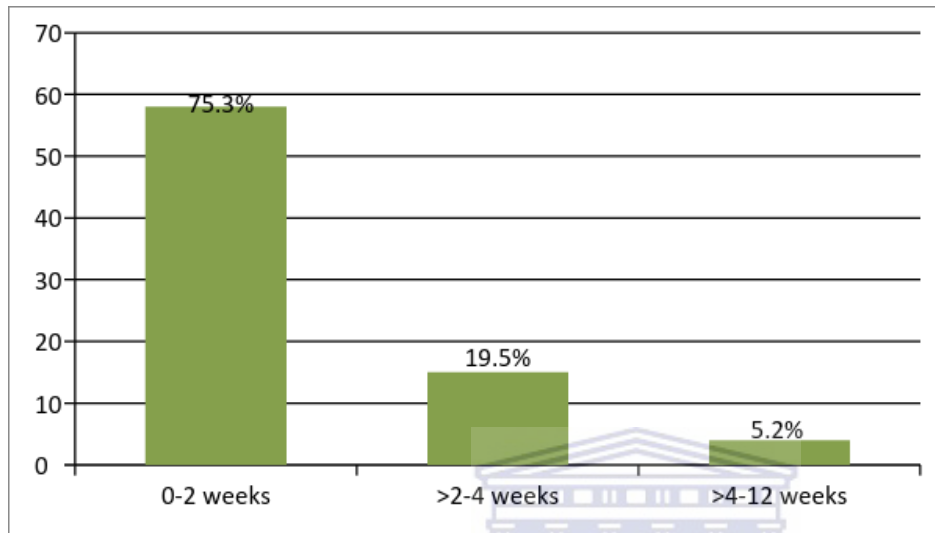


Figure 4.5 Types of medication used in the study sample

##### 4.8.1.1 Duration of use of medication

Figure 4.6 below illustrates the duration that participants with Bell's palsy used prescribed medication. It ranged between one (1) day and 90 days. The majority of the participants used medication for two weeks or less (n=58, 72.5%).

No statistical significant difference were found for duration of medication use and social well-being score ( $\chi^2=6.194$ ,  $p=0.185$ ), physical ability score ( $\chi^2=0.505$ ,  $p=0.973$ ) and total FDI score ( $\chi^2=3.838$ ,  $p=0.428$ ).

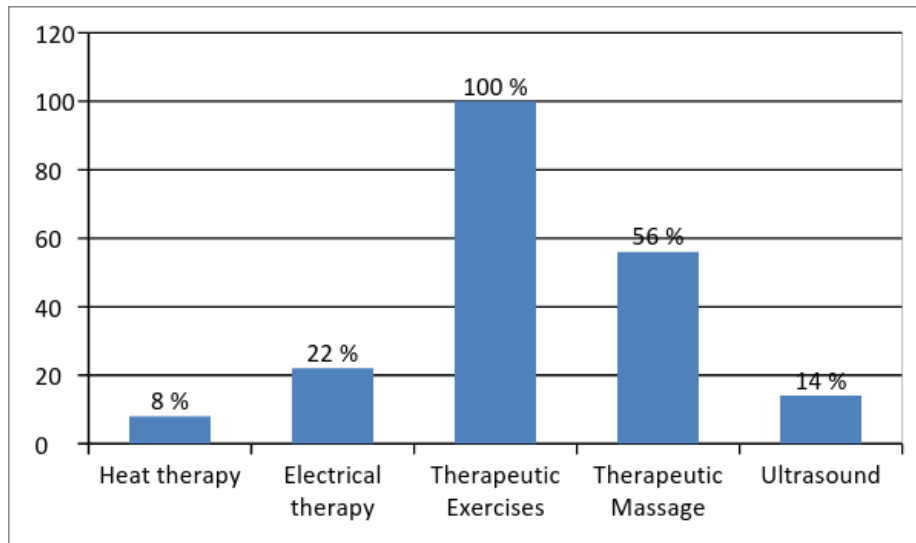


**Figure 4.6 Duration of use of medication**

#### **4.8.2 Physiotherapy interventions used in the management of Bell's palsy of the study sample (n=110)**

The 110 (89.4%) participants that received physiotherapy management reported a variety of interventions employed at the CHCs to treat the symptoms of Bell's palsy. All the participants (n=110, 100%) received therapeutic exercises while almost two thirds (n=82, 56%) received therapeutic massage, as shown in Figure 4.7 below.

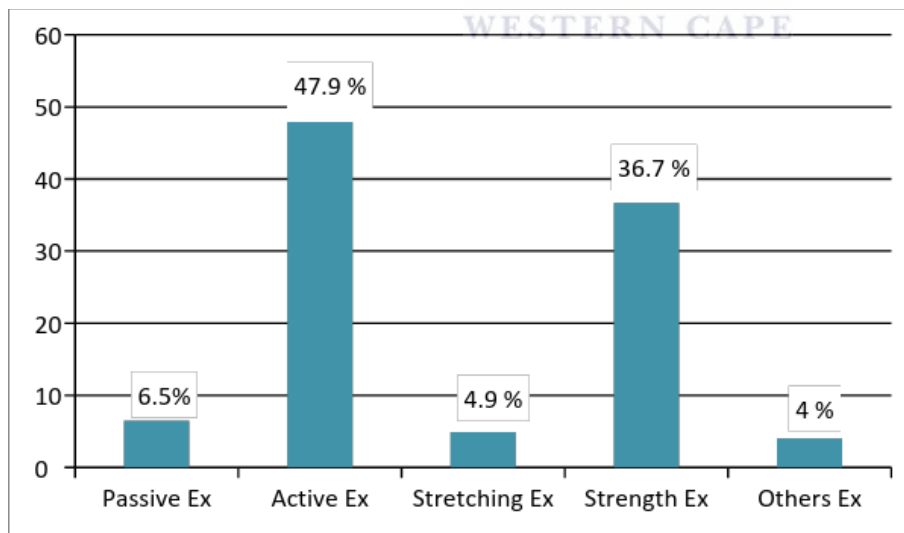
Chi-square tests revealed no statistical significant difference for any of the physiotherapy modalities employed and physical ability score, social well-being score and total FDI score respectively.



**Figure 4.7 Physiotherapy interventions employed**

**a) Therapeutic exercises (n=110)**

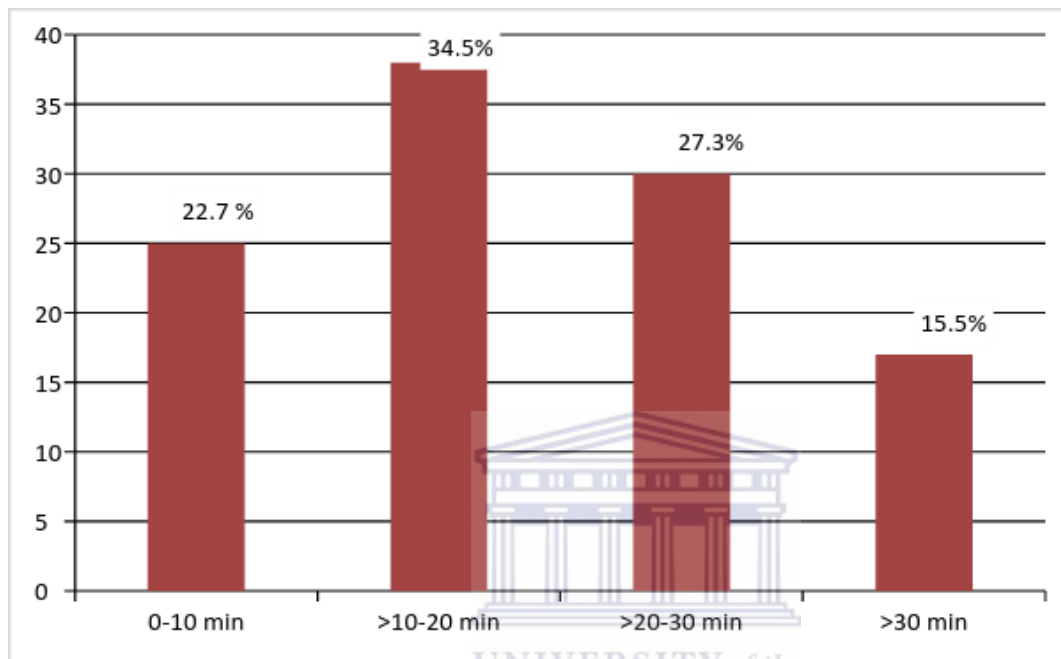
Figure 4.8 illustrated the different types of exercise that was used for the 110 clients with Bell's palsy that was referred for physiotherapy management at the CHCs. Active and strengthening exercises were received by 47.9 % (n=54) and 36.7 % (n=39) of the participants respectively.



**Figure 4.8 Prescribed therapeutic exercises**



Figure 4.9 below shows the duration of each exercise session. It ranged between seven (7) and sixty (60) minutes. The average time for a session was almost twenty-three (23) minutes. The majority of the participants' (n=91, 82.0%) exercise sessions were between ten (10) and thirty (30) minutes.

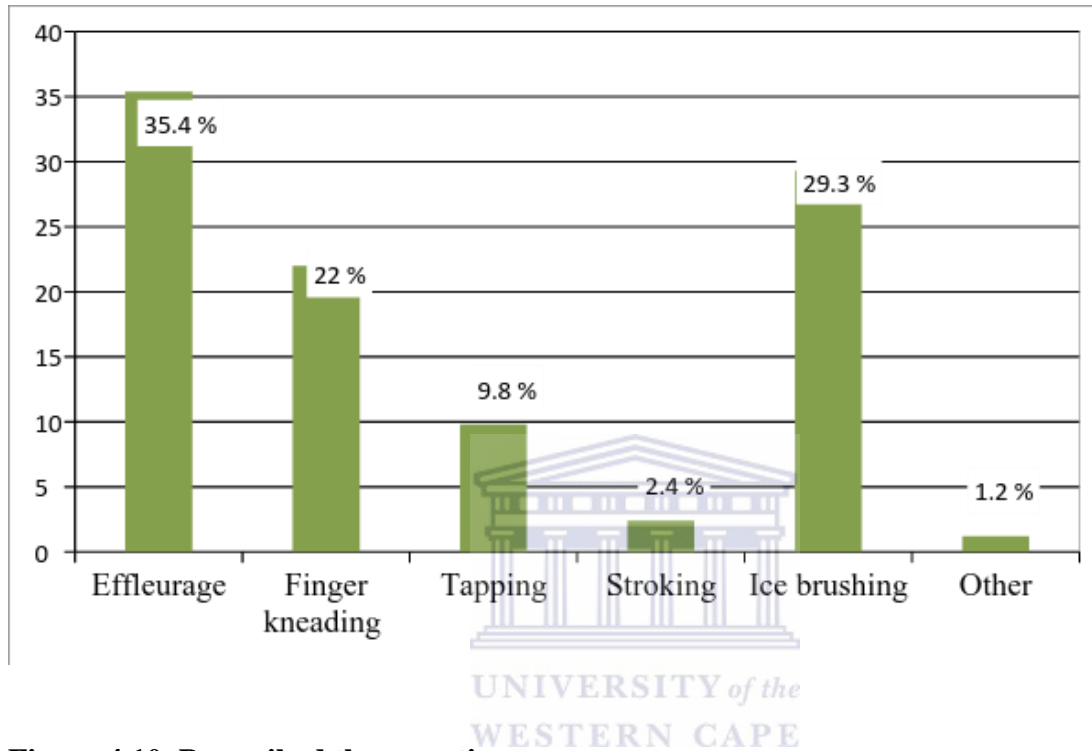


**Figure 4.9 Duration of prescribed therapeutic exercises**

The number of exercise sessions per week ranged between one (1) and five (5) sessions. The majority of the participants received one exercise session per week (n=97, 87.4%) and more than half of the participants (n=60, 54.5%) had two to four sessions in total.

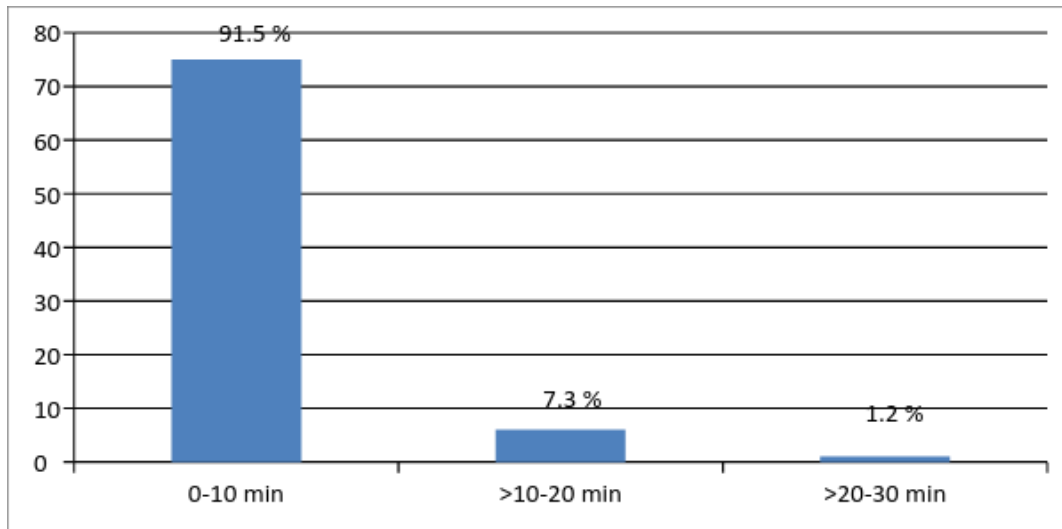
**b) Therapeutic massage (n=82)**

Eighty two (n=82, 56%) of the participants received therapeutic massage. Effleurage and ice brushing were mostly applied during the session with 35.4% (n=29) and 29.3% (n=24) participants respectively receiving it, as illustrated in Figure 4.



**Figure 4.10 Prescribed therapeutic massage**

Figure 4.11 shows the duration of each massage session. Sessions ranged between one (1) and thirty (30) minutes. The average time for a session was seven (7) minutes. For more than half of the participants (n=42, 51.2%), massage sessions were applied for at least five (5) minutes. In addition, the majority of the participants (n=71, 86.6%) received one (1) massage section per week and almost sixty percent (n=49, 59.8%) had two to three massage sessions in total.



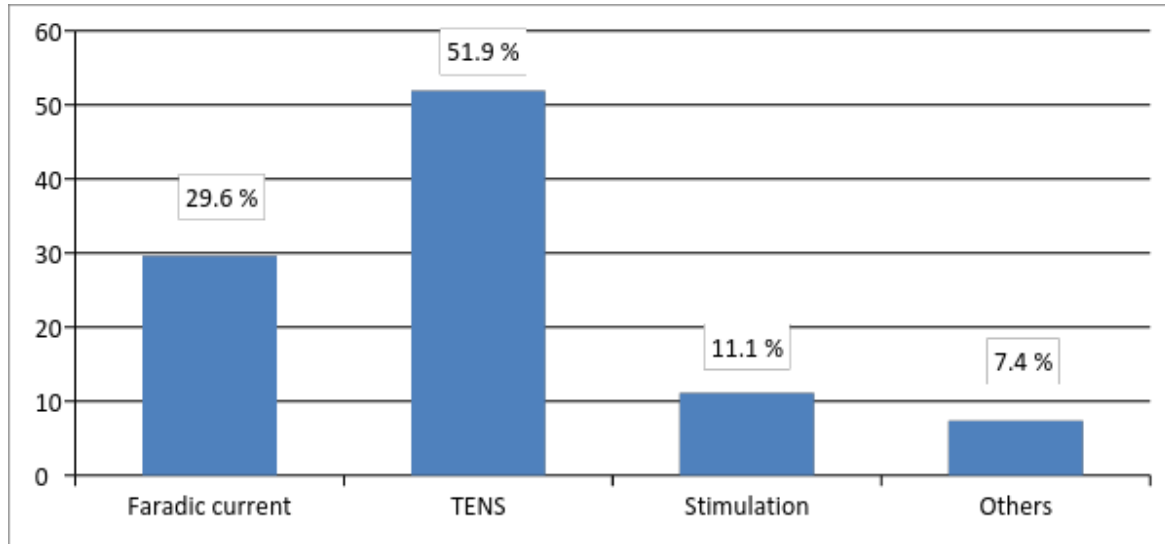
**Figure 4.11 Duration of prescribed therapeutic massage**

**c) Ultrasound therapy (n = 53)**

Fifty three of the participants received ultrasound therapy (n=53, 47.7%). More than forty percent (n=23, 43.4%) of the participants' treatment session lasted for at least five (5) minutes. The average treatment time was seven (7) minutes per session. The majority of the participants (n=46, 86.8%) received one (1) ultrasound session per week while more than half (n=28, 52.8%) had a total of two to four sessions.

**d) Electrical therapy (n=27)**

Figure 4.12 illustrated the different kinds of electrical therapy used in CHCs to treat patients. Only twenty seven (n=27, 24.3%) of the study sample received some form of electrical therapy. TENS was the modality most frequently applied to more than half of the participants that received electrical therapy (n=14, 51.9%), as shown in Figure 4.12 below.



**Figure 4.12 Electrical therapy modules employed**

The treatment time ranged between five (5) and thirty (30) minutes. The average treatment time per session was twelve (12) minutes. More than sixty percent of the participants (n=17, 63.0%) that received electrical therapy treatment sessions were between five (5) to ten (10) minutes per session while almost ninety percent (n=24, 88.8%) had one treatment session per week. The total amount of sessions ranged between one (1) and twelve (12) sessions with the majority of the participants (n=23, 85.2%) having five (5) or less sessions in total.

**e) Heat therapy (n=10)**

Only ten participants received a form of heat therapy, including hot packs, infrared or shortwave diathermy. Hot packs were applied to the majority (n=6, 60.0%) of the study sample that received heat therapy. The treatment time per session ranged between five (5) and thirty (30) minutes. The average treatment time per session was twelve (12) minutes. Seventy percent (n=7, 70%) of the

participants' treatment time per session were ten (10) to fifteen (15) minutes and had two to three heat therapy session in total.

### 4.8.3 Surgery

Only one participant (0.8%) received facial nerve decompression surgery. The patient suffered severe physical dysfunction and total paralysis in the right side of the face, drop of the corner of the mouth, synkinesis and difficulty with eating and drinking.

## 4.9 Results of the Facial Disability Index (FDI)

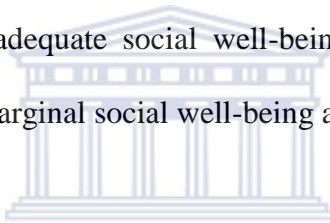
The Facial Disability Index (FDI) was used to determine the participants' physical function and social well-being score. The data was obtained after the participants received various management options, including pharmacological and non-pharmacological treatment. The physical function score are presented in Table 4.5 below. For interpretations of the tables, the following definitions for different categories were used: inadequate ability (0–59%); marginal ability (60-75%); and adequate ability (>75 %) (Williams, Baker, Parker & Nurss, 1998).

**Table 4.5 Physical function score of participants (n=123)**

Categories	Frequency (n)	Percentage (%)
Inadequate Ability	42	34.1
Marginal Ability	41	33.3
Adequate Ability	40	32.5
<b>Total</b>	<b>123</b>	<b>100.0</b>

Statistical significant differences were found for the physical function categories. The psychological impact of the diseases was significantly higher in participants with an “inadequate ability” or low physical function score ( $\chi^2=13.770$ ,  $p=0.032$ ). However as can be seen from the Cramer’s V statistic effect size were fairly low (Cramer’s  $V=0.237$ ); using guidelines of 0.1 corresponding to a small effect and 0.3 corresponding to a medium effect. No significant difference in physical function categories were found for gender ( $\chi^2=1.473$ ,  $p=0.493$ ), age ( $\chi^2=8.140$ ,  $p=0.420$ ), duration of symptoms ( $\chi^2=3.887$ ,  $p=0.692$ ) or type of treatment received, e.g. a combination of medication and physiotherapy ( $\chi^2=1.520$ ,  $p=0.468$ ).

Table 4.6 below illustrated the social well-being score of the study sample. The majority of the participants ( $n=74$ , 60.16%) had adequate social well-being ability, while less than third of the participants ( $n =35$ , 28.46%) had marginal social well-being ability.



**Table 4.6 Social well-being score of the participants (n= 123)**

Categories	Frequency (n)	Percentage (%)
Inadequate Ability	14	11.4
Marginal Ability	35	28.5
Adequate Ability	74	60.2
<b>Total</b>	<b>123</b>	<b>100.0</b>

Significant associations were found for social well-being categories and duration of symptoms and psychological impact of the disease respectively. Results suggest that participants with a lower (inadequate ability) social well-being score ( $n=14$ , 11.4%) had a significant longer duration of symptoms ( $\chi^2=13.740$ ,  $p=0.033$ ) and psychological impact of the disease were more distinct in these

participants ( $\chi^2=27.205$ ,  $p=0.000$ ). According to the Cramer's V statistic, effect size were low (Cramer's  $V=0.236$ ) for the duration of symptoms and medium (Cramer's  $V = 0.343$ ) for psychological impact of the disease. No significant differences in the social well-being categories were found for gender ( $\chi^2=1.179$ ,  $p=0.555$ ) age ( $\chi^2=5.930$ ,  $p=0.655$ ), and co-morbidities ( $\chi^2=1.306$ ,  $p=0.521$ ). Although participants that received the combination of medication and physiotherapy had a significant higher social well-being score, ( $\chi^2=6.067$ ,  $p=0.048$ ) the effect size was low (Cramer's  $V=0.108$ ).

The total Facial Disability Index score are presented in Table 4.7 below. An adequate and marginal ability score were obtained by 40.65% ( $n=50$ ) and 36.59% ( $n=45$ ) of participants respectively. Less than one fifth ( $n= 28$ , 22.76%) had an adequate ability score.

**Table 4.7 Total facial disability score of participants (n=123)**

Category	Frequency (n)	Percentage (%)
Inadequate Ability	28	22.76
Marginal Ability	45	36.59
Adequate Ability	50	40.65
<b>Total</b>	<b>123</b>	<b>100.0</b>

A statistically significant difference was calculated for total FDI score and psychological impact of the disease. Significantly more participants with a lower FDI score (marginal and inadequate ability) ( $n=73$ , 59.35%) reported to have a negative psychological impact of the disease ( $\chi^2=27.205$ ,  $p=0.000$ ). In addition, a medium effect size was calculated according to the Cramer's V statistic of 0.333. No significant difference were found for total FDI category and co-morbidities ( $\chi^2=1.287$ ,

p=0.525), duration of symptoms ( $\chi^2=2.664$ , p=0.860) and type of treatment received, e.g. a combination of physiotherapy and medication ( $\chi^2=1.731$ , p=0.421).

#### 4.10 Summary of the chapter

The following fundamental results were obtained from the analysis of the quantitative data of the participants with Bell's palsy:

- The majority of the patients with Bell's palsy were aged between 31 and 60 years (n=82, 66.7%) with a mean age of 51.01 years (SD=11.79).
- Almost two thirds of the study sample was female (n=81, 65.9%).
- Hypertension and Diabetes mellitus were reported by 39.0% (n=48) and 20.3% (n=25) of the participants respectively.
- Most of the participants (n=77, 61.8%) had the symptoms of Bell's palsy for more than a year.
- Only 19.5% (n=24) of the participants underwent special investigations to diagnose the disease, of which more than half (n=14, 58.3%) had blood tests done.
- Anxiety and concern about the symptoms were reported by 29.3% (n=36) and 35.0% (n=43) of the participants respectively.
- The majority of the participants received physiotherapy treatment (n=110, 89.4%). Therapeutic exercises were received by all the participants referred for physiotherapy.
- Therapeutic massage was applied to 56% (n=82) of the participants while less than fifty percent (n=53, 47.7%) of the participants received ultrasound therapy.
- Corticosteroids were the most frequent prescribed medication (n=45, 58.4%).



- The psychological impact of the diseases was significantly higher in participants with a low physical function score ( $\chi^2=13.770$ ,  $p=0.032$ ). Effect size was fairly low (Cramer's  $V=0.237$ ).
- The majority of the participants ( $n=74$ , 60.16%) had adequate social well-being ability.
- Participants with a low social well-being score ( $n=14$ , 11.4%) had a significant longer duration of symptoms ( $\chi^2=13.740$ ,  $p=0.033$ , Cramer's  $V=0.236$ ) and psychological impact of the disease were more distinct in these participants ( $\chi^2=27.205$ ,  $p=0.000$ , Cramer's  $V=0.343$ ).
- An adequate and marginal ability score were obtained by 40.65% ( $n=50$ ) and 36.59% ( $n=45$ ) of participants respectively.
- Significantly more participants with a low total FDI score ( $n=73$ , 59.35%) reported to have a negative psychological impact of the disease ( $\chi^2=27.205$ ,  $p=0.000$ , Cramer's  $V=0.333$ ).

The next chapter will outline the perceptions of clients with Bell's palsy regarding the management of their disease.

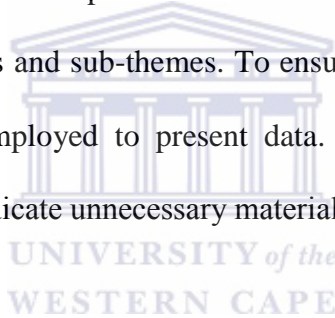


## CHAPTER FIVE

### QUALITATIVE RESULTS

#### 5.1 Introduction

This chapter presents the results of the content analysis of the focus group discussions which attempted to answer objective four of the study, namely to explore the perceptions of clients with Bell's palsy regarding their experience of the disease and the management thereof at selected Community Health Centres (CHCs) in the Cape Metropolitan District of the Western Cape. The description of the participants is followed by the presentation of the emerging themes and categories derived from the thematic analysis. In the presentation of the findings, verbatim quotations were used to exemplify the mentioned themes and sub-themes. To ensure anonymity and confidentiality of the participants, pseudonyms were employed to present data. The quotations are utilised and three ellipsis points (...) were used to indicate unnecessary material that was omitted.



#### 5.2 Description of the participants

The researcher purposively invited 58 clients with Bell's palsy that completed the questionnaire for the quantitative phase of the study to participate in the focus group discussions (FGDs). Thirty (30) clients agreed to participate of whom 40% (n=12) were male and 60% (n =18) were female. The age of the participants ranged between 19 and 60 years (mean age = 40 years; SD =9.65).

The following themes and categories, as presented in Table 5.2 below, emerged from the thematic analysis of the qualitative data.

**Table 5.1 Emerging themes and categories**

<b>Themes</b>	<b>Categories</b>
<b>Impact of Bell's palsy on physical health</b>	<ul style="list-style-type: none"><li>- Difficulty with eating and drinking</li><li>- Difficulty with vision</li><li>- Difficulty with speech</li><li>- Problems related to the affected ear</li></ul>
<b>Clinical picture</b>	<ul style="list-style-type: none"><li>- Similarity with stroke (CVA)</li><li>- Incorrect diagnosis</li><li>- Signs of stress</li></ul>
<b>Life changing experience</b>	<ul style="list-style-type: none"><li>- Psychological impact</li><li>- Social / emotional impact</li><li>- Economic difficulties</li></ul>
<b>Quality of services received at the CHC</b>	<ul style="list-style-type: none"><li>- Physiotherapy treatment</li><li>- Pharmacologic treatment (medication)</li><li>- Obstacles faced at the CHCs</li></ul>

### **5.3 The impact of Bell's palsy on the clients' physical health**

Responses from the focus groups discussions (FGDs) regarding the impact of the disease on the physical health of the clients with Bell's palsy varied and are presented below.

### 5.3.1 Difficulty with eating and drinking

Most of the participants experienced difficulty during eating and drinking because of paralysis and weakness of the affected facial muscles. A significant problem includes drooling from the affected corner of the mouth due to pooled food and saliva.

*“Uh... it was difficult for me to eat because, I can remember, I couldn't chew my meat and uhm... the drooling... like a baby and all the stuff you know.” (John)*

Some participants suffer from inability to taste their food because of the skew mouth and the feeling of numbness.

*“...yea for me it was also difficult. The first time when I found out, I could not taste the food because my whole mouth was numb....” (Tony)*

*“...it was difficult for me to eat because I have a skew mouth...” (Mbango)*

In addition a number of participants indicated problems with drinking and reported that using straw could help during drinking.

*“... I couldn't drink properly because I was spilling liquids like the water or tea and the therapist said I must use a straw. It was better ....” (Khadija)*

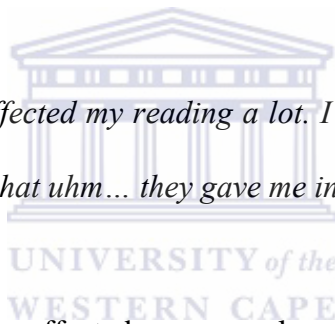
*“...I couldn't drink out of the cup, and I found it very difficult to drinking, out of straw...”*

*(Roeshnia)*

### **5.3.2 Difficulty with vision**

Loss of innervation of the orbicularis oculi muscles often lead to failure of the eye to close and sagging of the lower eyelid. This is very often seen in clients with Bell's palsy and also causes the eyeball to turn upwards in an attempt to close the eye. In addition, a decrease in tear production is reported which subsequently contribute to the development of eye infection and dryness of the affected eye (Garg et al., 2012). One participant found it very difficult to read and watch television, something she loved to do every day. The excerpt below demonstrates:

*“Actually, my one eye, it affected my reading a lot. I don't even watch TV. I can't watch TV with my eye but I had used that uhm... they gave me in hospital (eye drops).” (Anne)*



Dryness or excessive tearing of the affected eye was also reported, as indicated from participants below.

*“...my eye get very dry and then it burns like it's still now....” (Martin)*

*“...actually I felt difficult because my eye is very tearful and there's times when it goes all narrow and things like that...” (Germaine)*

### 5.3.3 Difficulty with speech

Because of the client's inability to smile, seal their lips or puff their cheeks on the affected side, they often faced problems with pronouncing words the right way (Sarhan et al., 2012). One client experiences great difficulty in doing her daily job, as illustrated below:

*"After I had Bell's palsy my speech was very bad and I could not talk to clients. When I spoke to clients over the phone it's like I started to stutter and I couldn't get words out. And with it, it results in clients getting annoyed with you. And I also was on switchboard and I couldn't answer switchboard."* (Mary)

Other participants had the following to say:

*"...because I couldn't speak properly at that time. So for a year after that, I just spoke out of one side of my mouth..."* (Abiodun)

*"...there is sometimes, where I can't pronounce the words properly and things like that and there's sometimes when my mouth go skew..."* (Christo)

### 5.3.4 Problems relating to the affected ear

Many clients with Bell's palsy complain of pain in or behind the ear. Bell's palsy can affect the stapedius muscle and inhibits its role of controlling the vibrations inside the ear. It could lead to hyperacusis, where sound experience is abnormally loud on the affected side (Sarhan et al., 2012). One client reported difficulty with balance and a safety concern due to the decreased hearing ability of the affected ear.

*“It is only that I..... how can I put this? The ear is deaf. Off balance, I can’t walk long distances. I can’t walk up the stairs, or down the stairs without holding on to something. My big concern is when I drive around, I’m alright but when I get out the car, I go like somebody who is floating. It feels like you don’t walk on the ground” (Ashraf)*

The same participants reported pain behind his ear and uncommon sound in his affected ear:

*“...there is pain in my right ear. I heard the little like voices at night... not voices... it’s like a sound. Uhm ... but not like extreme, but what I actually do is that I put on music, so that I can fall asleep.” (Ashraf)*

## **5.4 Clinical picture**

### **5.4.1 Similarity with stroke (CVA)**

Some clients were incorrectly diagnosed with stroke. The sudden onset of Bell’s palsy, as well as the similarity with the clinical picture of stroke, could contribute to the incorrect diagnosis of clients. However, upper motor neuron lesions such as stroke do not affect the upper third of the face while with lower motor neuron lesions like Bell’s palsy, the paralysis affects the entire face (Aditya, 2014). One of the clients was very confused and upset and thought she had a stroke. The excerpt below demonstrates:

*“I actually really didn’t know what it was and uhm... for me it’s... when it happened to me I wonder what is this? Cause it’s the first time and .... did I have a stroke or what? I am young*

*to have stroke so I was very frightened and anxious because it was the first time, and in my family they don't know about something like this.” (Kristina)*

*“... I found it very difficult, I could not go out I had to stay at home. I can't take it when it looks like I had a stroke.”(Janine)*

*“...it was a shock for me, because it's the first time something like that happened to me. and I also wanted to know what cause this to happen? I thought maybe I had a stroke.”(Chabbag)*

#### **5.4.2 Incorrect diagnosis**

As Bell's palsy is a facial paralysis of unclear origin, it is fundamental to eliminate other reasons for facial paralysis in order to make a correct and definitive diagnosis of Bell's palsy. Therefore, Bell's palsy is considered a diagnosis of exclusion (Garg et al., 2012). One of the participants was at first diagnosed with headache, as demonstrated below:

*“... I was diagnosed with headache the whole time, so that's what happened to me. I never know about Bell's palsy and now I know a little bit of it...” (Mabango)*

Another participant was diagnosed with flu, as demonstrated below:

*“...it was very embarrassed to have a skew face, so when I went to the day hospital they ask me did I have flu before, a week before. So I said 'Yes, I had flu'. So they told me it can be from that.” (Brent)*



### 5.4.3 Signs of stress

Stress is common in patients with Bell's palsy and some clients express high levels of stress before the onset of the disease.

*“Uhm... I was arguing with my sister and we had a fight. I went to sleep the Saturday night and the Sunday morning I woke up and I saw my face was disfigured and I went to the doctor. They told me it's Bell's palsy causing by stress.” (Nana)*

Some participants also experienced extreme stress after the onset of the symptoms of Bell's palsy, as explained in the excerpts below:

*“... I was sad, I was very sad. I asked my mom over and over, why me? Why did this happen to me ? Because the one moment I was healthy and the next moment my face was skew, I felt my life stopped and I gave up my job. I couldn't face people.” (Megan)*

*“... it has affected me so much I didn't want to mix with people. I basically just stayed at home. It doesn't matter where you go, it's like people staring at you all the time...” (Oliver)*

## **5.5 Life changing experience**

### **5.5.1 Psychological impact**

Because Bell's palsy is a disease has a severe effect on the clients' psychological condition and daily activities, research has demonstrated that psychological pressure were common in clients with Bell's palsy (Huang et al., 2012). The excerpts below echo the aforementioned statement.

*"I felt depressed 24/7, uhm... I went through stages when I just wanted to scream and shout. I wanted to commit suicide." (deep breath) "I go through lots of different things. I don't know, somehow I just see myself standing on a bridge. This is very depressing. I go through a terrible period of depression, even now..." (Nandi)*

*"... people treat me different you know? Uhm ... it's like people don't want to be seen with me. That type of thing... yea... Then I go through these terrible headaches for days you know?" (Julie)*

*"... sometimes I feel I'm not going to get done for the day. You know, that makes me anxious, because I feel lopsided and sometimes I feel very tired. I just go to sleep in the middle of the day, that's bad." (Fatima)*

### **5.5.2 Social and/or emotional effect**

Clients with Bell's palsy suffer from a disorder that affects them in many ways, namely their inability to social integrate causing isolation from other people, as well as preventing them from

participating in community activities and prevents them from expressing their feeling (Huang et al., 2012).

*“It was very difficult to go outside because you know, people are staring at you and uhm... my one eye was very different than the other eye.” (Anne)*

*“Yea, it was uhm... very embarrassing from my part ‘cause automatically I didn’t want to mix with people. I didn’t want to go out...” (John)*

One participant felt embarrassed to attend social functions.

*“I don’t eat with friends. I don’t go to weddings. I don’t go to functions. I basically just stayed at home. But after a while, when the news spread that I got Bell’s palsy, a lot of people came and visit. It can happen to anyone, and I need to be strong about it. And uhm... I must just believe it will come right. It was not easy!” (John)*

WESTERN CAPE

*... I did not interact with anybody. Because I was shy, I was embarrassed. I just shut into my room. I closed the door and I stayed there, only my immediate family saw me....” (Sumaya)*

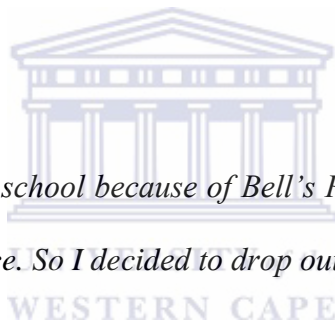
*“I’m also shy to come out , but if I have to, I go. Because the people, when they see you they want to know ‘What happened to your face? Have you had a stroke?’ and so. You feel embarrassed. So that’s why most of the time I stayed in the house.” (Phillip)*

### 5.5.3 Economic difficulty

Untreated, Bell's palsy may lead to reduced quality of life, a feeling of embarrassment and low self-esteem due to the changed facial appearance. Some clients choose to stop working and studying as they are scared to face people. This eventually affects their financial status (Haltiwanger et al., 2009).

*“Because of my face I didn't want to go to work anymore. The work was with public. It was a material place, selling materials. I had to help customers with material. ...and I just couldn't face that, so I gave up my job and because we are a family with seven sisters .... You know, I was financially affected and a lot of times I had to go to Groot Schuur, but I didn't know if we had a bus fare.” (Suraya)*

*“Well, I had to drop out of school because of Bell's Palsy, because (pause) I did not want to go to school with a skew face. So I decided to drop out of school and stay at home.” (Janate)*



## 5.6 Quality of services received at the Community Health Centre (CHC)

### 5.6.1 Physiotherapy treatment

Even though there was a disagreement among scholars about the effect of physiotherapy as part of the management of patients with Bell's palsy, it is still a method of therapy that is used and recommended, especially for clients with Bell's palsy who did not achieve full recovery (Jamil , Khan, Nadir, & Alsaad, 2013). Massage, exercises, heat therapy and ultrasound are the modalities most often used in the treatment of Bell's palsy. One participant reported that he was not aware of

the physiotherapy services for the disease at the CHC he attended. This could have affected the outcome of his symptoms. The excerpt below demonstrates:

*“ .. .. I got Bell’s palsy in May and I only came to physiotherapy in August. So maybe it’s also my fault, or whatever, I don’t know. So I was sitting at home, did not know what to do. I was told I must rub my face from the one side to the other. I just do what people told me, people that had it. ...until I came here around August. I’ve lost big time, but I must say there was an improvement with physiotherapy.” (Jeffry)*

One of the most important aspects of physiotherapy treatment for Bell’s palsy, is an exercise programme. Patients practice small movements of the face muscles while focusing on symmetry of the face with the use of a mirror to provide sensory feedback and promote motor learning. (Manikandan , 2006; Pereira et al ., 20011). The excerpt below demonstrates:

*“Yea... coming here, I have to give it (physiotherapist service) 10/10 because you know, there was a difference in the first two weeks with physiotherapy. They were helping me a lot showing me what to do and giving exercise to do at home. There was a difference immediately! Even my wife and my son pick it up you know. They showed me at the Community Health Centre the right way... the right way of rubbing and the right way of exercise” (Maarten)*

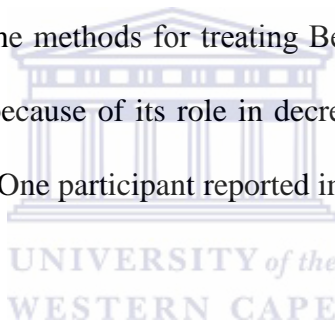
In addition the experts below reported of the role of exercise, massage and home training to assist with the recovery process.

*“The therapist in the CHC helped me a lot. She’s the one who calmed me down, because I thought ‘Oh! My face will stay like that and so she massage my face and motivate me a lot. So everything is fine now.’” (Naomi)*

*“...what’s actually helped me a lot was that, that uhm..., that page the therapist gave me in order to do the exercises. And that was a healing. That’s what healed my face, doing all the exercises, every day.” (Sarah)*

### **5.6.2 Pharmacologic treatment (medication)**

Medication is considered one of the methods for treating Bell’s palsy. Corticosteroids are the most frequently prescribed medication because of its role in decreasing oedema and inflammation in the affected nerve (Garg et al., 2012). One participant reported improvement after he took the prescribed medication.



*“ ... I get medication and it was really helpful. It was a type of corticosteroids. They (the tablets) were very good and my face improved a lot with that treatment.” (Roux)*

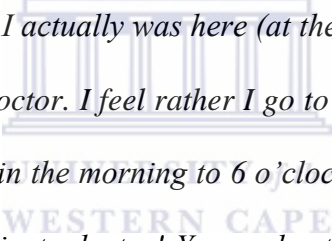
Other participants reported improvement with the combination of medication and physiotherapy treatment, as stated below:

*“Doctors were very helpful at the Community Health Centre. They prescribed Prednisone and B12 vitamin which helped me a lot. Before, I was feeling anxious, but after I took my medication with physiotherapy my face improved a lot.” (Danny)*

*“Yea, ... it was difficult, but when I came here and they gave me the medication and exercise, as well as the advice and the help that I needed. I wasn't scared anymore and now I'm glad that I'm healed. Yea... very glad.” (Hamman)*

### **5.6.3 Obstacles faced at the Community Health Centres (CHCs)**

Long waiting periods for an appointment to see the doctor and physiotherapist were identified as a problem. This also includes a shortage in staff in general.



*“... it was the last time that I actually was here (at the CHC), when I had this Bell's palsy. So I normally go to a private doctor. I feel rather I go to a private doctor for one simple reason. You sit here from 6 o'clock in the morning to 6 o'clock tonight and then they got the nerve to ask you why you go to a private doctor! You understand what I'm meaning? Uhm... I don't have that patience to sit 12 hours waiting to see a doctor.” (Solangy)*

*.... There is no help. I don't think these people ever heard about Bell's palsy at this clinic. They just gave me Degranol, it just make me sleep most of the time , uhmmm my pain was severe, especially in my ear. I've been waiting for the pain clinic for two, nearly two years now. They said they put me on a list at the Groote Schuur hospital but they never did. So I don't even come to this hospital anymore.” (Shamila)*

*“... my problem is still with my eye, the eye’s dripping. ... but the problem here, I have to wait for long to see an eye specialist doctor.” (Anita)*

Another concerning problem was that one participant was not aware of the services offered at the CHC.

*“What beats me was I was not aware here was a rehab therapy.” (Jeremy)*

## **5.7 Summary of the chapter**

Results of the qualitative data helped us to understand the perceptions and some of the challenges clients with Bell’s palsy experience in the management of their disease. The results indicate that Bell’s palsy negatively affects the clients’ physical health as they experience difficulty with eating, drinking, vision and speech. Furthermore, the psychological impact of the disease should not be underestimated as the participants were negatively affected, both emotionally and economically. Incorrect diagnosis could also negatively affect the healing process. The participants reported a positive experience with the combination of medication and physiotherapy treatment. Physiotherapy treatment on its own, especially exercises, also contributed to a very positive outcome. Not all the participants were aware of physiotherapy services offered in the management of Bell’s palsy and the long waiting periods for an appointment to see a doctor at the CHCs were identified as problematic. The next chapter will present the discussion of the quantitative (Chapter Four) and qualitative (Chapter Five) results of the study.



## CHAPTER SIX

### DISCUSSION OF THE RESULTS

#### 6.1 Introduction

Bell's palsy is an acute unilateral facial nerve paresis or paralysis of unknown origin, affecting the 7<sup>th</sup> cranial nerve. This self-limited disease causes incomplete or complete physical disability for the patient, including oral incompetence and difficulty with vision and speaking. The management of Bell's palsy commonly aims to increase the facial function and promote recovery (Baugh et al., 2013). Moreover, it's a long road to recovery and inadequate improvement may lead to psychological problems and poor quality of life for people affected, as well as their families.

In this chapter, the findings of the study will be discussed. The aim of the study was to investigate the management of Bell's palsy at primary health care level in the Western Cape, South Africa.

#### 6.2. Gender, age and occupation of the study sample

An analysis of the study sample reveals that more females (65%) than males (34%) were treated during the study period. This is in stark contrast with other research done globally that reported that men and women are affected equally (Jamail et al., 2013; Pereira et al., 2011; Ivona et al., 2010), except for pregnant women. Several reasons can be proposed for the difference in prevalence by gender. Firstly, the facial distortion could be a motivation for female patients to seek help as they might be embarrassed to appear in public. The psychological impact of the disease should also not be underestimated. The disease could negatively influence the client's self-confidence as she can

become anxious to appear in social situations (Huang et al., 2012; Haltiwanger et al., 2009). Moreover, individuals often worry about social stigma related to facial asymmetry, a secondary result of the disease. The aforementioned problem is furthermore enhanced by the physical impact the paralysis may have on the client's eating and drinking practices (Cronin & Steenerson, 2003).

The average age of the sample was 51.01 years (SD=11.79). The finding of the study shows that 20% of patients were in the age group 41-50 years and 38% were in the age group 51-60 years. This study finding corroborates the research done globally where it was reported that the disease is more prevalent in the age group 40 years and older (Jamail et al., 2013; Garg et al., 2012; Finsterer, 2008). The higher incidence could be contributed to people in this age group more susceptible to the development of Bell's palsy due to co-morbidities such as diabetes mellitus and hypertension for instance (Riga et al., 2012).

In the present study 43% (n = 53) of the participants were unemployed during the study period. Some of the participants stated that they lost their job because of the effect Bell's palsy had on their appearance as well as the effect of the disease on normal face-to-face communication with others, a result similar to that of Sarhan et al. (2012).

### **6.3 Co-morbidities and Bell's palsy**

The results showed that 39.0% (n= 48) of clients had hypertension and 20.3% (n=25) had diabetes mellitus. One fifth (20%) of the patients also reported a history of ear infection. Although the etiology of Bell's palsy is unknown, Greco et al. (2012) reported that viral infection and auto-immune diseases have been suggested as possible pathomechanisms for the development of Bell's palsy. In addition, as mentioned before, Riga et al. (2012) and Monini et al. (2010) found that people

diagnosed with diabetes mellitus and hypertension are more susceptible to the development of the disease than those without these co-morbidities.

#### **6.4 Diagnosis of Bell's palsy**

The result of the study reveals that 80.5% (n=99) of patients were diagnosed through a physical examination only. This finding is similar to that of Garg et al. (2012) who reported that a thorough history and physical examination should be enough to diagnose a patient with Bell's palsy. In addition, researchers suggested that patients with no signs of improvement after more than three (3) weeks of therapy should undergo further investigation such as laboratory testing and imaging studies (Garg et al., 2012; Bodenez et al., 2010). On the other hand, Beneke (2002) recommended that every patient with Bell's palsy should be referred to a neurologist to rule out more serious neurological conditions. It is however important to note that the diagnosis of Bell's palsy sometimes rely on excluding other causes of facial paralysis, as reported by Baugh et al. (2013) and Hawood-Nuss et al. (2009) as there is a 13-20% rate of misdiagnosis (Runge & Greganti, 2009). This will assure the correct diagnosis so that appropriate management can commence as soon as possible.

#### **6.5 Impact of Bell's palsy on patient's psychology**

Clients with Bell's palsy face many challenges, including psychological, physical and emotional challenges. The impairments of the disease can cause several psychological problems, because facial harmony and regularity affect the individual's own mental picture of themselves. A long recovery period and/or delayed complete healing of a client with Bell's palsy could lead to a negative effect on many aspects of an individual's life. How society perceives the person may make him/her feel uncomfortable and embarrassed (Nicastri et al., 2013). This could negatively influence their self-

confidence as they often worry about social stigma related to facial asymmetry, a secondary result of the disease.

The present study results shows that 35% (n=43) of patients were concerned about the symptoms of the disease, while 29.3% (n=36) and 13% (n=10) were experiencing feelings of anxiety and depression respectively. In addition, participants reported that impairment such as asymmetry of the face influenced their psychological state as it caused feelings of embarrassment and low self-esteem which led to an inability to integrate in social activity. However, the support from family and friends played a fundamental role to motivate and encourage individuals to improve and achieve good results and improvement.

The results are more pronounced than that of a study conducted by Haltiwanger et al. (2009), where 7% of clients who had permanent facial disfiguring due to Bell's palsy reported a variety of psychological issues such as being concerned to deep feelings of depression. The psychological impact of the disease is moreover echoed by research, especially in patients with delayed or incomplete recovery (Kwon et al., 2011), and those with symptoms of drooling, decreased facial expression, contractures and synkinesis (Cronin & Steenerson, 2003). Sarahan et al. (2012) suggested that psychological support and constant follow-ups are very important in achieving a good recovery.

## **6.6 The management of Bell's palsy**

Due to the unknown etiology of Bell's palsy, the disease has no cure (Shannon et al., 2003) and management is aimed at reducing inflammation to the facial nerve and to prevent corneal complications as a result of the paralysis (Holland & Weiner, 2004). The optimum medical management for the disease is still deliberated, as several RCTs showing mixed results (Zandian et al., 2014). Over the past 20 years, several studies were conducted regarding the use of different medication as well as alternative techniques such as physical therapy in the management of the disease. The present study identified the interventions selected to manage patients diagnosed with Bell's palsy at selected CHCs in the Cape Metropolitan district, Western Cape. Medication and physiotherapy were the most commonly prescribed forms of treatment for patients with Bell's palsy.

### **6.6.1 Pharmacological management**

The use of medication in the treatment of Bell's palsy has been demonstrated by Sarhan et al. (2012) to decrease inflammation and oedema. Corticosteroids and anti-virals are considered the two essential fields of focus for pharmacological treatment of Bell's palsy. The present study's findings show that 58.4% of the participants received corticosteroids to treat the symptoms of Bell's palsy. The focus group discussions also revealed the benefits of treating patients with prednisone. These results corroborate with a meta-analysis conducted by De Almedia et al. in 2009. The researchers reported an overall improvement in patients with Bell's palsy treated with corticosteroids as well as a significant decrease in motor synkinesis and other impairments due to the disease. More recently, evidence has been growing in support of corticosteroid as the treatment of choice (Browning, 2010; De Almeida et al., 2009). Engstrom et al. (2008) indicated that early treatment with prednisone significantly improved the recovery of facial nerve function at three and nine months. The

researchers and Sullivan et al. (2007) also confirmed that the use of anti-virals was trivial, whether given alone or with corticosteroids. This finding is in contrast to that of Shafshak (2006) who suggested that in order to enhance the prognosis of Bell's palsy and to stop the degeneration of nerve fibres, a combination of corticosteroids and anti-viral drugs should be used.

The existence of severe post auricular pain, as experienced by 19.5% of the study sample in the present study, a sign of possible herpes zoster infection can influence patient recovery and cause poor outcomes. In the present study only 7.7% (n=9) of the participants received anti-viral medication. As mentioned above, Engstrom et al. (2008) and Sullivan et al. (2007) reported the use of anti-virals to be inconsequential. On the other hand, a meta-analysis by Numthavaj et al. (2011) revealed that a combination of anti-virals and corticosteroids had a marginal benefit over corticosteroids alone. The authors concluded that corticosteroids remain the preferred best evidence-based pharmacological treatment for Bell's palsy. Although Shafshak (2006) reported a significantly faster recovery when patients with Bell's palsy used 500 mg of vitamin B12 three times a week for a period of eight weeks, it has been proposed that research should focus on the dosage and timing of steroid treatment as well as treatment outcomes in specific age groups (Gronseth & Paduga, 2012).

### **6.6.2 Physiotherapy management**

Physiotherapy strategies to treat patients with Bell's palsy have been documented over the past years. It would appear that physiotherapy has a potential role to play in the treatment of Bell's palsy. In the present study 89.4% (n=110) of the participants received physiotherapy treatment at the CHCs. Various combinations of treatment modalities, including therapeutic exercises, therapeutic massage, ultrasound and electrical modalities were employed in the management of the affected patients. Of

these modalities, therapeutic exercises were included in all the treatment regimens for all the patients diagnosed with Bell's palsy.

### **Therapeutic exercise**

The use of therapeutic exercises modeled by a professional therapist in the treatment of the disease has been demonstrated by Pereira et al. (2011) in order to coordinate both halves of the face and to reduce synkinesis. The exercise must include all affected facial muscles and various movements should be done to assist with the restoration of normal movements, including lip closure exercises, letter and word pronunciation exercises and emotional expression exercises. In order to get good results patients are advised to do a daily home exercises programme in front of a mirror. The mirror provides feedback (Shafshak, 2006). The suggestions from Pereira et al. (2011) corroborates with a systematic review conducted in 2008. La Touche, Escalante, Linares and Mesa (2008) reported that five of the six studies included in their review demonstrated improvement in mobility and symmetry of the face for the participants that did facial exercises with biofeedback. A decrease in synkinesis was also reported. Manikandan (2007) also found facial muscular re-education to be more effective than conventional therapeutic modalities (electrical stimulation, gross facial expression exercises and massage) to improve facial symmetry in Bell's palsy. According to Cronin & Steenerson (2015) there are benefits to applied neuromuscular facial training due to an increase in the functional movements and inhibition of abnormal movement trends, even in cases of long standing paralysis. Nicastri et al. (2013) reported that exercises are appropriate, especially for physiology and function of facial muscles and for assisting patients in psychological distress.

Most of the participants were scheduled for a one (1) exercise session per week and more than a half of participants (n=60, 54.5%) had between two to four exercise sessions in total. This can be due to the staff shortage and the large number of clients visiting the CHCs. It is therefore of utmost importance to prescribe a daily home exercise programme for the patients in order to maximise the effect of the exercise.

### **Therapeutic massage**

The role of massage in treating Bell's palsy has been demonstrated by Nicastrì et al. (2013) who reported that massage can help to avoid or at least reduce the effects of Bell's palsy. The present study results shows that 56% (n=82) of the participants received massage therapy and a number of the participants reported positive outcomes and an improvement in their symptoms, especially with the combination of massage and exercises. This support results from a study conducted by Sanchez-Chapul et al. (2011), where the researchers reported that the application of effleurage and kneading to the face and neck muscles for a period of ten (10) to fifteen (15) minutes, could assist in the reduction of syknosis.

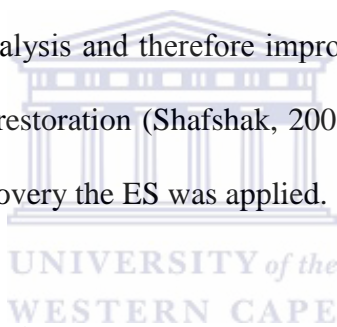
### **Therapeutic ultrasound**

Therapeutic ultrasound was used in the treatment regimens of 47 % (n=53) of the study sample. Whether it was applied in the early stages of the disease, however, is not known. Ultrasound may improve a patient's outcome, especially when applied in the early stage of the weakness, before deterioration of the affected nerve sets in (Shafshak, 2006). Dieles (2000) also stated that US is one of the preferred modalities for the management of Bell's palsy as it enhances blood flow to the affected muscles and assists in the reduction of inflammation and oedema.



## **Electrical Therapy**

Electrical nerve stimulation is a proposed method to accelerate recovery of patients with Bell's palsy through muscle stimulation. The study finding shows that 22% of the participants received electrical therapy. A variety of modalities were applied, namely Faradic Stimulation (FS), Transcutaneous Electrical Nerve Stimulation (TENS) and Galvanic Stimulation (GS). Although there is lack of evidence regarding the efficacy of electrical stimulation (ES) as a treatment modality for patients with Bell's palsy (Alakram & Puckree, 2010), it is still a common approach used by many physiotherapists (Shafshak, 2006). Alakram and Puckree (2010) and Diels (2000) discourages the use of ES in the acute phase of Bell's palsy it obstructs regeneration of the facial nerve. Sarhan (2012) reported that applying ES for patients with chronic Bell's palsy could protect muscle bulk, particularly in the case of total paralysis and therefore improve the patient's functional outcome. In addition, ES can stimulate axonal restoration (Shafshak, 2006). The present study did however not determine in which stage of the recovery the ES was applied.



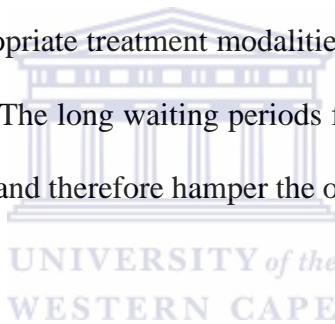
### **6.7 Facial Disability Index (FDI)**

The Facial disability index, an instrument used for the assessment of physical and social well-being of the patient with Bell's palsy was employed in the present study. It was developed by clinical researchers from the Facial Nerve Centre at the University of Pittsburg in order to provide an account of the patients' daily activity of living with facial nerve disorder, measuring patients' mobility and function of the affected facial muscles (Van Swearingen & Brack, 1996). The study results showed that 32.5% (n=40) of the participants have an adequate physical function score, and although a low effect size was found, the psychological impact of the disease was significantly higher in participants with a low physical function score. The study results show that the majority of the participants

(n=74, 60.16%) had an adequate social well-being score. Participants with a low social well-being score (n=14, 11.4%) had a significant longer duration of symptoms and the psychological impact of the disease were more distinct in these participants. No literature regarding FDI scores and comparison with different study variables could be found to compare with results from the present study.

## **6.8 Awareness of rehabilitation and physiotherapy services**

The qualitative analysis in this study reveals that some participants were not aware of physiotherapy and rehabilitation services offered at the CHCs. Knowledge of physiotherapy and rehabilitation services are vital aspects for the recovery and positive outcome of a patient with Bell's palsy. A delay in the administration of appropriate treatment modalities could play a role in residual weakness of the face (Zandian et al., 2014). The long waiting periods for an appointment at a CHC could also contribute to delayed management and therefore hamper the outcome of the patient.



## **6.10 Summary of the chapter**

This chapter presented a discussion of the results outlined in Chapter 4 and 5. It discussed the findings of the study in line with the study objectives and with reference to other literature. No study was found on the management of Bell's palsy in the research setting. Therefore this research adds to the body of knowledge, with regard to the management of clients with Bell's palsy and the role physiotherapists can play in the management of the disease. The next chapter will present the summary of the study, strengths and limitations and lastly the recommendations.

## CHAPTER SEVEN

### CONCLUSION, STUDY LIMITATIONS AND RECOMMENDATIONS

#### 7.1 Introduction

In this chapter, the summary of the present study and conclusion are provided. In addition, the limitations of the study are stated. Finally, recommendations that emerged based on the findings of this study will be outlined.

#### 7.2 Summary of the study

The purpose of the present study was to investigate the management of Bell's palsy at primary health care level in the Western Cape, South Africa. The study utilised a mixed methods approach, specifically the sequential explanatory design. A survey was used to investigate the management protocol and the tendency of referral for physiotherapy of clients with Bell's palsy at selected Community Health centres (CHCs) in the Cape Metropolitan District of the Western Cape. Associations between variables such as the type of management or treatment received and the recovery of clients with Bell's palsy were also investigated. Using focus group discussions, the study also explored what the clients thought of the management of their disease and the impact it had on them.

The results of the current study indicated that the majority of clients with Bell's palsy were aged between 31 and 60 years with a mean age of 51.01 years (SD = 11.79) and had the symptoms for more than a year. In addition, the majority of the participants were diagnosed with the disease after a physical or medical examination by a medical doctor. Psychological symptoms of anxiety and

concern were reported. Both pharmacologic and non-pharmacologic management were given to the clients. The majority of the participants received physiotherapy treatment (89.4%), and therapeutic exercises were received by all the participants (100%) referred for physiotherapy. Other physiotherapy treatment modalities employed included therapeutic massage (56%) and ultrasound therapy (47.7%). Corticosteroids were the most frequent prescribed medication (58.4%). All these findings concur with those of international research. Although the symptoms of Bell's palsy are usually temporary, patients may still need to deal with the stigma of disfigurement, which may pose a challenge in maintaining self-esteem and coping effectively with the intrusive and often negative response from others. The psychological impact of the disease was significantly higher in participants with a low physical function score. The majority of the participants (n=74, 60.16%) experienced adequate social well-being. The psychological impact of the disease was more distinct in participants with a low social well-being score and long duration of symptoms. Significantly more participants with a low total FDI score (40.65%) reported to have a negative psychological impact of the disease. It is thus important to note that although the interventions were very important to achieve improvement and recovery for patients, it is also important to pay attention to the psychological status of the clients and support them through the stages of the disease, such as referring them for counselling when needed.

The results of the focus group discussions showed that that Bell's palsy negatively affects the clients' physical health as they experienced difficulty with eating, drinking, vision and speech. Furthermore, the psychological impact of the disease should not be underestimated as the participants were negatively affected, both emotionally and economically. Incorrect diagnosis could also negatively affect the healing process. The participants reported a positive experience with the combination of

medication and physiotherapy treatment, a study finding that corroborate with international studies. Physiotherapy treatment on its own, especially exercises also contributed to a very positive outcome of results. The study further highlighted that not all of the participants were aware of physiotherapy services offered in the management of Bell's palsy and the long waiting periods for an appointment to see a doctor at the CHCs were identified as problematic.

The results of this study dispel the use of generic management strategies. Each client with Bell's palsy should be seen by a medical doctor and physiotherapist for advice, specifically designed for them regarding their medication and exercises. In addition, psychological treatment should be offered for each client.

### **7.3 Limitations of the study**

The findings of the present study should be interpreted in light of the following limitations:

- The study was conducted in Community Health Centres (CHCs) situated in the Cape Metropolitan District of Western Cape only and can therefore not be generalised to other clinics and private hospitals.
- Data was missing from the patient records. This is of great concern as documentation of the management of the disease is of utmost importance to plan and implement appropriate management strategies.
- The current study was limited by the small sample size. Therefore, caution must be applied with the generalisability of the findings.

## **7.4 Recommendations**

Based on the findings of the current study, the following recommendations are made:

### **7.4.1 Department of Health**

- Provincial policy guidelines for the management of Bell's palsy in the Western Cape should be developed to incorporate aspects from international research and policy.
- Specific algorithms for the diagnosis and management of Bell's palsy should be enforced and implemented in every primary health care facility in the Western Cape as well as the rest of South Africa.

### **7.4.2 Primary Health Care facilities**

- Patient-specific rehabilitation programmes should be developed for each and every patient attending the health care facility in order to enhance the recovery process.
- Clients should be empowered to take control of their disease and prevent the development of complications.
- The rehabilitation team should include a medical doctor, nurse, physiotherapist, speech therapist and psychologist.
- Record keeping of patient's symptoms, recovery and rehabilitation strategies should be done thoroughly.
- All health professionals should be given all the necessary skills to employ a holistic approach in the management of patients with Bell's palsy. Staff should be encouraged to update their skills and knowledge through courses, in-service training, workshops and seminars.

- Campaigns (educational talks and workshops) should be offered at the facilities and in the community to make people aware of the disease as well as the management thereof.

#### **7.4.2 Assessment of Bell's palsy**

Given the large number of patients diagnosed with Bell's palsy in the Community Health Centres (CHCs), the following recommendations are made:

- Health professionals (doctors, physiotherapists, nurses etc.) should use a standardised tool such as the Facial Disability Index (FDI) when evaluating clients with Bell's palsy. This could assist with decision-making regarding appropriate interventions for treat Bell's palsy, depending on the score obtained.

#### **7.4.3 Developing of evidence based treatment guidelines**

Given the number of modalities and varieties of combination used in the management of Bell's palsy, it is recommended that evidence based guidelines are developed.

- Medication (corticosteroids) should be given to the patients with Bell's palsy in the early stage of the disease to decreasing inflammation and oedema.  
All patients with Bell's palsy should be referred for physiotherapy treatment to accelerate recovery and prevent the delayed symptoms and the development of complications.
- It is important to refer patients with Bell's palsy for psychological management from the onset of the disease, as well as for those who do not achieve adequate or full recovery.

- A speech therapist should also be part of the multidisciplinary team in the evaluation and management of patients with Bell's palsy to assist with problems with eating, drinking and speech.
- Eye care should also be addressed through appropriate education of the patients with Bell's palsy.

#### **7.4.4 Ongoing research**

- Future research should employ studies that involve both urban and rural populations, as well as patients from the private sector.
- The patients with Bell's palsy should be evaluated prior to treatment, during the treatment, immediately after the course of treatment and some months after the rehabilitation. Quality of life data is also important to include in all stages of rehabilitation.
- Different combinations of treatment modalities (medication, physiotherapy, complementary therapy) should be examined through randomised control trials.

#### **7.5 Summary of the chapter**

The final chapter summarised the findings and limitations of the study. In addition, recommendations that could be used by the Western Cape Department of Health, the Community Health Centres' management and the health care professionals working at the facilities to improve the management of Bell's palsy at primary health care level are provided. Challenges experienced by patients with Bell's palsy should also be taken into account when designing patient-specific rehabilitation goals for each patient.





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OFFICE OF THE DEAN  
DEPARTMENT OF RESEARCH DEVELOPMENT

12 June 2014

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:  
Mrs L Ellsahli (Physiotherapy)

Research Project:

The management of Bells' palsy at selected  
Community Health Centres in the Cape  
Metropolitan district of the Western Cape,  
South Africa.

Registration no:

14/5/24



Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias  
Research Ethics Committee Officer  
University of the Western Cape*



## STRATEGY &amp; HEALTH SUPPORT

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REFERENCE: RP118/2014

ENQUIRIES: Ms Charlene Roderick

Department of Physiotherapy  
Private Bag X17  
Bellville  
7535

For attention: Lutfia Ali Ellsahli

**Re: THE MANAGEMENT OF BELL'S PALSY AT SELECTED COMMUNITY HEALTH CENTRES IN THE CAPE METROPOLITAN DISTRICT OF THE WESTERN CAPE, SOUTH AFRICA.**

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries in accessing the following site:

Vanguard CHC  
Lady Michonis CHC

L Mbanga  
E Weaver

Contact No. 021 695 8244

Contact No. 021 703 3171

UNIVERSITY of the  
WESTERN CAPE

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator ([Health.Research@westerncape.gov.za](mailto:Health.Research@westerncape.gov.za)).
3. The reference number above should be quoted in all future correspondence.

Yours sincerely,

DR J EVANS  
ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT  
DATE: 12/09/14  
CC: K GRAMMER

DIRECTOR: SOUTHERN/ WESTERN



## STRATEGY &amp; HEALTH SUPPORT

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REFERENCE: 2014RP118  
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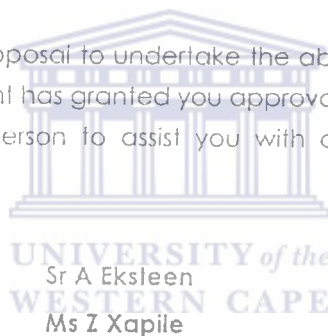
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Heideveld CHC  
 Mitchells Plain CHC



Contact No. 021 637 8036

Contact No. 021 391 5820

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Yours sincerely

DR J EVANS

ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT

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CC

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Khayelitsha (Site B) CHC	D Binza	Contact No. 021 386 1121
Delft CHC	J Heerden	Contact No. 021 954 2237
Bishop Lavis CHC	W Allies	Contact No. 021 934 6050
Elsies River CHC	R Kasker	Contact No. 021 931 6023

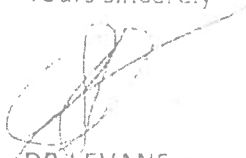
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Yours sincerely



CDR J EVANS

ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE: 24/01/2014

CC K GRAMMER

A HAWFRIDGE





**UNIVERSITY OF THE WESTERN CAPE**  
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**TOESTEMMING VORM**

**Titel van navorsingsprojek: Die bestuur van Bell's gesigsverlamming by geselekteerde  
Gemeenskaps Gesondheidsentrums in die Kaapse Metropol distrik van die Wes-Kaap,  
Suid-Afrika**

Die studie is in die taal wat ek verstaan aan my beskryf en ek stem vrylik en vrywillig in om deel te neem. My vrae oor die studie is beantwoord. Ek verstaan dat my identiteit nie bekend gemaak sal word nie. Ek kan sonder 'n rede te eniger tyd van die studie onttrek en dit sal my geensins negatief raak nie.

**Deelnemer se naam .....**

**Deelnemer se handtekening .....**

**Datum .....**

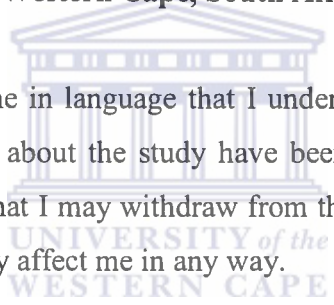


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**CONSENT FORM**

**Project title: The management of Bell's palsy at selected Community Health Centres in the Cape Metropolitan district of the Western Cape, South Africa**

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.



**Participant's name.....**

**Participant's signature.....**

**Date.....**



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## IPHEPHA MVUME LOKUTHABATHA INXAXHEBA

**Isihloko sophando: Abaphatni beBell's palsy kumaziko ezempilo akhethekileyo kwi Cape Metropolitan district ye Ntshona Koloni, Mzantsi Afrika**

Olufundo lucacisiwe kum ngolwimi endiliqondayo kwaye ndizonyule ngokuthanda khona ukuze ndithathe inxaxheba. Imibuzo yam ebendinayo ngolufundo iphendulekile. Ndiyayiqonda into yokuba inkcukacha zam azisayi kuvezwa nokuba kubani, umzekelo, amagama wam kwakunye nenombholo yesazisi. Ndiyayiqonda into yokuba ndingayeka ukuthatha inxaxheba nangowuphi na umzuzu ngaphandle kokunika isizathu kwaye lonto ayiyi kuphazamisana nonyango lwam.

UNIVERSITY of the  
WESTERN CAPE

**Igama lomthathi nxaxheba.....**

**Tyikitya umthathi nxaxheba.....**

**Usuku.....**



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### INLIGTINGSBLAD

**Titel van navorsingsprojek: Die bestuur van Bell's gesigsverlamming by geselekteerde Gemeenskaps Gesondheidsentrums in die Kaapse Metropol distrik van die Wes-Kaap, Suid-Afrika**

#### **Waaroor gaan hierdie studie?**

Dit is 'n navorsingsprojek deur Me LUTFIA ELLSAHLI by die Universiteit van Wes-Kaapland. Ons nooi u om deel te neem in hierdie navorsingsprojek, want u is 'n kliënt met Bell's gesigsverlamming wat by die Gemeenskaps Gesondheidsentrum behandel word. Die doel van die navorsingsprojek is om vas te stel watter behandeling kliënte met Bell's gesigsverlamming op primêre gesondheidvlak ontvang.

#### **Wat sal ek gevra word om te doen as ek instem om deel te neem?**

U sal gevra word om:

- 'n self-geadministreerde **vraelys** te voltooi. Dit sal ongeveer 30 minute neem om die vraelys te voltooi.
- Deel te neem aan 'n **fokus groepbespreking** op 'n tyd wat gerieflik is vir u om die uitdagings van die bestuur van u siekte te verken. Die fokus groepbespreking sal met 'n bandopnemer opgeneem word na u ingeligte toestemming gegee het en sal nie langer as 30-45 minute neem nie. Alle opnames sal vernietig word nadat dit getranskribeer en volgens temas gedokumenteer is.

#### **Sal my deelname aan hierdie studie vertroulik wees?**

Ons sal ons bes doen om u persoonlike inligting vertroulik te hou. Om u te help om u privaatheid te beskerm sal die volgende stappe geneem word:

- **Vraelyste:** is anoniem en sal nie inligting bevat wat u persoonlik identifiseer nie. 'n Kode sal op die vraelys geplaas word. Deur die gebruik van 'n identifikasie sleutel, sal die navorser in staat wees om u vraelys met u te verbind. Slegs die navorser sal toegang hê tot die identifikasie sleutel. Om u te help om u privaatheid te beskerm, sal al die inligting wat ingesamel word, gestoor word in 'n liasseerkabinet wat sluit. Geen ongemagtigde persone sal in staat wees om die inligting te bekom nie.
- **Fokus groepbesprekings:** Die fokus groepbespreking sal opgeneem word na ingeligte toestemming verkry is. 'n Kode sal gegee word aan alle opgeneemde data wat gekoppel kan word aan 'n identifikasie sleutel wat slegs die navorser weet. Alle bandopnames sal vernietig word na dit getranskribeer en volgens temas gedokumenteer is. Getranskribeerde data sal gestoor word in 'n liasseerkabinet wat sluit. Geen ongemagtigde party sal in staat wees om die inligting te bekom nie.

**As ons 'n verslag of artikel oor hierdie navorsingsprojek skryf, sal u identiteit tot die maksimum mate moontlik beskerm word.**

**Wat is die risiko's van hierdie navorsing?**

Daar is minimale risiko's wat verband hou met die deelname aan hierdie navorsingsprojek. Alhoewel, indien u enige negatiewe gevoelens tydens die navorsing ervaar, sal u verwys word vir terapie.

**Wat is die voordele van hierdie navorsing?**

Hierdie navorsing is nie bedoel om u persoonlik te help nie, maar die resultate kan die gesondheidsorg personeel inligting gee oor die rol wat fisioterapie kan speel in die behandeling van Bell's gesigsverlamming. Ons hoop dat die behandelingsstrategie vir kliënte in die toekoms op primêre gesondheidsvlak mag verbeter.

**Moet ek aan hierdie navorsing deelneem en kan ek enige tyd ophou?**

U deelname aan hierdie navorsing is heeltemal vrywillig. U kan kies om nie deel te neem nie. As u besluit om deel te neem in hierdie navorsing, kan u enige tyd ophou. As u besluit om nie meer deel te neem aan hierdie studie of as u ophou, sal u nie gepenaliseer word of enige voordele waarop u andersins kwalifiseer verloor nie.

**Is enige hulp beskikbaar as ek negatief geraak word deur my deelname aan hierdie studie?**

U kan die navorser kontak indien u negatief geraak word deur enige aspek vandie navorsing en 'n gepaste plan van aksie sal gevolg word met die ondersteuning van die navorser.

**Wat as ek vrae het?**

Hierdie navorsing word gedoen deur LUTFIA ELLSAHLI in die Department Fisioterapie van die Universiteit van die Wes-Kaapland. As u enige vrae oor die navorsing self het, kontak asseblief vir LUTFIA ELLSAHLI by 0769620776 of e-pos [tsteyl@uwc.ac.za](mailto:tsteyl@uwc.ac.za).

Indien u enige vrae het met betrekking tot hierdie studie en u regte as deelnemer of ass u enige problem wat u ervaar het met betrekking to die studie wil aanmeld, kontak asseblief:

**Hoof van die Department: Prof. Anthea Rhoda**

Fisiotherapie Department  
Universiteit van die Wes-Kaapland  
Privaatsak X17  
Bellville 7535  
[arhoda@uwc.ac.za](mailto:arhoda@uwc.ac.za)

**Dekaan van die Fakulteit Gemeenskap en Gesondheidswetenskappe: Prof. Jose Frantz**

Universiteit van die Wes-Kaapland  
Privaatsak X17  
Bellville 7535  
[chs-deansoffice@uwc.ac.za](mailto:chs-deansoffice@uwc.ac.za)

**Hierdie navorsing is deur die Universiteit van die Wes-Kaapland se Senaat Navorsingskomitee en Etiëkkomitee goedgekeur.**



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### INFORMATION SHEET

**Project title: The management of Bell's palsy at selected community health centres in the Cape Metropolitan district of the Western Cape, South Africa**

#### **What is this study about?**

This is a research project conducted by Mrs LUTFIA ELLSAHLI at the University of the Western Cape. We are inviting you to participate in this research project because you are a client with Bell's palsy managed at a Community Health Care Centre. The purpose of this research project is to determine how clients with Bell's Palsy are managed at Primary Health care (PHC) level.

#### **What will I be asked to do if I agree to participate?**

You will be asked to:

- complete a **self-administered questionnaire**. It will take approximately 30 minutes to complete the questionnaire.
- participate in a **focus group discussion** at a time that is convenient for you to explore the challenges experienced by you regarding the management of your disease. The focus group discussion will be tape recorded after informed consent were obtained and should not take longer than 30-45 minutes. All tapes will be destroyed once they have been transcribed and documented according to themes.

#### **Would my participation in this study be kept confidential?**

We will do our best to keep your personal information confidential. To help protect your confidentiality the following steps will be taken:

- **Questionnaires:** are anonymous and will not contain information that may personally identify you. A code will be placed on the survey. Through the use of an identification key, the researcher will be able to link your survey to your identity. Only the researcher will have access to the identification key. To help protect your confidentiality all information gathered will be stored in a locked filing cabinet. No unauthorised party will be able to access the information.
- **Focus group discussions:** The focus group discussion will be tape recorded after informed consent was obtained. A code will be attached to all audio-taped data that will be linked to an identification key only known to the researcher. All tapes will be destroyed once they have been transcribed and documented according to themes. Transcribed data will be stored in a locked filing cabinet. No unauthorised party will be able to access the information.

**If we write a report or article about this research project, your identity will be protected to the maximum extent possible.**

**What are the risks of this research?**

There are minimal risks associated with participating in this research project. However, if you experience any negative feelings during the research, you will be referred for counseling.

**What are the benefits of this research?**

Although there are no benefits for you, the results may enlighten health care professionals on the role physiotherapy can play in the management of Bell's Palsy. We hope that in future, the study might improve management strategies for clients with Bell's Palsy at Primary Health Care level.

**Do I have to be in this research and may I stop participating at any time?**

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

**Is any assistance available if I am negatively affected by participating in this study?**

The researcher will be available for you to contact should you be negatively affected by any aspect of the research at any time and an appropriate course of action will be followed with the support of the researcher.

**What if I have questions?**

This research is being conducted by LUTFIA ELLSAHLI and the Department of Physiotherapy at the University of the Western Cape. If you have any questions about the research study itself, please contact LUTFIA ELLSAHLI at 0769620776 or e-mail [tsteyl@uwc.ac.za](mailto:tsteyl@uwc.ac.za)

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

**Head of Department:** Prof. Anthea Rhoda

Department of Physiotherapy  
University of the Western Cape  
Private Bag X17  
Bellville 7535  
[arhoda@uwc.ac.za](mailto:arhoda@uwc.ac.za)

**Dean of the CHS Faculty:** Prof. Jose Frantz

University of the Western Cape  
Private Bag X17  
Bellville 7535  
[chs-deansoffice@uwc.ac.za](mailto:chs-deansoffice@uwc.ac.za)

**This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.**





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### INKCUKACHA ZOMTHATHI NXAXHEBA

#### **Isihloko sophando: Abaphatni beBell's palsy kumaziko ezempilo akhethekileyo kwi Cape Metropolitan district ye Ntshona Koloni, Mzantsi Afrika**

##### **Lungantoni oluphando?**

Oluphando luququzelelwe ngu Mrs LUTFIA ELLSAHLI kwiYunivesiti yase Ntshona Koloni. Uyamenya ukuthi uthathe ingxaxheba koluphando ngoba ulilungu lweBell's palsy oluququzelelwa kumaziko ezempilo. Injongo yoluphando kukubona ukuba aphetheke njani amalungu eBell's palsy kumaziko wezempilo aphantsi.

##### **Yintoni elindeleke ukuba ndiyenze xa ndinokuthi ndithabathe inxaxheba?**

Ulindeleke ukuba:

- upendule imibuzwana emalunga nawe. Le mibuzo iyakuthabatha imizuzu engama 30 kuphela.
- Iqela labathathi nxaxheba, lixesha lokuba bathethe ngeengxaki abathe bahlangana nazo ngexesha benyanga esisigulo. Iqela labathathi nxaxheba liyakushicilelwa kwaye eloshicilelo kufuneka luthathe imizuzu engama 30 ukuya ku 45 lungagqithisi. Loo macwecwe ayakutshatyalaliswa emva kokuba kuqokelelwe lonke ulwazi.

##### **Ingaba ukuthatha kwam inxaxheba kolufundo luyakuba yimfihlo?**

Sizokwenza ngako konke okusemandleni ukugcina iinkcukacha zakho ziyimfihlo, kwaye siyakuthabatha le miqathango ilandelayo:

- **imibuzo:** Ukuncedisana noku, igama lakho nezinye iinkcukacha ezibalulekileyo ziyakunikwa amagama afihlakeleyo. Zonke iinkcukacha ngalengcombolo iyakubaselugcinenwi oluyimfihlo. Igama. Ifani okanye amanani esazisi sakho asisayikuzibhala phantsi kumaphepha lawo sobe siwasebenzisa; sizakupha inani okanye ikhowudi leyo siyakuthi siyibhale phantsi endaweni yegama lakho. Zonke iinkcukacha ziyakugcinwa kwikhabhathi etixiweyo, akuyikuba ngubani na onelungelo lokuvula apho.
- **Uvavanyo lwabathathi nxaxheba:** Iqela labathathi nxaxheba liyakushicilelwa . ikhowudi leyo iyakuncanyathiselwa kuwo onke amacwecwe. Onke amacwecwe ayakutshatyalaliswa xa kugqityiwe ukukhuphela ulwazi olo lufunekayo. Ulwazi olo luyakutixelwa ekhabhathini apho kuphela umvavanyi onelungelo lokuvula. Akusayi kuvunyelwa noba ngubani na ukusebenzisa loo macwecwe.

**Ukuba kuyenzeka sibhale isiqendu malunga noluphando, iinkcukacha zakho ziyakukhuseleka kangangoko.**

**Buyintoni ubungozi besisifundo?**

Kukho ubungozi obuncinane nokuthabatha ingaxheba koluphando, ukuba uthe wafumana imizwa angahambiselanange nesiqhelo, uyakuthi ubonane nabantu abaqeqeshelwe ukusebenza ngabantu abanesisigulo.

**Yintoni endiyakuyizuzisa malunga nesisifundo?**

Nongona kungekho nzuzu ifmanekayo ngkuthatha inxaxheba koluphando, iziphumo zizokhanyisela oomongikazi kwindima abanoyidlala oogqirha banathambo kubaphathi beBell's palsy. Siyathemba ukuba oluphando lungaphucula lindlela zokuphatha amalungu e Bell's palsy kumaziko ezempilo aphantsi.

**Kunyazelekile ukuba ndithabathe inxaxheba kwesisifundo/ ndingakwazi ukuyeka uthabatha inxaxheba ukuba andifuni nokuba kunini?**

Ukuthabatha inxaxheba kwesisifundo kungothanda kwakho akunyanzelekanga. Ungakhetha ukungathabathi nxaxheba konke- konke. Ukuba ukhethe ukuthabatha inxaxheba kwesisifundo unako ukuyeka nanini na. ukuba ufuna ukuyeka kwaye akukho ncedo ongazi ukulifumana ngenxa yoko.

**Ingaba lukhona uncedo endiyakulifumana ukuba kuyenzeka ndingancedakali sesisifundo?**

Ewe, ukuba awuncedakalanga sesisifundo uyakuthunyelwa kwiziko labantu abaqeqeshelwe ukusebenza ngabantu abagula sesisigulo sithetha ngaso.

**Ukuba ndinemibuzo ndingenza njani?**

Olufundo luququzelelwe ngu Mrs LUTFIA ELLSAHLI kwiYunivesiti yase Ntshona Koloni Ukuba unayo imibuzo malunga nolufundo okanye uthe wadibana nengxaki malunga nolufundo, nceda udibane nomphathi nqubo wesisifundo kwezi ncukacha zilandelayo LUTFIA ELLSAHLI at 0769620776 or e-mail [tsteyl@uwc.ac.za](mailto:tsteyl@uwc.ac.za).

**Nceda ukhumbule ukuba udibana nomphathi sifundo xa uthe wadibana nengxaki malunga nesisifundo kuphela.**

**Head of Department: Prof. Anthea Rhoda**

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[arhoda@uwc.ac.za](mailto:arhoda@uwc.ac.za)

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**Oluphando luququzelwe ngokwasemthethweni ligqiza lophando ne komiti yezo..ethics kwi Yunivesithi yase Ntshona Koloni.**



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**FOKUSGROEP VERTROULIKHEID-BINDINGSVORM**

**Titel van navorsingsprojek: Die bestuur van Bell's gesigsverlamming by geselekteerde  
Gemeenskaps Gesondheidsentrums in die Kaapse Metropool distrik van die Wes-Kaap,  
Suid-Afrika**

Die studie is in die taal wat ek verstaan aan my beskryf en ek stem vrylik en vrywillig in om deel te neem. My vrae oor die studie is beantwoord. Ek verstaan dat my identiteit nie bekend gemaak sal word nie. Ek kan sonder 'n rede te eniger tyd van die studie onttrek en dit sal my geensins negatief raak nie. Ek stem in tot oudio-opname tydens my deelname aan die studie. Ek sal ook nie enige inligting openbaar maak wat tydens die groepbespreking bespreek is nie.

**Deelnemer se naam .....**

**Deelnemer se handtekening .....**

**Datum .....**

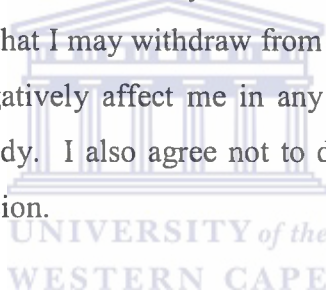


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**FOCUS GROUP CONFIDENTIALITY BINDING FORM**

**Project title: The management of Bell's palsy at selected Community Health Centres in the Cape Metropolitan district of the Western Cape, South Africa**

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way. I agree to be audio-taped during my participation in the study. I also agree not to disclose any information that was discussed during the group discussion.



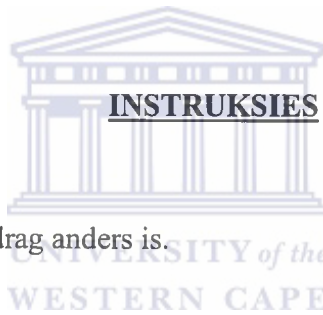
**Participant's name.....**

**Participant's signature.....**

**Date.....**

## VRAELYS VIR KLIËNTE MET BELL'S GESIGSVERLAMMING

- Deelname is **heeltemal vrywillig**. U het 'n keuse om nie die vraelys in te vul nie of u kan enige vraag oorslaan as u nie gemaklik voel om dit te beantwoord nie.
- Hierdie vraelys is **heeltemal anoniem**. Moenie enige inskrywings op die vraelys maak wat u kan identifiseer nie.



- Kies slegs een antwoord, tensy die opdrag anders is.
- Merk asseblief die mees gepaste antwoord bv. ✓ of omkring die mees gepaste antwoord waar aangedui.

**Baie dankie vir u samewerking**

**AFDELING A: SOSIO-DEMOGRAFIESE EIENSKAPPE**

**V1. Geboortedatum:** (jaar/maand/dag) \_\_\_\_\_/\_\_\_\_/\_\_\_\_

**V2. Geslag:**

Manlik

Vroulik

Ander

**V3. Etniese oorsprong/Ras:**

Swart

Kleurling

Blank

Indies/Asiaties

ander (spesifiseer) .....

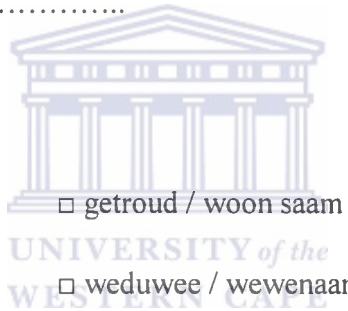
**V4. Verhoudingstatus:**

ongetroud

getroud / woon saam

vervreem / geskei

weduwee / wewenaar



**V5. Hoogste vlak van opvoeding:**

ongeskoold

laerskool

hoërskool

naskoolse opleiding

**V6. U huidige werkstatus:**

werk voltyds (40 ure of meer per week)

werkloos

werk deelyds (minder as 40 ure per week)

pensionaris

ander (spesifiseer) \_\_\_\_\_

## AFDELING B: 'FACIAL DISABILITY INDEX' (FDI)

- Kies asseblief die mees gepaste antwoord vir die volgende vrae wat verband hou met die werking/funksie van u gesigspiere.
- Vir elke vraag, dink aan die werking/funksie gedurende die laaste maand.

### Deel 1: FISIESE FUNKSIE

**V7. Hoe moeilik was dit vir u om u kos in u mond te hou, om kos in u mond rond te beweeg, of om kos wat in u kies/wang vassit uit te kry? Gewoonlik:**

- |                              |  |
|------------------------------|--|
| 5 = nie moeilik nie          | 2 = baie moeilik                                     |
| 4 = 'n klein bietjie moeilik | 1 = gewoonlik nie geëet nie as gevolg van gesondheid |
| 3 = 'n bietjie moeilik       | 0 = gewoonlik nie geëet nie oor ander redes          |

**V8. Hoe moeilik was dit om uit 'n koppie te drink? Gewoonlik:**

- |                              |  |
|------------------------------|--|
| 5 = nie moeilik nie          | 2 = baie moeilik                                       |
| 4 = 'n klein bietjie moeilik | 1 = gewoonlik nie gedrink nie as gevolg van gesondheid |
| 3 = 'n bietjie moeilik       | 0 = gewoonlik nie gedrink nie oor ander redes          |

**V9. Hoe moeilik was dit om spesifieke geluide te maak terwyl u gepraat het? Gewoonlik:**

- |                              |  |
|------------------------------|--|
| 5 = nie moeilik nie          | 2 = baie moeilik                                       |
| 4 = 'n klein bietjie moeilik | 1 = gewoonlik nie gepraat nie as gevolg van gesondheid |
| 3 = 'n bietjie moeilik       | 0 = gewoonlik nie gepraat nie oor ander redes          |

**V10. Hoe moeilik was dit as jou oog erg getraan het of baie droog geraak het? Gewoonlik:**

- |                              |  |
|------------------------------|--|
| 5 = nie moeilik nie          | 2 = baie moeilik                                       |
| 4 = 'n klein bietjie moeilik | 1 = gewoonlik nie getraan nie as gevolg van gesondheid |
| 3 = 'n bietjie moeilik       | 0 = gewoonlik nie getraan nie oor ander redes          |

**V11. Hoe moeilik was dit om jou tande te borsel of jou mond uit te spoel? Gewoonlik:**

- |                              |   |
|------------------------------|---|
| 5 = nie moeilik nie          | 2 = baie moeilik  |
| 4 = 'n klein bietjie moeilik | 1 = gewoonlik moeilik om the borsel of spoel as gevolg van gesondheid |
| 3 = 'n bietjie moeilik       | 0 = gewoonlik moeilik oor ander redes                                 |

**Alleenlik vir kantoor gebruik**

V7 \_\_\_\_\_ + V8 \_\_\_\_\_ + V9 \_\_\_\_\_ + V10 \_\_\_\_\_ + V11 \_\_\_\_\_ = \_\_\_\_\_ (TOTALE telling/doelwit)

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Fisiese telling

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Fisiese telling doelwit

**Deel 2: SOSIALE / WELSTAND FUNKSIE**

**V12. Hoeveel van die tyd het u kalm en rustig gevoel?**

- |                               |                                  |
|-------------------------------|----------------------------------|
| 1 = Heeltyd                   | 4 = Somtyds                      |
| 2 = Meeste van die tyd        | 5 = 'n Klein bietjie van die tyd |
| 3 = 'n Goeie deel van die tyd | 6 = Glad nie                     |

**V13. Hoeveel van die tyd het u uself weggehou van ander mense om u?**

- |                               |                                  |
|-------------------------------|----------------------------------|
| 1 = Heeltyd                   | 4 = Somtyds                      |
| 2 = Meeste van die tyd        | 5 = 'n Klein bietjie van die tyd |
| 3 = 'n Goeie deel van die tyd | 6 = Glad nie                     |

**V14. Hoeveel van die tyd het u geirriteerd geraak met die mense om u?**

- |                               |                                  |
|-------------------------------|----------------------------------|
| 1 = Heeltyd                   | 4 = Somtyds                      |
| 2 = Meeste van die tyd        | 5 = 'n Klein bietjie van die tyd |
| 3 = 'n Goeie deel van die tyd | 6 = Glad nie                     |

**V15. Hoe gereeld het u vroeg wakker geword of 'n paar keer gedurende die nag wakker geword?**

- |                    |                   |
|--------------------|-------------------|
| 1 = Elke nag       | 4 = Sommige nagte |
| 2 = Meeste nagte   | 5 = 'n Paar nagte |
| 3 = 'n Klomp nagte | 6 = Geen nagte    |



**V16. Hoe gereeld het u gesigsfunksie u verhoed om te gaan uiteet, inkopies doen, of deel te neem aan familie sosiale aktiwiteite?**

1 = Heeltyd

4 = Somtyds

2 = Meeste van die tyd

5 = 'n Klein bietjie van die tyd

3 = 'n Goeie deel van die tyd

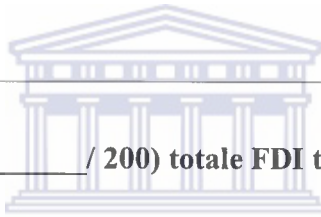
6 = Glad nie

**Allenlik vir kantoor gebruik**

V12 \_\_\_\_\_ + V13 \_\_\_\_\_ + V14 \_\_\_\_\_ + V15 \_\_\_\_\_ + V16 \_\_\_\_\_ = \_\_\_\_\_ (TOTALE telling/doelwit)

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Sosiale/Welstand telling

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Sosiale/Welstand telling doelwit



Fisiese ( \_\_\_\_\_ ) + Sosiale ( \_\_\_\_\_ ) = ( \_\_\_\_\_ / 200) totale FDI telling

Fisiese ( \_\_\_\_\_ ) + Sosiale ( \_\_\_\_\_ ) = ( \_\_\_\_\_ / 200) totale FDI telling doelwit

**AFDELING C: KLINIESE BEELD**

**V17. Vir hoe lank het u al die gesigsverlamming?**

0 – 3 maande

4 – 6 maande

7 – 12 maande

> 1 jaar

**V18. Het die verlamming skielik begin?**

Ja

Nee

**V19. Geskiedenis van oorpyn:**

Ja

Nee

**V20. Geskiedenis van 'n kopbesering:**

- Ja                       Nee

**V21. Enige ander siektes wat kon bydra tot die Bell's gesigsverlamming episode:**

- Ja                       Nee

Indien ja, kies asseblief van die lys:

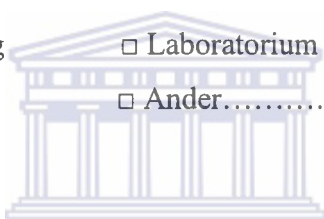
- Hoë bloeddruk                                       Diabetes mellitus / suikersiekte  
 Hart siekte     Ander.....

**V22. Spesiale ondersoeke gedoen**

- Ja                       Nee

Indien ja, kies asseblief van die lys:

- Rekenaar Tomografie (RT) skandering                                       Laboratorium toetse  
 Magnetiese Resonansie (MRI)     Ander.....



**V23. SIELKUNDIGE IMPAK**

- Angstig     Depressief  
 Bekommerd     Ander.....

**AFDELING D: BESTUUR/ BEHANDELING**

**V25. Behandeling ontvang:**

- Medikasie                       Fisioterapie  
 Operasie                       Ander

**OM MET DIE VRAELYS AAN TE GAAN, LEES ASSEBLIEF DIE VOLGENDE:**

**INDIEN MEDIKASIE ONTVANG IS, voltooi asseblief V26.**

**INDIEN FISIOterapiE ONTVANG IS, voltooi asseblief V27-32.**

**INDIEN 'N OPERASIE GEDOEN IS, voltooi asseblief V33.**

**V26. Tipe medikasie:**

- Kortikosteroïde                       Teen-virale medikasie                       Pynmiddels  
 Antibiotika                       Ander.....

**Tydperk** ..... (dae)

**V27. HITTE BEHANDELING**

- Ja                       Nee

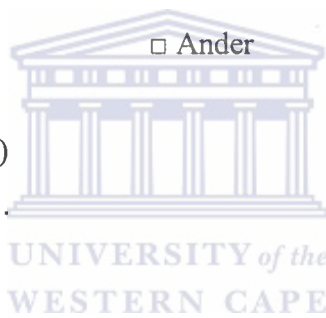
**Tipe gebruik:**

- Warmpakke                       Infrarooi  
 Kortgolfdiatermie (KGD)                       Ander

**Tyd per sessie**.....(minute)

**Aantal sessies per week**.....

**Totale aantal weke** .....



**V28. ELEKTRIESE TERAPIE**

- Ja                       Nee

**Tipe gebruik:**

- Faradiese stroom                       Galvaniese stroom                       TENS  
 Stimulasie                       Ander

**Tyd per sessie**.....(minute)

**Aantal sessies per week**.....

**Totale aantal weke** .....

**V29. TERAPEUTIESE OEFENING**

Ja                       Nee

**Tipe gebruik:**

Passiewe oefeninge                       Aktiewe oefeninge  
 Strekke                       Versterkingsoefeninge                       Ander.....

**Tyd per sessie.....(minute)**

**Aantal sessies per week.....**

**Totale aantal weke .....**

**V30. TERAPEUTIESE MASSERING**

Ja                       Nee

**Tipe gebruik:**

Effleurage                       Vinger of duim knie                       Drukking/draai  
 Kap                       Beklopping                       Streling

**Tyd per sessie.....(minute)**

**Aantal sessies per week.....**

**Totale aantal weke .....**



**V31. LASER TERAPIE**

Ja                       Nee

**Tyd per sessie.....(minute)**

**Aantal sessies per week.....**

**Totale aantal weke .....**

**V32. ULTRAKLANK**

Ja                       Nee

**Tyd per sessie.....(minute)**

**Aantal sessies per week.....**

**Totale aantal weke .....**

**V33. Tipe operasie**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Gesigsenuwee dekompressie | <input type="checkbox"/> Subocularicis oculi vet lig | <input type="checkbox"/> Tarsorrhaphy             |
| <input type="checkbox"/> Inplant toetstelle        | <input type="checkbox"/> Direkte wenkbrou lig        | <input type="checkbox"/> Gesigsenuwee oorplanting |

**DANKIE DAT U DIE VRAELYS VOLTOOI HET**



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## QUESTIONNAIRE FOR CLIENTS WITH BELL'S PALSY

- This questionnaire is **completely voluntary**. You may choose not to participate or not to answer any specific question. You may skip any question you are not comfortable in answering.
- This questionnaire is **completely anonymous**. Please make no marks of any kind on the survey which could identify you individually.



- Select only one response, unless instructed otherwise.
- Please tick the appropriate answer e.g. ✓ or circle one correct answer where indicated

**Thank you very much for your co-operation**

**SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS**

**Q1. Date of birth:** (year/month/day) \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Q2. Gender:**

- Male  Female  Other

**Q3. Ethnic group:**

- African/Black  Colored  
 White  Indian/Asian  
 Other

**Q4. Marital status:**

- Never married  Married / domestic partner  
 Separated / divorced  Widowed



**Q5. Highest level of education:**

- No schooling  Primary school  
 Secondary school  Tertiary education

**Q6. Your current employment status:**

- working full-time (40 hours or more a week)  unemployed  
 working part-time (less than 40 hours a week)  pensioner / retired  
 others

**SECTION B: FACIAL DISABILITY INDEX (FDI)**

- Please choose the most appropriate response to the following questions related to problems associated with the function of your facial muscles.
- For each question, consider your function during the last month.

**Part 1: PHYSICAL FUNCTION**

**Q7. How much difficulty did you have keeping food in your mouth, moving food around your mouth, or getting food stuck in your cheek? Usually did with:**

- |                         |  |
|-------------------------|--|
| 5 = No difficulty       | 2 = Much difficulty                              |
| 4 = A little difficulty | 1 = Usually did not eat because of health        |
| 3 = Some difficulty     | 0 = Usually did not eat because of other reasons |

**Q8. How much difficulty did you have drinking from a cup? Usually did with:**

- |                         |  |
|-------------------------|--|
| 5 = No difficulty       | 2 = Much difficulty                                |
| 4 = A little difficulty | 1 = Usually did not drink because of health        |
| 3 = Some difficulty     | 0 = Usually did not drink because of other reasons |

**Q9. How much difficulty did you have saying specific sounds while speaking? Usually did with:**

- |                         |  |
|-------------------------|--|
| 5 = No difficulty       | 2 = Much difficulty, slurring most of speech       |
| 4 = A little difficulty | 1 = Usually did not speak because of health        |
| 3 = Some difficulty     | 0 = Usually did not speak because of other reasons |

**Q10. How much difficulty did you have with your eye tearing excessively or becoming dry?**

**Usually did with:**

- |                         |   |
|-------------------------|---|
| 5 = No difficulty       | 2 = Much difficulty                                       |
| 4 = A little difficulty | 1 = Usually did not have tearing because of health        |
| 3 = Some difficulty     | 0 = Usually did not have tearing because of other reasons |

**Q11. How much difficulty did you have with brushing your teeth or rinsing your mouth?**

**Usually did with:**

- |                         |   |
|-------------------------|---|
| 5 = No difficulty       | 2 = Much difficulty   |
| 4 = A little difficulty | 1 = Usually did have difficulty brushing or rinsing because of health |
| 3 = Some difficulty     | 0 = Usually did have difficulty because of other reasons              |



**For office use only**

Q7 \_\_\_\_\_ + Q8 \_\_\_\_\_ + Q9 \_\_\_\_\_ + Q10 \_\_\_\_\_ + Q11 \_\_\_\_\_ = \_\_\_\_\_ (TOTAL score/goal)

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Physical Score

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Physical Score Goal

**Part 2: Social / Well-being Function**

**Q12. How much of the time have you felt calm and peaceful?**

1 = All of the time

4 = Some of the time

2 = Most of the time

5 = A little bit of the time

3 = A good bit of the time

6 = None of the time

**Q13. How much of the time did you isolate yourself from people around you?**

1 = All of the time

4 = Some of the time

2 = Most of the time

5 = A little bit of the time

3 = A good bit of the time

6 = None of the time

**Q14. How much of the time did you get irritable toward those around you?**

1 = All of the time

4 = Some of the time

2 = Most of the time

5 = A little bit of the time

3 = A good bit of the time

6 = None of the time

**Q15. How often did you wake up early or wake up several times during your nighttime sleep?**

1 = Every night

4 = Some nights

2 = Most nights

5 = A few nights

3 = A good number of nights

6 = No nights

**Q16. How often has your facial function kept you from going out to eat, shop, or participate in family or social activities?**

1 = All of the time

4 = Some of the time

2 = Most of the time

5 = A little bit of the time

3 = A good bit of the time

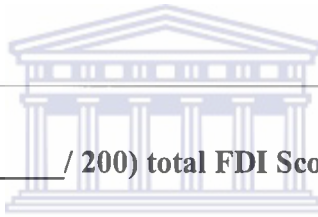
6 = None of the time

**For office use only**

Q12 \_\_\_\_ + Q13 \_\_\_\_ + Q14 \_\_\_\_ + Q15 \_\_\_\_ + Q16 \_\_\_\_ = \_\_\_\_ (TOTAL score/goal)

( \_\_\_\_ - 5) / 5 x 25 = \_\_\_\_ Social/Wellbeing Score

( \_\_\_\_ - 5) / 5 x 25 = \_\_\_\_ Social/Wellbeing Score Goal



Physical ( \_\_\_\_ ) + Social ( \_\_\_\_ ) = ( \_\_\_\_ / 200) total FDI Score

Physical ( \_\_\_\_ ) + Social ( \_\_\_\_ ) = ( \_\_\_\_ / 200) total FDI Score Goal

**SECTION C: CLINICAL PICTURE**

**Q17. How long have you had the facial paralysis?**

0 – 3 months

4 – 6 months

7 – 12 months

> 1 year

**Q18. Was the onset of the paralysis sudden?**

Yes

No

**Q19. History of ear pain:**

Yes

No

**Q20. History of head trauma:**

- Yes       No

**Q21. Any other disease that might have a relationship with Bell's palsy episode:**

- Yes       No

If yes please choose from the list:

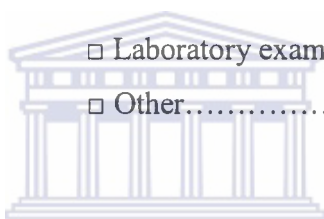
- High bloodpressure       Diabetes mellitus  
 Heart disease       Other.....

**Q22. Special investigation done**

- Yes       No

If yes, please choose from the list:

- Computer tomography (CT) scanning       Laboratory examination  
 Magnetic resonance imaging (MRI)       Other.....



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**Q23. PSYCHOLOGICAL IMPACT**

- Anxious       Depressed  
 Concerned       Other.....

**SECTION D: MANAGEMENT / TREATMENT**

**Q25. Treatment received:**

- Medication       Physiotherapy  
 Surgery       Other .....

**TO CONTINUE WITH THE QUESTIONNAIRE, PLEASE READ THE FOLLOWING  
IF MEDICATION RECEIVED, please complete Q26.**

**IF PHYSIOTHERAPY RECEIVED, please complete Q27-32.**

**IF SURGERY RECEIVED, please complete Q33.**

**Q26. Type of medication:**

- Corticosteroids                       Antiviral                       Analgesic  
 Antibiotic                               Other.....

**Duration** ..... (days)

**Q27. HEAT THERAPY**

- Yes                       No

**Type used:**

- Hot packs     Infrared  
 Shortwave diathermy (SWD)                       Other .....

**Duration time per session**.....(minutes)

**Number of sessions per week**.....

**Total number of weeks** .....



**Q28. ELECTRICAL THERAPY**

- Yes                       No

**Type used:**

- Faradic current                       Galvanic current                       TENS  
 Stimulation                       Other

**Duration time per session**..... (minutes)

**Number of sessions per week**.....

**Total number of weeks** .....

**Q29. THERAPEUTIC EXERCISE**

- Yes                       No

**Type used:**

- Passive exercise                       Active exercise  
 Stretching                               Strength Exercise                       Other.....

**Duration time per session**..... (minutes)

**Number of sessions per week**.....

**Total number of weeks** .....

**Q30. THERAPEUTIC MASSAGE**

Yes       No

**Type used:**

- Effleurage       Finger or thumb kneading       Wringing  
 Hacking       Tapping       Stroking

**Duration time per session**..... (minutes)

**Number of sessions per week**.....

**Total number of weeks** .....

**Q31. LASER THERAPY**

Yes       No

**Duration time per session**..... (minutes)

**Number of sessions per week**.....

**Total number of weeks** .....



**Q32. ULTRASOUND**

Yes       No

**Duration time per session**..... (minutes)

**Number of sessions per week**.....

**Total number of weeks** .....

**Q33. Type of surgery:**

- Facial nerve decompression       Subocularis oculi fat lift       Tarsorrhaphy  
 Implantable devices       Direct brow lift       Facial nerve grafting

**THANK YOU FOR COMPLETING THE QUESTIONNAIRE**

**EMALUNGA NAWE ABAPHATNI beBELL'S PALSY**

- Lemibuzo igqibelelene kwintsebenziswano. Ungakhetha ukungasibandakanyi okanye uphendule imibuzo. Ungaqakatha omnye umbuzo ongakholisekanga kuwuphe ndula.
- Lemibuzo iyimfihlo ngokupheleleyo. Needa ungenzi naluphi na uphawu lohlobo loluhlu olenza uzichaze wena.



- Khetha impendulo ibenye, ngaphandleni uxelelwe ngenye indlela..
- Nceda ukhethe impendulo efanelekileyo umzekelo e.g. √ okanye wenze isanqa esinye xa kutshiwo.

**Enkosi kakhulu ngentsebenziswano yakho**

**UMQULU A: INGENKCUKACHA ZOKUHLALA**

**Q1. Usuku lokuzalwa:** (ngonyaka/ngenyanga/usuku) \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Q2. Isini:**

ubuduna

ubukhomokazi

ezinye

**Q3. Ubuhlanga:**

Abantsundu

Okunye (bhentsisa) \_ \_ \_ \_ \_

**Q4. Ubume bomtshato:**

awutshatanga

utshatile / isinqamathe

wahlukene

umhlokokazi / umhlolo

**Q5. Inkukacha ngokwemfundo:**

awufundanga

isikolo samabanga aphantsi

isikolo samabanga aphezulu

imfundo enomsila

**Q14. Ubume ngokomsebenzi:**

usebenza isiqxina (iyure ezingamashumi amane okanye ngaphezu kweveki)

awusebenzi

usebenza ngalomaxesha (ngapantsi kweyure ezingamashumi amane ngeveki)

ufumana inkam-nkam

okunye (bhentsisa) \_ \_ \_ \_ \_

## UMQULU B: FACIAL DISABILITY INDEX (FDI)

- Nceda ukhethe eyona mpendulo ikulungeleyo kwimibuzo elandelayo malunga neengxaki ezimalunga nemisebenza yeziqulube zobuso.
- Ngombuzo ngamnye, conga ngemisebenzi kwinyanga ezidlululeyo.

### Isiqingatha 1: UKUZEBENZA KOMZIMBA

**Q7. Ufumana ubunzima obungakanani ukugcina ukutya emlonyeni, ukujikelezisa emlonyeni okanye ukugana ezidleleni? Ngamaxesha owenza ngqwo:**

- |                      |  |
|----------------------|--|
| 5 = Abikho ubunzima  | 2 = Buninzi ubunzima                           |
| 4 = Bunanci ubunzima | 1 = Sukutya ngenxa yempilo                     |
| 3 = Qho ubunzima     | 0 = Ngamaxesha sukutya ngenxa yezinye izizathu |

**Q8. Ufumana ubunzima kangakanani ukusela ngekomityi? Ngamaxesha owenza ngqwo:**

- |                      |   |
|----------------------|---|
| 5 = Abikho ubunzima  | 2 = Buninzi ubunzima                            |
| 4 = Bunanci ubunzima | 1 = Sukusela ngenxa yempilo                     |
| 3 = Qho ubunzima     | 0 = Ngamaxesha sukusela ngenxa yezinye izizathu |

**Q9. Ufumana ubunzima kangakanani ukubiza izandi ezithile xa uthetha? Ngamaxesha owenza ngqwo:**

- |                      |   |
|----------------------|---|
| 5 = Abikho ubunzima  | 2 = Buninzi ubunzima                              |
| 4 = Bunanci ubunzima | 1 = Sukuthetha ngenxa yempilo                     |
| 3 = Qho ubunzima     | 0 = Ngamaxesha sukuthetha ngenxa yezinye izizathu |

**Q10. Ubufumana kangakanani ukulilelwa lilihlo okanye okomelwa lilihlo ngokugqithisileyo?**

**Ngamaxesha owenza ngqwo:**

- |                      |   |
|----------------------|---|
| 5 = Abikho ubunzima  | 2 = Buninzi ubunzima                                      |
| 4 = Bunanci ubunzima | 1 = Akuphumi nye mbezi ngenxa yempilo                     |
| 3 = Qho ubunzima     | 0 = Ngamaxesha akuphumi nye mbezi ngenxa yezinye izizathu |



**Q11. Ubufumana kangakanani ubun? Zima ekuhlambeni amazinyo okanye ukuhlamba umlomo?**

**Ngamaxesha owenza ngqwo:**

5 = Abikho ubunzima

2 = Buninzi ubunzima

4 = Bunanci ubunzima

1 = Akukho nzima ukuxu kuxa okanye ukupula ngenxa yempilo

3 = Qho ubunzima

0 = Akukho nzima ukuxu kuxa okanye ukupula ngenxa yezinye izizathu

**For office use only**

Q7 \_\_\_\_\_ + Q8 \_\_\_\_\_ + Q9 \_\_\_\_\_ + Q10 \_\_\_\_\_ + Q11 \_\_\_\_\_ = \_\_\_\_\_ (TOTAL score/goal)

(\_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Physical Score

(\_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Physical Score Goal

**Isiqingatha 2: SOCIAL INHLALAKAHLE KOMZIMBA**

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**Q12. Kumaxesha angakanani uva umoya ophanti no thozamileyo?**

1 = Ngalo lonke ixesha

4 = Amaxesha ambalwa

2 = Amaxesha amaninzi

5 = Ixesha elincinane

3 = Intsuku ezininzana zamaxesha

6 = Zange

**Q13. Lixesha elingakanani uzikhetha kubantu uhleli nabo?**

1 = Ngalo lonke ixesha

4 = Amaxesha ambalwa

2 = Amaxesha amaninzi

5 = Ixesha elincinane

3 = Intsuku ezininzana zamaxesha

6 = Zange

**Q14. Kungamaxesha angakanani udikwa ngabantu uhleli nabo?**

1 = Ngalo lonke ixesha

4 = Amaxesha ambalwa

2 = Amaxesha amaninzi

5 = Ixesha elincinane

3 = Intsuku ezininzana zamaxesha

6 = Zange

**Q15. Kungamaxesha amamgakanani uphuthelwa ebusuku uhleli?**

1 = Rhoqo

4 = Ngezinye intsuku

2 = Ubusuku obuninzi

5 = Intsuku ezimbalwa

3 = intsuku ezininzana

6 = Zange

**Q16. Kumaxesha angakanani ukungasebenzi kwamalungu obuso akubangela ungazikhuphi nabahlobo okanye uye ezivenkileni uyokuthenga?**

1 = Ngalo lonke ixesha

4 = Amaxesha ambalwa

2 = Amaxesha amaninzi

5 = Ixesha elincinane

3 = Intsuku ezininzana zamaxesha

6 = Zange

**For office use only**

Q12 \_\_\_\_\_ + Q13 \_\_\_\_\_ + Q14 \_\_\_\_\_ + Q15 \_\_\_\_\_ + Q16 \_\_\_\_\_ = \_\_\_\_\_ (TOTAL score/goal)

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Social/Wellbeing Score

( \_\_\_\_\_ - 5) / 5 x 25 = \_\_\_\_\_ Social/Wellbeing Score Goal

Physical ( \_\_\_\_\_ ) + Social ( \_\_\_\_\_ ) = ( \_\_\_\_\_ / 200) total FDI Score

Physical ( \_\_\_\_\_ ) + Social ( \_\_\_\_\_ ) = ( \_\_\_\_\_ / 200) total FDI Score Goal

**UMQULU C: UMFANEKISO**

**Q17. Unexesha elingakanani ukhibazeke ngokobuso?**

0 – 3 inyanga

4 – 6 inyanga

7 – 12 inyanga

> 1 unjaka

**Q18. Ukukhubazeka kwakungesaquphe?**

- Ewe       Hayi

**Q19. Umnonbo wentlungu yendlebe:**

- Ewe       Hayi

**Q20. Umnonbo wonzakalo lwasentloko:**

- Ewe       Hayi

**Q21. Ezinye izifo ezingaba nonkwenza neBell's palsy:**

- Ewe       Hayi

Ukuba ewe nceda ukhete ngezantsi:

- Isifo sobushushu  
 Isifo sentliziyo

- Isifo seswekile  
 Ezinye.....



**Q22. Uphando labucala olwenziweyo**

- Ewe       Hayi

Ukuba ewe nceda ukhete ngezantsi:

- Computer tomography (CT) scanning       Abathaki bemithi ukuhlola  
 Magnetic resonance imaging (MRI)       Ezinye .....

**Q23. UMUZWA OCINDEZELAYO NGOKWENGQONDO**

- Uyoyika       Uphambene ngengqondo  
 Ukhathazekile       Ezinye .....

**UMQULU D: UKUPHATHWA / UNYANGO**

**Q25. Unyango olufumanayo:**

- Imithi       Ulwalulo mathambo  
 Uxhaxho       Ezinye.....

**UKUQHUBEKA NGEMIBUZO NCEDA UFUNDE NGEMANTSI UKUBA UFUMENE UNYANGO, nceda uphendule Q26.**

**UKUBA UFUMENE ULWALULO MATHAMBO, nceda uphendule Q27-32.**

**UKUBA UFUMENE UXHAXHO, nceda uphendule Q33.**

**Q26. Uhlobo imithi:**

- Corticosteroids                       Antiviral                                       Analgesic  
 Antibiotic                                       Ezinye .....

**Ixesha .....** (intsuku)



**Q27. THERAPY UKUSHISA**

- Ewe                       Hayi

**Uhlobo olusetyenzisiweyo:**

- Amaphakethe hot                                       Infrared  
 Shortwave diathermy (SWD)                                       Ezinye.....

**Kangaphi ngeveki.....**(imizuzu)

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**

**Q28. THERAPY KAGESI**

- Ewe                       Hayi

**Uhlobo olusetyenzisiweyo:**

- Faradic current                                       Galvanic current                                       TENS  
 Stimulation                                       Ezinye.....

**Kangaphi ngeveki.....(imizuzu)**

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**

**Q29. UKUVIVINYA EZELAPHAYO**

Ewe       Hayi

**Uhlobo olusetyenzisiweyo:**

Ukuncediswa

Ukuzilolonga

Ukuzolula

Ukuphakamisa

Ezinye .....

**Kangaphi ngeveki.....(imizuzu)**

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**

**Q30. MASSAGE EZELAPHAYO**

Ewe       Hayi

**Uhlobo olusetyenzisiweyo:**

Effleurage

Finger or thumb kneading

Wringing

Hacking

Tapping

Stroking

**Kangaphi ngeveki.....(imizuzu)**

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**



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**Q31. LASERE THERAPY**

Ewe       Hayi

**Kangaphi ngeveki.....(imizuzu)**

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**

**Q32. ULTRASOUND**

Ewe       Hayi

**Kangaphi ngeveki.....(imizuzu)**

**Amaxesha ngeveki.....**

**Kangaphi ngeveki .....**

**Q33. Uhlobo loxhaxho:**

Facial nerve decompression  
 Implantable devices  
grafting

Subocularicis oculi fat lift  
 Direct brow lift

Tarsorrhaphy  
 Facial nerve

**ENKOSI NGOKUTHATHA EKUGQIBENI LEMIBUZO**



## APPENDIX 7

**FOCUS GROUP INTERVIEW GUIDE** (just a guide – for isiXhosa speaking clients, a research assistant fluent in both English and isiXhosa was employed to conduct the focus group/s)

1. What was your knowledge about BP before you were diagnosed with this condition?
2. Can you tell me about your own experiences for the time you have been with Bell's Palsy.
3. How did your life change after you were diagnosed with Bell's palsy?
4. What challenges did you experience with eating, drinking and other daily activities such as speech?
5. How did the abovementioned challenges affected your self-confidence and interacting with others?
6. Have your relationship with your immediate family changed after your diagnosis with Bell's Palsy?
7. Did Bell's palsy affected your personal relationships? Tell me about it.
8. Were you happy with the support from your family and friends? Tell me about it.
9. How has the condition affected your work? Tell me about it.
10. Were you financially affected by Bell's palsy?
11. Tell me about your experiences about how other people treated you after you were diagnosed with Bell's palsy.
12. Have this condition affected your quality of life? Tell me about it.
13. In your day to day life, do you receive or need any assistance to do things? If yes, what kind of assistance (or support) do you receive? And who assists you?
14. Are there days that you feel depressed or anxious? Tell me about it.
15. Were you happy with the quality of services offered at the CHC for your Bell's palsy?
16. Anything else you would like to share with me?