UNIVERSITY OF ZULULAND

IMPACT OF INTERVENTION STRATEGIES ON MOTOR VEHICLE ACCIDENT - INDUCED HEAD INJURY SURVIVORS IN KWAZULU-NATAL PROVINCE, SOUTH AFRICA

A thesis submitted in fulfilment of the requirements for a Doctor of Philosophy (PhD) degree in Community Psychology in the Department of Psychology at the University of Zululand

By

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November 2024

DEDICATION

I dedicate this study to my late friend, Dr Mduduzi Mnqayi. I would also like to dedicate it to my ever-loving and wonderful sons, Sibanisenkosi, Nqobizizwe, and Mphikeleli Nkwanyana. I love you a lot bafowethu. Furthermore, I dedicate this study to Professor Jabulani Dennis Thwala for being such a patient and nurturing father. Moreover, I dedicate this to my mother, Mrs. Jabu Sikhakhane. Nawe mama ufanelwe ukujabula. uThixo akakudalelanga usizi. Uma uThixo esanginika umusa angeke wahlupheka ngikhona, uyalazi nawe udaba. Then, to my late grandparents, u-Amos Nobhongo Nkwanyana and gogo Swibhela, as well as my father, Mr. Phiwayinkosi Nkwanyana. Baba asikaze sichithe isikhathi esiningi ndawonye, kodwa ngafunda okuningi kuwe ikakhulukazi ngendlela yokuziphatha nokubazisa abanye abantu.

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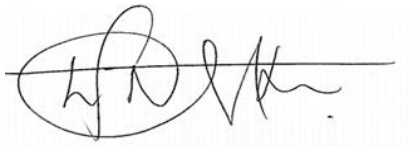

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I thank God for the above-mentioned individuals for holding my hand throughout this journey.

ABSTRACT

The study explored the role of psychological interventions in the delivery of healthcare for Traumatic Brain Injury (TBI). This was a case study of selected road accident-induced TBI survivors drawn from my practice as a clinical psychologist. In this connection, I was conscious of my dual role as a researcher and practitioner. I accordingly employed a practice-based enquiry perspective for the purposes of pursuing canons of research quality as well as ethically grounding the study. Data was collected using in-depth phenomenological interviews with selected participants from road accident-induced TBI survivors. There were three main findings. The first was that psychological interventions are one part of a conglomeration of necessary treatments in the delivery of healthcare for TBI survivors. This suggests that the multi-dimensional nature of the disease requires a multidisciplinary approach. The second finding is that healthcare pathways towards recovery - beyond consultations with experts following brain injury - were blurred. Without a clear healthcare roadmap, it is difficult to imagine what chances TBI patients have for recovery. The third finding is that the TBI survivors were not attended to on a timely basis - raising concerns about the likelihood of deterioration and complications of their condition. The study concludes that, while psychological interventions are a necessary and important part of healthcare delivery, they alone are not sufficient to set a TBI patient onto a recovery trajectory. Thus, the main recommendation is that further research on the management of TBI in South Africa be carried out - to develop more appropriate and effective intervention strategies. A proposed framework to contribute to this effort is provided in this study.

Keywords: Accident, healthcare pathways, Intervention, Traumatic Brain Injury, Survivors

Table of Contents

DEDICATION ii

DECLARATION STATEMENT OF AUTHENTICATION iii

DECLARATION iv

DECLARATION BY SUPERVISOR v

COPYRIGHT STATEMENT vi

ACKNOWLEDGEMENTS vii

ABSTRACT ix

LIST OF TABLES xviii

LIST OF FIGURES xix

ACRONYMS/ABBREVIATIONS xx

CHAPTER ONE 1

INTRODUCTION AND BACKGROUND OF THE STUDY 1

1.1. Introduction 1

1.2. Background and Context of the Study 1

1.3. Understanding TBI 2

1.4. Conceptual Framework for Intervention: The Bio-Psycho-Socio-Ecological Model 3

1.5. Mapping Pathways of Intervention Strategies 5

1.6 . Delimitations of the Study 8

1.7 . The Research Problem 8

1.8 Aim of the Study 9

1.8.1. Research Objectives 9

1.8.2. Research Questions 9

1.9. Significance of the Study 10

1.10. Intended Contribution to Knowledge 10

1.11. Site of the Study 11

1.12. The Impetus of the Study and my Position in the Research Process 11

1.13. Research Design and Methodology....11
1.14. Literature Review....11
1.15. Ethical Considerations....12
1.16. Outline of the Study....12
CHAPTER TWO....15
LITERATURE REVIEW....15
2.1. Introduction....15
2.1.1. Medico-Legal Assessments and Rehabilitative Interventions in TBI Care....15
PART I: EPIDEMIOLOGY OF TRAUMATIC BRAIN INJURY (TBI)....16
2.2. Understanding some Key Epidemiological Parameters....16
2.3. Incidences and Distribution of TBI....17
2.4. Causes of TBI....21
2.5. Health and Wellbeing Consequences of TBI....22
2.5.1. Cognitive Impairment....22
2.5.2. Post-Traumatic Amnesia....24
2.5.3. New Recollections and New Learning....25
2.5.4. Attention and Concentration....25
2.5.5. Speed of Information Processing....25
2.5.6. Language Skills....26
2.5.7. Perceptual Skills....26
2.5.8. Spatial and Constructional Skills....27
2.5.9. Executive Function....27
2.5.10. Awareness and Insight....28
2.5.11. Behavioural and Emotional Changes....28
2.5.12. Disinhibition....29
2.5.13. Irritability, Frustration and Aggression....30
2.5.14. Apathy and Loss of Initiative....31

2.5.15. Egocentricity....31
2.5.16. Emotional Changes....31
2.5.17. Depression....32
2.5.18. Anxiety....32
2.5.19. Post-Traumatic Stress Disorder....32
2.5.20. Changes in Self-concept....33
2.5.21. Leisure and Social Activities....34
2.5.22. Family Relationships....34
2.5.23. Impact on Relationships....35
2.5.24. Financial Difficulties....35
2.6. Consequences: Societal Costs in the African Context....36
2.7. Different Perceptual and or Cognitive Rehabilitation Training Approaches....37
PART II: INTERVENTION STRATEGIES: EXPLORING THE PATHWAY TO TBI PATIENT RECOVERY....39
2.8. Mapping Access to TBI Healthcare: A Bio-Psycho-Socio-Ecological Perspective....39
2.8.1. Psychological Interventions: A Bio-Psycho-Socio-Ecological Perspective....40
2.8.1.1. General Overview....40
2.9. Psychological Interventions....41
2.9.1. Cognitive Evaluation/ Intellectual Assessment....41
2.9.2. Cognitive Behaviour Therapy and Family Therapy....42
2.9.3. Cognitive Rehabilitation....43
2.10. Pharmacotherapy....44
2.10.1. Cognitive Rehabilitation Therapy: Memory....45
2.11. The Holistic Rehabilitation Programme....46
2.11.1. Emerging Afrocentric Psychological Perspectives on TBI Interventions....47
2.11.2. Emerging Afrocentric Interventions to Illness....49
2.11.3. Emerging Afrocentric Healthcare Pathway....50

2.11.4.3. Community Intervention: Systems Theory, Community Capacity, and Context 56
2.11.4.4. Building Community Capacity/Resources 56
2.12. Chapter Summary 58
THEORETICAL FRAMEWORK 59
KEY PERSPECTIVES FROM INTERSECTIONALITY THEORY 59
3.1. Introduction 59
3.2. Conceptualising Intersectionality 60
3.3. Psychological Intervention Strategies: An Intersectionality Perspective 61
3.4. Intersectionality: The Layered Conceptualisation 61
3.4.1. Level One: Bidirectional Outcomes 63
3.4.2. Level Two: Bio-Psycho-Socio-Ecological 63
3.4.3. Level Three: Engagement with Service Providers 63
3.4.4. Level Four: Larger Societal Context 64
3.4.5. Level Five: Outcomes 65
3.5. Some Key Insights from the Layered Intersectionality Approach 65
3.6. Research Informed by Intersectionality Theory 66
3.7. Conclusion 68
CHAPTER FOUR 69
RESEARCH METHODOLOGY 69
4.1. Introduction 69
4.2. Philosophical Foundations of the Study 69
4.2.1. Interpretivist Paradigm 69
4.2.2. Hermeneutic (Interpretive) Phenomenology 70
4.3. Research Design 71
4.3.1. The Case Study Design 72
4.3.2. Justification for the Selection of Participants 75
4.3.2.1. Case Description 76

4.3.2.2. Participant One (Mild TBI) 76
4.3.2.3. Participant Two (Moderate TBI) 76
4.3.2.4. Participant Three (Moderate TBI) 77
4.3.2.5. Participant Four (Severe TBI) 77
4.3.2.6. Participant Five (Severe TBI) 77
4.4. Practice-Based Research 78
4.5. Methods of Data Collection 79
4.5.1. Phenomenological Interviewing 80
4.5.2. Data Collection in Practice-Based Intervention Research 80
4.5.3. Unstructured Interviews 81
4.6. Data Sources 81
4.7. Data Analysis and Interpretation 82
4.7.1 Data Management 83
4.8. Description, Classification, and Interpretation 83
4.9. Offering Interpretations 84
4.10. Research Quality 85
4.10.1. Trustworthiness 85
4.10.2. Auditability 85
4.10.3. Credibility 86
4.10.4. Transferability 86
4.11. Ethical Considerations 86
4.11.1. Ethical Clearance from the Institution and Permission from the Law Firms Representing the Participants 87
4.11.2. Informed Consent 88
4.11.3. Anonymity 88
4.11.4. Confidentiality and Vulnerability of the Participants 89
4.11.5. Beneficence and Nonmaleficence 90
4.11.6. Insider/Outsider Issues in Practice-Based Research 91

4.11.7. Reflexivity in Research 92
4.12. Chapter Summary 92
CHAPTER FIVE 93
DATA PRESENTATION AND ANALYSIS 93
5.1. Introduction 93
5.1.1. Selected Demographic Characteristics of Participants of the Study 93
5.2. Experiences of TBI Survivors 94
5.2.1. Clarity of Healthcare Pathways 94
5.2.2. Timeliness of Seeing Healthcare Professionals 96
5.2.3. TBI Survivors' Experiences of Delays in Consultation with Experts 98
5.2.4. TBI Patients' Articulation of the Challenges they Faced in Accessing Healthcare 99
5.3. Experiences with Psychological Interventions 100
5.3.1. Consequences of TBI 100
5.4. Clinical or Neuropsychological Assessments 101
5.6. Psychological Treatment of TBI Consequences 103
5.7. Chapter Conclusion 104
DISCUSSION OF FINDINGS AND INSIGHTS FROM LITERATURE 105
6.1 Introduction 105
6.2.9 Theme: Social and Material Conditions of TBI Patients 111
6.3. TBI Health Interventions and Care Pathways: Challenges and Prospects 112
a) Bio-Psycho-Socio-Ecological Linked Interventions and Care Pathways 112
6.3. Emerging Afrocentric Contributions 115
6.4. A Framework for Building Improved TBI Interventions and Care Pathways 117
6.5. Afrocentric and Western Interventions 120
6.6. Chapter Conclusion 120
CHAPTER SEVEN 122
SUMMARY, CONCLUSION AND RECOMMENDATION 122

7.1. Introduction 122
7.2. Summary of the Study 122
7.3. Achieving the Objectives and the Key Findings 125
7.4. Conclusions on Key Research Findings 125
7.4.1. Lack of Clarity on TBI Healthcare Pathways 125
7.4.2. The Challenges Faced by TBI Patients in Accessing Healthcare 126
7.4.3. Timelines of Healthcare Delivery to TBI Patients 126
7.4.4. TBI Survivors' Experiences 126
7.4.5. Experiences with Psychological Interventions 126
7.4.6. Clinical or Neuropsychological Assessments 127
7.4.7. Psychological Treatment of TBI Consequences 127
7.5. Conclusion 127
7.6. Recommendations 130
7.7. Implications 131
7.8. Limitations of the Study and Recommendations for Further Research 132
7.9. Chapter Conclusion 133
REFERENCES 135
APPENDICES 161
APPENDIX 1: TRANSCRIPTS FROM INTERVIEWS 161
APPENDIX 2: INFORMED CONSENT DECLARATION 168
APPENDIX 3: PERSONAL INFORMATION CONSENT FORM 171
APPENDIX 4: PERMISSION LETTER 174
APPENDIX 5: ACCESS LETTER 176
APPENDIX 6: RESEARCH INSTRUMENT 177
APPENDIX 7: TURNITIN REPORT 180
APPENDIX 8: ETHICAL CLEARANCE CERTIFICATE 181
APPENDIX 9: EDITOR'S DECLARATION 182

Editing Certificate 182

LIST OF TABLES

Table 2. 1 Distribution of TBI Survivors by Age Group. 18
Table 2. 2 Distribution of TBI Survivors by Gender 18
Table 2. 3 Distribution of TBI Survivors by Clinical Findings 18

Table 3. 1 Summary of Intersectionality Research Focus and Guiding Canons 67

Table 4. 1 Distribution of Participants by Severity of TBI 73

Table 5. 1 Summary of Selected Demographic Characteristics of TBI Survivor Participants 93

LIST OF FIGURES

Figure 1. 1 The Bio-Psycho-Socio-Ecological Model (Source: The National Academies of Sciences, Engineering, and Medicine (2022, p. 51) 4
Figure 1. 2 A Depiction of the TBI Pathway to Healthcare in KZN (Author's own Formulation) 7

Figure 2. 1 Representation of the Levels of Forces or Energies (Adapted from Sodi et al., 2021). 48
Figure 2. 2 Flow chart Depicting Commonly Cited Treatment Pathways by Afrocentric Traditional Healers (Source: Title adapted from Galvin et al., 2023, p. 409) 51

Figure 3. 1 Intersectionality Representation of Psychological Intervention in TBI (Source: Adapted from Clauss-Ehlers et al., 2019, p.234).....62

ACRONYMS/ABBREVIATIONS

AA	**Automobile Association**
AA	Automobile Accident
ADL	Anti-Defamation League
APT	Attention Process Training
ASHA	American Speech-Language-Hearing Association
AT	Assistive Technologies
BAI	Beck Anxiety Inventory
BDI	Beck Depression Inventory
BDNF	Brain-Derived Neurotrophic Factor
BPSE	Bio-Psycho-Socio-Ecological
BRIEF	Behavioural Rating Inventory of Executive Function
CDC	Centre for Disease Control and Prevention
CEMM	Centre of Excellence for Medical Multimedia
CHRP	Comprehensive Holistic Rehabilitation Programme
CNS	Central Nervous System
CR	Cognitive Rehabilitation
CS	Car Smash
CT	Computed Tomography
DAI	Diffuse Axonal Injury
DALY	Disability-Adjusted Life Years
DRS	Disability Rating Scale
ED	Emergency Department
EF	Executive Function
FIM	Functional Independence Measure
FST	Forced Swim Test
GBD	Global Burden of Disease
GCS	Glasgow Coma Scale
GMT	Goal Management Training
HI	Head Injury
IHME	Institute for Health Metrics and Evaluation
ISS	Injury Severity Score

LMIC	Low and Middle-Income Countries
MCC	Motor-Cycle Crash
MMI	Maximum Medical Improvement
MVA	Motor Vehicle Accident
MVC	Motor Vehicle Collision
MDT	Multidisciplinary Team
NAS	National Academy of Sciences
NIH	National Institutes of Health
NINDS	National Institute of Neurological Disorders and Stroke
PBE	Practice-Based Enquiry
PIC	Personal Injury Collision
PPD	Permanent Partial Disability
PTD	Post-Traumatic Depression
PTSD	Post-Traumatic Stress Disorder
RA	Road Accident
RAF	Road Accident Fund
RTA	Road Traffic Accident
RTAW	Road Traffic Accident Wreck
RTC	Road Traffic Collision
RTI	Road Traffic Injuries
RTI	Road Traffic Incident
RTI	Road Traffic Injuries
RTMC	Road Traffic Management Corporation
SPT	Sucrose Preference Test
TA	Traffic Accident
TAC	Transport Accident Commission
TAC	Transport Accident Commission
TBI	Traumatic Brain Injury
TV	Television
UN	United Nations
VMA	Vehicle Motor Accident
VRU	Vulnerable Road Users
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1. Introduction

This chapter introduces the study. It starts by setting out the background and context of the research. It then moves on to outline a conceptual framework that was used as a lens through which to understand the nature of Traumatic Brain Injury (TBI). This lays the foundation against which the role of psychological intervention strategies, as part of the healthcare pathways, can be explored. The framework also provides a platform for identifying and examining care pathways, delimiting the study, and formulating the research problem, aim, and questions. The rest of the chapter indicates the significance of the study, indicative methodology, literature review and ethical considerations.

1.2. Background and Context of the Study

One of the well-documented public health issues is Traumatic Brain Injury (TBI), caused by various factors such as falls, assaults, blows or jolts to the head, or a penetrating injury resulting in brain damage. Such damage may cause disruptions in the brain's normal function. Avramovic, Rietdijk, Attard, Kenny, Power, and Togher (2022) have characterised TBI as a "silent epidemic" that affects a growing number of people worldwide. Road Traffic Accidents (RTAs) have been identified as a leading cause of this condition, causing significant head and body injuries (Beckett et al., 2022). The National Academies of Sciences, Engineering, and Medicine (2022) estimates that approximately 60 million people globally experienced TBI, with incident rates differing across regions.

According to the World Health Organisation (WHO), violence and RTAs in many low- to middle-income countries, including sub-Saharan Africa, are primary causes of TBI and are associated with high mortality rates (Dunne et al., 2020). Adegboyega et al. (2021) postulate that, in sub-Saharan Africa, TBI-related mortality has placed the region at the epicentre of global focus. In South Africa, TBI-related mortality has drawn international attention, with studies indicating that RTAs are a major contributing factor (Groshi & Enicker, 2022). There is consensus among scholars that South Africa ranks high regarding the incidence of TBI, making it a significant cause of mortality and morbidity. A South African study by Gómez-

De-Regil et al. (2019) on patients with traumatic injury found that approximately 32% of patients were victims of motor vehicle accidents, either as pedestrians or passengers.

The statistics are even more concerning when considering other causes of TBI. Verster and Fourie (2018) report that, although there is a lack of comprehensive epidemiological studies, South Africa has a TBI incidence rate of 316 per 100,000 people per year, in contrast to 90.5 per 100,000 in the United States and 200 per 100,000 in Europe. South Africa's road mortality rates remain alarmingly high, with approximately 40 road-related deaths daily, resulting in an economic impact exceeding ZAR 3 billion (approximately 161.4 million USD) annually and having far-reaching social implications for both communities and the country as a whole (Verster & Fourie, 2018). Survivors of traumatic brain injury (TBI) frequently negotiate complex healthcare systems, which include both diagnostic and medico-legal assessments as well as rehabilitative interventions (Moore et al., 2021). In South Africa, as stated by Kommal (2022), the Road Accident Fund (RAF) claim procedure plays an important part in medico-legal assessments, which are largely concerned with assessing compensation rather than direct patient care. In contrast, rehabilitative interventions aim to restore the patient's functional capacities and psychological wellbeing.

1.3. Understanding TBI

Given the widespread nature of TBI globally and within South Africa, there is a pressing need for research that can inform public policy and improve healthcare quality. While statistics are valuable indicators of the scale of this hurdle, meaningful intervention requires a deep understanding of TBI's complexity. One such understanding is given by The National Academies of Sciences, Engineering and Medicine (2022), which has proposed that:

> TBI should be understood and managed as a condition with acute and chronic phases and challenges that evolve over time, challenges a truly responsive health care system would anticipate and meet…evidence suggests that many people with TBI find themselves without continuity of care, integrated professional support, or adequate health insurance downstream from their acute injury (p.6).

Critical points can be discerned from the quotation. One of the overarching ideas is that TBI is multifaceted, carrying extensive and often hidden repercussions for survivors, families, and healthcare systems. Furthermore, recent literature indicates that TBI includes a mix of

personal and social factors that impact the recovery experience (Halalmeh et al., 2023). Consequently, research has shifted towards adopting an integrated approach (i.e. a bio-psycho-socio-ecological model rather than debating whether TBI should be classified as neurobiological or psychological (Matney et al., 2022).

1.4. Conceptual Framework for Intervention: The Bio-Psycho-Socio-Ecological Model

In exploring the complexity of TBI, the National Academies of Sciences, Engineering, and Medicine (2022) stress that TBI should be perceived and managed through a bio-psycho-socio-ecological framework, recognising multiple factors contributing to a patient's experience and recovery process. Through this framework, it is possible to identify and address an interplay among various interconnected elements influencing the delivery and outcomes of intervention strategies. The authors have further identified what service providers, researchers and policymakers should consider when dealing with TBI issues in their spheres of operation. Using the metaphor of a prism, the authors describe the bio-psycho-socio-ecological model as a prism comprising the following dimensions:

- **Biomedical Aspects**: These relate to physical injuries within the context of a person's physiology, genetics, endocrine system, metabolism, and immune system, highlighting the unique needs of each TBI patient.
- **Psychological Aspects**: These include mood, anxiety, concussion, and trauma-related disorders.
- **Sociocultural Aspects**: These involve social roles, traditions, and cultural responsibilities.
- **Ecological Aspects**: This dimension encompasses the broader community and resources available to the patient, including healthcare providers and caregiver support systems.

The interactions of these elements, conceptualised as the BPSE (bio-psycho-socio-ecological) model, have the potential to refract the pathways of intervention strategies, much like light through a prism, affecting the effectiveness of the intended outcomes. This model underscores the necessity of considering a "whole person" approach to TBI intervention strategies, as TBI impacts not only the physical but also the psychological, familial, and socioeconomic domains

of an individual's life. Thus, effective intervention strategies must address these dimensions in constructing functional care pathways for TBI patients.

The multiple dimensions of the prism have been simplified as shown in Figure 1.1 below.

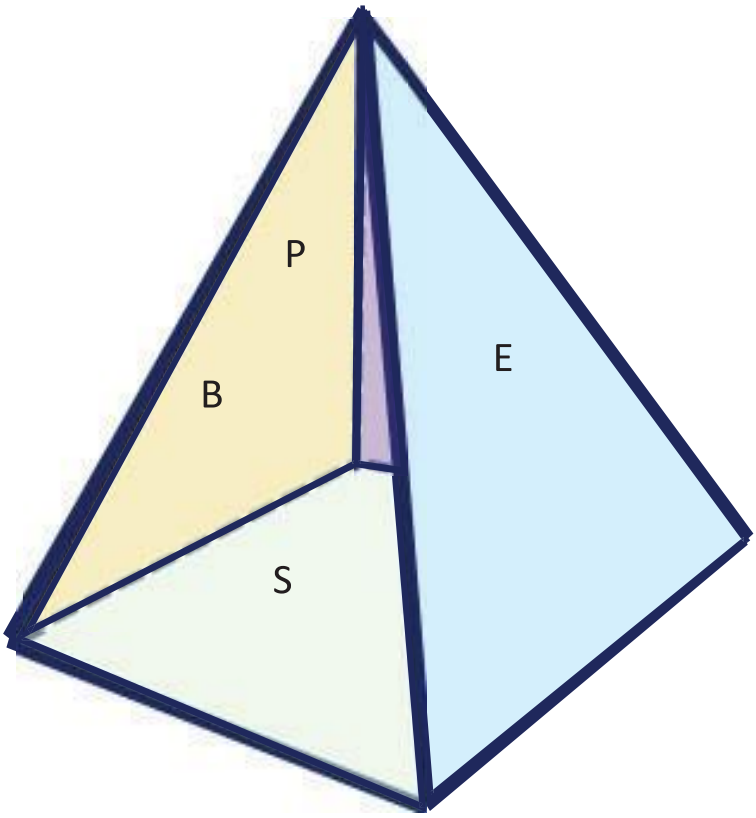


Figure 1. 1 The Bio-Psycho-Socio-Ecological Model (Source: The National Academies of Sciences, Engineering, and Medicine (2022, p. 51)

From the foregoing dimensions, the acronym for describing the prism is BPSE. The authors argue that the elements in the BPSE prism interact and intersect in ways that can distort or refract (just as light going through a prism does) the pathways of intervention strategies, and ultimately the intended outcomes. Thus, for a TBI care system to be effective, there is a need to refocus a person's recovery by recognising the threat of enablers and disablers emanating from the BPSE factors. Another point arising out of the BPSE conceptualisation is that beyond the nature of a person's physical injury is the fact that TBI happens to a "whole person" in relation to the intersection of the physical and non-physical domains, encompassing interpersonal, family, community, and socioeconomic factors within the individual's living

environment. Thus, all intervention strategies, inevitably, have to grapple with these issues when charting functional care pathways for TBI patients.

1.5. Mapping Pathways of Intervention Strategies

In mapping the TBI care pathways, it is useful to cite an international perspective and juxtapose it against the site or context of this study, which is the KwaZulu-Natal Province of South Africa. These are presented below under sections (a) and (b).

a) TBI care pathways: A United States perspective

Ilaghi et al. (2024) have viewed care pathways as defined by a journey "…at which the patient…[is]… transferred from one treatment facility to another or discharged from organised TBI care," (p.2). Some stages of the pathways have been summarised by The National Academies of Sciences, Engineering, and Medicine (2022, p.49) as including:

- **Recognition:** that is, identification of individuals who need care following brain injury.
- **Classification:** this includes assessment of the nature and severity of TBI
- **Acute care:** in a medical facility, e.g. a hospital for medical intervention to mitigate TBI damage.
- **Follow-up:** entails TBI patient's continued engagement with care system to address emerging needs, including the provision of community-based support services.
- **Rehabilitation:** aimed at improving a person's physical, cognitive psychological functions and general wellbeing after TBI
- **Recovery and reintegration:** this includes a possible return to family, community, work, or school.

Two points need to be made regarding the stages of the foregoing American-based summary of the TBI care pathway. The first is that, given the complexity of TBI, the stages should not be simplistically seen as linear. In practice, the care journey may be recursive, due to the intersectionality inherent in the BPSE construct. The second point relates to the extent to which the identified milestones are applicable and/or practised in the South African context. Unravelling this question constitutes part of the exploration this study is about. Searching for

clarity on this aspect must, therefore, begin with an outline of the TBI care established policies and practices as experienced at the site of the study in KwaZulu-Natal Province. It is concerning that there are no legislated TBI care pathways in KwaZulu-Natal Province. As alluded to above, clear care pathways provide clear guidelines with regard to ideal steps and stages through which the healthcare practitioners would set the survivors onto the recovery trajectory.

b) TBI Care Practices: Approach in KwaZulu-Natal (KZN)

In KZN, unlike what is reflected in the foregoing United States perspective on the TBI care pathway, the pathway to recovery beyond consultations with clinical psychologists and other experts appears unclear, as depicted in Figure 1.2.

The conceptual mapping in Figure 1.2 shows that, as it is reflected in the United States perspective, following a road traffic collision, the survivor is taken to a health facility where initial medical interventions are undertaken. Then, depending on the nature of the brain injury, medical and psychological interventions are recommended. Furthermore, the patient gets referred to clinical psychologists, and from there, to other experts like neuropsychologists, industrial psychologists, occupational therapists, educational psychologists, etc. This appears to be in accordance with the path shown in the United States perspective.

Beyond the encounter with experts, there is a dearth of data and information as to what happens to the TBI patient. Yet, in terms of the United States perspective and the literature – as will be seen in Chapter 2 – other important interventions need to be employed, which will lead to a complete recovery of the TBI patient and their re-integration into family and society. Herein lies the core aim of this study.

Given the multidimensional nature of the TBI condition, as depicted in the conceptual framework above and as elaborated in the problem statement below, it is by peering into the interconnectedness of the silent pandemic that an understanding, which can lead to the crafting of appropriate and effective interventions, can be developed. Hence, the importance of this study is further outlined in section 1.9 below.

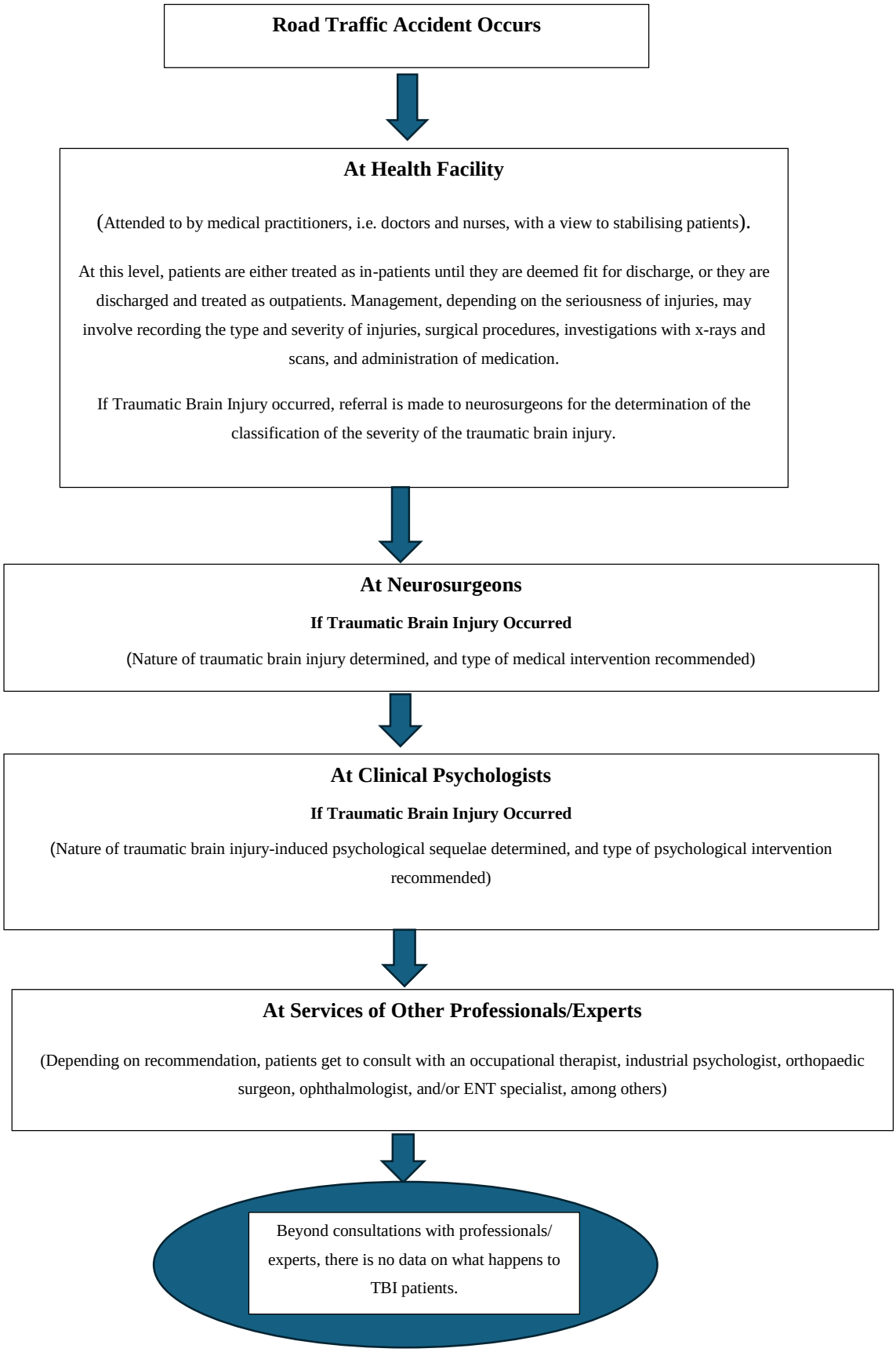


Figure 1. 2 A Depiction of the TBI Pathway to Healthcare in KZN (Author's own Formulation)

1.6 . Delimitations of the Study

In light of the backdrop of the multidimensional nature of TBI and the various stages of treatment, as well as the multidisciplinary body of care providers to be encountered along the journey to recovery, it is necessary, for the sake of manageability and to maintain research rigour, to delimit the scope of this study. Scholars (Ilaghi et al., 2024) contend that delimiting a study allows the researcher to spell out, with justifications, what to include and what to exclude in focusing the study. In this sense, the delimitation offers a clear contextual view of how the research process should proceed and what activities need to be performed. Delimitation is a vehicle to make the research design visible and transparent - a feature which enhances trustworthiness, as explained in the chapter on methodology.

Although conceptually informed by the BPSE prism, and recognising, as well as taking into account, the interconnectedness of its elements, the angle taken in this study stems from the 'P', that is, the psychological aspects of the prism. In other words, it enters the exploration of the efficacy of psychological intervention strategies via the 'P' (psychological angle) but within the context of the entire bio-psycho-socio-ecological construct. This stance positions the study at a vantage point, not only to answer the research questions but also to make sense of the data produced.

1.7 . The Research Problem

In a study in a South African township, Owolabi et al. (2022) revealed some barriers which impacted TBI care. These were summed up as "individual-level, community and health system factors" (p.381). Given the time-sensitive nature of the TBI condition, such impediments militate against the delivery of timely access to quality care that can have adverse effects on morbidity and mortality outcomes. This study employs the bio-psycho-socio-ecological conceptual model and the concomitant BPSE prism lens to explore the part played by psychological intervention strategies in driving or constraining the trajectory towards patient recovery. Using the intersectionality theoretical framework, the study seeks to identify and explain a variety of dimensions among TBI survivors, which include biological, psychological, social and ecological factors and, along the healthcare pathway, those which impact on the outcomes of intervention strategies. It is by filling knowledge and

practice gaps in these BPSE-related factors that the recovery of TBI patients can be maximised (Maasdor et al., 2020).

Against the backdrop of the foregoing, and in line with Figure 1.2, I had realised that, as a clinical psychologist, I was only getting referrals or instructions for conducting neuropsychological assessments and providing neuropsychological reports on the motor-vehicle accident-induced TBI survivors, despite having formulated recommendations geared towards psychological interventions responsive to various sequelae with which they had presented following their sustained TBIs. The survivors were never referred for the interventions that would have been set out under recommendations in their psycho-legal reports. I was also concerned that the survivors were referred for the assessments after a long period had elapsed since they had sustained TBIs. I was further concerned about a dearth of established care pathways for the TBI survivors, as well as the presence of a referral system that seems to give precedence to compensating the survivors over the delivery of timely access to quality care.

1.8 Aim of the Study

The aim of the study was to explore the role of psychological interventions in facilitating access to healthcare pathways for the motor vehicle accident-induced head injury survivors in KwaZulu-Natal province, South Africa.

1.8.1. Research Objectives

a) To explore the role of psychological interventions in facilitating access to healthcare pathways for TBI survivors.

b) To determine the experiences of TBI patients relating to medical handover (transfer from one health care provider to another) as part of psychological interventions.

1.8.2. Research Questions

a) *Main Research question*:

What role do psychological interventions play in facilitating access to healthcare pathways for TBI survivors?

b) *Sub-questions:*

i. What are the experiences of TBI patients when medical handoffs or handovers (transfer from one healthcare provider to another) are executed as part of psychological interventions?
ii. How do TBI patients perceive their encounters with various psychological intervention strategies?
iii. What challenges do TBI patients face in accessing health care?
iv. What are the implications for building improved TBI interventions and healthcare pathways?

1.9. Significance of the Study

Among the key insights that can be drawn from the conceptual framework guiding this study is that TBI is a condition that affects a person in fundamental ways. According to WHO (2018), a person's health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. It comprises feeling good and functioning well and denotes self-actualisation (Jefferies et al., 2022) – to the extent that TBI triggers a philosophical body-mind problem and the psychosomatic unity of the individual, the subjective life and bodily processes, are inseparable (Kersten et al., 2018). Hence, there is a need to explore the psychological intervention strategies within BPSE parameters.

1.10. Intended Contribution to Knowledge

The study's use of Eurocentric-inspired psychological intervention strategies and the inclusion of previously marginalised Afrocentric perspectives contributes to the epistemic boundary crossing in the field, so as to potentially discover new ways of understanding, managing, treating and rehabilitating TBI patients within an African milieu. In addition to a growing body of scholars (Maas et al., 2022), advocating for, and placing great intellectual and practical value in, practice-based enquiry, this study gives theoretical and ethical justifications for the approach, in a way that can further strengthen methodological rigour in the field. Finally, based on the findings and insights from the literature review, the study proposes a framework for building improved interventions for TBI survivors that will lead to the development of clearer healthcare pathways.

1.11. Site of the Study

The study was carried out in the KwaZulu-Natal Province of South Africa. The participants were all survivors of road traffic accidents or motor vehicle accidents, which occurred in the province, and they had been diagnosed with TBI. The basis of their selection is explained in the methodology in Chapter 4.

1.12. The Impetus of the Study and my Position in the Research Process

As a practising clinical psychologist, I had to balance my motivation to inquire into my practice with a view to understanding and, thus, improving the services. The ultimate goal is to deliver personalised, patient-centred care that addresses the complex needs of TBI survivors and supports their optimal recovery where possible. In this connection, I was conscious of my dual role as a researcher and practitioner. How I sought to navigate the potential ethical dilemma of insider/outsider duality is explained in Research Methodology, Chapter Four.

1.13. Research Design and Methodology

Given the complexity of the TBI condition, which presents with interwoven causes, meanings and contexts within the sphere of health and wellbeing, there is a need to design creative methodologies that go beyond, and free enquiry from, traditional methodological constraints, to successfully grapple with the task of researching the entangled nature of traumatic brain injuries (TBI), a complex and often under recognised public health concern (Muliira et al., 2023).

In line with the philosophical foundations of the study, in-depth phenomenological interviews anchored on interpretivist practice-based epistemology (as outlined in the chapter on methodology, Chapter Four) were the main method of data collection.

1.14.Literature Review

The literature review is divided into chapters. The first chapter delves into various conceptions and the nature of TBI and examines their implications for care and psychological intervention pathways. This is followed by an interrogation of clinical, community and

Afrocentric psychological intervention strategies through the BPSE lens. The second chapter outlines the theoretical framework for the study. It employs increasingly popular health sector theorising, in the form of Intersectionality Theory, which focuses on how one's human experiences are constituted by mutually reinforcing interactions between different aspects of one's life – and that is specifically relevant in TBI-induced mental (and other) issues.

1.15.Ethical Considerations

Apart from the usual ethical canons of good research (Sharbafshaaer et al., 2020), encompassing the need to consider the rights and interests of those affected, in terms of informed consent, confidentiality, non-maleficence, and others, when researching one's own practice, this becomes more complex and places more demands on the researcher. Whiting et al. (2019) have argued that, despite the increasing utilisation of practice-based research in recent years, the methodology entails: navigating the dual task of 'doing' clinical practice and researching that practice, confronting a possible conflict of interest and employing a constructivist epistemology where the insider researcher explores his own practice, and exercising reflexivity to manage biases and power dynamics in the research process. To address these concerns, I obtained informed consent from participants for the study separately from their consent for clinical consultations. I took precautions to ensure participant confidentiality and anonymity throughout the course of the study. While the dual relationship between myself and participants posed challenges, I preserved professional boundaries and ensured that participants' decisions to participate in the study were voluntary and uninfluenced.

These ideas are fleshed out in detail in the methodology chapter below, particularly the ethical considerations section thereof.

1.16. Outline of the Study

- **Chapter One: Introduction and Background of the Study**

This chapter presents a brief overview of the study. To achieve this, the study's overall purpose is presented along with the objectives and research questions. This chapter endeavours to provide an introduction and the background of the study by setting the research focus. Thus, it presents a discussion around access to healthcare for motor vehicle accident-induced

traumatic brain injury survivors, with the lens of psychological interventions in KwaZulu-Natal, South Africa.

- **Chapter Two: Literature Review**

This chapter reviews the literature on TBI, with special reference to those resulting from road traffic accidents. It covers the epidemiology of the disease and explores the psychological and other related interventions to uncover healthcare pathways that lead to full recovery and reintegration in society.

- **Chapter Three: Theoretical Framework**

This chapter presents the theoretical framework to be used as a lens to interpret and make sense of both ideas from the literature review as well as the data from those who participated in the study. It can be seen, from the two previous chapters, that TBI, especially ~~that~~ resulting from RTAs, is a complex public health challenge that calls for interventions. These are informed by robust theorisation that should lead to a deep understanding and crafting of appropriate and effective responses.

- **Chapter Four: Research Methodology**

This chapter describes the research methods used to address the research subject at hand. The chapter anchors the design of the study on philosophical foundations. In line with this, an interpretivism epistemology is employed in methods of data collection, along with relevant trustworthiness and ethical canons of rigour

- **Chapter Five: Data Presentation and Analysis**

This is the empirical chapter which presents, analyses and interprets data produced from interviews with informants who participated in the study.

- **Chapter Six: Discussion of Research Findings**

This chapter discusses the findings from the interview data as well as insights from the literature review. Based on the emerging discernments, the chapter proposes a framework for crafting intervention strategies that can be used to construct healthcare pathways which are tailor-made to enhance the chances of recovery for TBI patients. Also built into the proposed framework are ideas that can be used to formulate policies and practices that can tackle the causes of road traffic accidents.

- **Chapter Seven: Summary, Conclusion and Recommendations**

This chapter presents the summary, conclusions, limitations of the study, and recommendations for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

Chapter One outlined the conceptual framework of TBI employed in the exploration of the role of psychological intervention strategies as part of the healthcare pathways. This chapter is divided into two parts. Part I explores literature on the epidemiology of the phenomenon and Part II delves into intervention strategies, starting with the Eurocentric bio-psycho-socio-ecological perspective. This is followed by community psychology intervention perspectives and an emerging Afrocentric approach to TBI and the resultant diseases. These approaches are explored to assess their efficacy in the delivery of healthcare that results in the recovery of TBI survivors.

2.1.1. Medico-Legal Assessments and Rehabilitative Interventions in TBI Care

There are two broad categories of post-TBI healthcare participation, particularly relating to motor vehicle accident induced TBI. The first category includes medico-legal assessments performed largely for RAF claims, with the main goal of determining the extent of injury for legal and financial objectives (Bainbridge, 2015). According to Bainbridge (2015), these assessments do not help the patient heal but rather serve as a means of assessing compensation. Furthermore, in South Africa, there is increasing fear that RAF-related assessments may take priority over actual rehabilitation because of the financial incentives involved, perhaps resulting in a healthcare focus that is more claim-driven than patient-centred.

The second category includes rehabilitative psychological intervention geared towards functional recovery. These interventions are intended to help TBI survivors achieve cognitive, emotional, and social stability by providing ongoing assistance beyond the medico-legal procedure (Calogridis, 2017). Facilitating medical handovers, which occur when patients shift and oscillate between various healthcare professionals, is an important part of these treatments (Oyesanya et al., 2021). Effective psychological therapies aid in the continuity of care and reduce treatment disruptions.

Given the emphasis on RAF-related medico-legal assessments, patient-centred rehabilitation initiatives may take place in the background, raising concerns about whether TBI patients' needs are being served completely. It is important to distinguish between legal assessments and rehabilitative care to ensure that patient recovery remains the primary emphasis.

Furthermore, the term ‘intervention’ usually refers to systematic therapeutic or rehabilitative processes rather than medico-or psycho-legal assessments (Sveen et al., 2022).

Taking cognisance of the foregoing discussion, it is evident that the phenomenon of motor vehicle accident-induced head injury in South Africa is dealt with in a specific context in which the system of the RAF- related claims process has been inextricably embedded. The management of survivors who sustained TBI in motor vehicle accidents seems to be geared toward the RAF claims process from the time of the accident. This has significant implications for the rehabilitation of motor vehicle accident-TBI survivors as well as the treatment timelines. There is a need to conduct research primarily focusing on the implications of the RAF system of claims for the rehabilitation of the TBI survivors.

Furthermore, pursuant to the forgoing points regarding assessment and intervention, it is important to understand that, while assessment is diagnostic in nature and is aimed at informing appropriate interventions responsive to the presenting problems, assessment and intervention should not be considered to be entirely separate processes. Assessment becomes an intervention by way of providing greater insights into, and understanding of, the presenting issues.

PART I: EPIDEMIOLOGY OF TRAUMATIC BRAIN INJURY (TBI)

2.2. Understanding some Key Epidemiological Parameters

It has been argued that the key to “the prevention and treatment of TBI is to understand its epidemiology and aetiology and to identify the risk groups,” (Huang et al., 2024, p.1). However, several scholars have highlighted methodological variations in epidemiological studies which confound comparisons of TBI patterns between regions, countries, and continents. Maas et al. (2022) have argued for standardised epidemiological monitoring and international consensus on definitions and approaches.

In line with this thinking, Frérot et al. (2018) explored literature, covering a period of almost 40 years, on the changing definitions of epidemiology. The extensive review covered a wide range of sources, including epidemiology textbooks, published articles, and the WHO. The authors found that four terms were used in most of the definitions of the period reviewed. These were: “population”, “study”, “disease”, and “distribution.” Related to these are the strengthening terms, “control” and “disease,” as seen in the definition below:

> Epidemiology is the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems. Various methods can be used to carry out epidemiological investigations: surveillance and descriptive studies can be used to study distribution; analytical studies are used to study determinants (p.7).

This study used the above-mentioned definition together with the accompanying five terms used over the years as a way of, not only broadening understanding, but also as thematic areas of focus.

2.3. Incidences and Distribution of TBI

The lack of standardised measures for tracking TBI incidences globally has led to inconsistent reporting patterns, thereby limiting the effectiveness of epidemiology and aetiological research in informing TBI prevention and treatment strategies. Nevertheless, some data provide indicators for crafting interventions. In a study spanning close to three decades, from 1990 to 2016, Huang et al. (2024) produced global and regional TBI incidence rates. The data showed that moderate to severe TBI per 100,000 population was 182.7, with 93.7 cases attributed to road traffic collisions (RTCs). In sub-Saharan Africa, where South Africa is situated, this figure was notably high at 427.2 per 100,000, with 296.6 due to RTCs.

From the foregoing, several points are raised. First, globally, just over 50% of TBI cases are linked to RTCs; in Sub-Saharan Africa, over two-thirds (69.4%) are ascribed to RTCs. A study by Moodley (2021) in South Africa reported approximately 60% of TBIs due to RTCs. However, some scholars (Dewan et al., 2018) lament the lack of reliable epidemiological data compiled regularly and consistently using standardised systems that would allow for meaningful comparisons across regions.

To make a contribution to the epidemiological gap and to contribute to the much-needed regular surveillance of TBI, Barki et al. (2023) carried out a survey of TBI from Road Traffic Collisions in Peshawar, Pakistan, a lower income country, and produced data on the distribution of TBI by different parameters. These are given in Table 2.1 to Table 2.3.

Table 2. 1 Distribution of TBI Survivors by Age Group.

Age group (in years)	N %
0-9	4 (5.9)
10-9	9 (13.2)
20-29	11(6.2)
30-39	18(26.4)
40-49	12(17.6)
50-59	11(16.2)
>59	3(4.5)

It can be seen from the above Table that the 30 to 39 age group bore the brunt of TBI. This figure agrees with the study by Gallo et al. (2020) in South Africa, which showed that the mean age of TBI survivors was 36.1. The youngest was eight years old, and the oldest was 67 years.

Table 2. 2 Distribution of TBI Survivors by Gender

Gender	N%
Male	51(75)
Female	17(25)

Concerning gender, studies by Maas et al. (2022); Groshi and Enicker (2022) have found that RTA-induced TBI is, on average, more common in young males than their female counterparts, as shown in Table 2.2

Table 2. 3 Distribution of TBI Survivors by Clinical Findings

Classification of TBI	N%

Mild	24(35.3
Moderate	17(25)
Severe	27(39.7)

Although the classifications of TBI as ‘mild’, ‘moderate’, and ‘severe’ have recently been questioned (National Academies of Sciences, Engineering, and Medicine, 2022[1]), it has been argued that, while “mild cases resolved, and severe ones led to lifelong functional loss” (p.xi), often a classification of TBI as ‘mild’ may, in fact, not be mild at all in all its consequences, and a ‘severe’ TBI can have favourable outcomes with proper care and support.

Mild, moderate, and severe traumatic brain injuries (TBI) are defined according to neurological damage and degree of consciousness, which are commonly assessed using the Glasgow Coma Scale (GCS). The GCS scores eye, verbal, and motor responses on a scale of three (3) to fifteen (15), with scores that are lower indicating more serious brain injury (Cleveland Clinic, 2023). A mild TBI (GCS 14-15) is defined by short changes in consciousness, disorientation, or memory loss that do not cause long-term disability (BMJ Best Practice, 2023). A moderate TBI (GCS 9-13) causes more serious cognitive impairments, prolonged unconsciousness, and probable physical disabilities (Cleveland Clinic, 2023). A severe TBI (GCS 3–8) causes prolonged unconsciousness, severe cognitive and neurological deficits, and an increased risk of long-term disability or death (BMJ Best Practice, 2023). The GCS remains an important tool for determining TBI severity, directing treatment, and predicting the effects on patients (Cleveland Clinic, 2023).

In this regard, however, Nelson et al. (2019) raise an argument that, not only is the current classification of TBI as mild, moderate, or severe crude, but it also fuels bias that can compromise care. Survivors with mild TBI often receive no follow-up care, based on the assumption that spontaneous full recovery is guaranteed, despite the growing realisation that a subset of these survivors experience persistent symptoms and impairments after mild TBI. Similarly, a pessimistic approach is taken to survivors with ‘severe’ TBI, including early withdrawal of life-sustaining therapy, despite evidence that some of these patients can achieve significant improvement in global functional outcome (McCrea et al., 2021).

[1] From a publication by Committee on Accelerating Progress in Traumatic Brain Injury Research and Care; Board on Health Sciences Policy; Board on Health Care Services; Health and Medicine Division; National Academies of Sciences, Engineering, and Medicine…National Academies of Sciences, Engineering, and Medicine 2022. Traumatic Brain Injury: A Roadmap for Accelerating Progress. Washington, DC: The National Academies Press. https://doi.org/10.17226/25394.

Against the backdrop of the arguments raised by Nelson et al. (2019) and McCrea et al. (2021), as a practitioner who conducts assessments on TBI survivors and provides evidence as an expert witness in legal proceedings, I share my experience in this regard. I have observed that there is a presence of the narrative that suggests that mild TBI does not result in long-term sequelae. This narrative tends to even negate any necessary questions when the matter being dealt with is a severe TBI matter, because it is assumed that all severe TBIs definitely result in significant long-term sequelae. This is in spite of the fact that there are instances where a severe TBI survivor would not present with any significant long-term sequelae, and the mild TBI case would have significant long-term sequelae. Therefore, I agree with the notion that an improved classification system for TBI is needed. A TBI taxonomy and nosology merely reduced to "mild, moderate, and severe" classifications of severity, seems to be inadequate diagnostically, has rather limited impact prognostically, and has a potential to lead to deprivation of warranted care. Therefore, the intricacies of TBI classification have significant implications for the management of TBI cases.

According to Ratcliff et al. (2014), CT imaging is considered the most dependable approach to TBI classification because it provides objective evidence of TBI and identifies pathoanatomical features that warrant different approaches to clinical management. In essence, the findings of CT imaging are the most important factor in hospital triage and surgical decision making in TBI. CT imaging features are also well-known prognostic biomarkers in patients with more severe TBI (GCS 3–12) and, more recently, the prognostic significance of CT imaging features has been extended to patients historically described as having sustained mild TBI (GCS 13–15) (Yuh et al., 2021). Although CT imaging is fast and readily available, the use of MRI is increasing because it is more sensitive and safer. MRI can discover TBI-related pathology even when the CT scan is normal, and emerging evidence supports its prognostic utility (Yue et al., 2019). Both of these imaging modalities provide information that can contribute to a more accurate TBI classification system. Also, there is emerging evidence for the utilisation of blood-based biomarkers in a TBI classification system. There is a general contention that blood biomarkers can be accurate in predicting the presence of intracranial bleeding on a head CT, which could help reduce the volume of CT studies. Because GCS, neuroimaging, and blood-based biomarkers provide unique and complementary information, an appropriate classification system is one that combines all three measures of brain injury severity. Therefore, the incorporation of all three measures into a classification system would create a multifaceted characterisation of the injury, thus

reducing the condition to more homogeneous subsets, which could become more focused targets for therapeutic intervention.

2.4. Causes of TBI

There is a great deal of agreement among epidemiology researchers that, across all age groups, countries, and regions of the world, the primary cause of TBI is Road Traffic Collisions (Cheng et al., 2017; Dunne et al., 2020). A survey of a lower middle-income country by Barki et al. (2023) points to a trend that confirms that low and middle-income countries bear the greatest burden of RTC-related TBI illnesses. This is attributed to rapid motorisation and motorisation without a corresponding increase in the provision of appropriate infrastructure as well as "lax enforcement, a lack of targeted education, and a lack of knowledge regarding road safety" (Barki et al., 2023, p.1).

This contention resonates with the view which cites lack of driver experience, lack of skills, and risk-taking behaviour, which have been associated with collisions involving young drivers. Rolison et al. (2018), on the other hand, argue that visual, cognitive and mobility impairments have been associated with older drivers' collisions. Several factors contribute to a motor vehicle accident. The leading causes of motor vehicle collisions are seen to be complex. Nonetheless, they broadly depend on specific driver characteristics, such as the driver's skill level (Rolison et al., 2018; McGwin & Brown, 1999), inexperience, and risk-taking behaviour (Rolison et al., 2018). This has been connected to traffic collisions of young drivers, compared with drivers in other age ranges.

Surveys into vehicle collision records have also been associated with excessive speed (Gonzales et al., 2005), reckless driving (Iaccarino et al., 2018), and the violation of traffic rules, as well as drugs and alcohol use (Majdan et al., 2016) in vehicle accident collisions among young drivers. The research conducted by Braitman et al. (2008) interviewed novice drivers who had been involved in a collision within a short period after receiving their driver's license. It was observed that these young drivers reported excessive speed, loss of control, and failure to detect another vehicle or traffic control as primary causes of their collisions.

Collectively, the findings above support the role of inexperience, lack of skill, and risk-taking behaviour among young driver collisions (Rolison et al., 2018). Moreover, these contributing factors appear to be influenced by the gender of the driver. For example, Curry et al. (2012) noted that young male drivers are more likely than young females to be involved in collisions

due to risk-taking, such as excessive speeding and impairment by drugs and alcohol. Nevertheless, in contrast, Langford and Koppel (2006) observed that young drivers are more likely than older drivers to be involved in or cause accidents; this is often linked to driver error at intersections and when making turns.

The failure to adhere to the right of way and obey road signs and signals, alongside failure to see objects, and improper turning and lane changes, are common causes of road accidents among older drivers (McGwin & Brown, 1999). Additionally, errors by older drivers may result from age-related declines in visual, cognitive, and mobility functions. A wealth of research has identified that poor performance on visual, cognitive, and operational tasks is a risk factor for older drivers involved in road traffic collisions (Owsley et al., 1991).

Insurance statistics demonstrate a notably higher incidence of collisions and fatalities among teenage drivers and drivers in their early twenties, with insurance costs reflecting this data (Anstey et al., 2005). This driver category has the highest rate of crashes and injuries of any age group, a trend noted well before the advent of cell phones (Rolison et al., 2018).

The Global Report on the Prevention of Road Traffic Accident Injuries, jointly published by the World Health Organisation and the World Bank, highlights the alarming impact of unsafe road transport systems on global public health and development (WHO, 2014). The report expresses that, while the scale of road traffic injuries is deplorable, it is largely preventable, considering the frequency and consequences of these incidents.

2.5. Health and Wellbeing Consequences of TBI

Researchers have argued that TBI can have long-term or lifelong health and wellbeing consequences (Bajwa & Mohan, 2018). These include cognitive, behavioural, and affective deficits, as well as chances of developing neurodegenerative diseases. It is for these reasons that TBI is seen as a time-sensitive condition warranting access to timely and quality care to prevent excess morbidity and mortality (Moreau et al., 2022). This section covers some key consequences of TBI that are found in the literature.

2.5.1. Cognitive Impairment

It has to be noted that everyone with a motor vehicle accident-induced head injury will likely have some challenges with their psychological abilities, at least in the beginning phases of

recovery (Zaman et al., 2024). After motor vehicle accident-induced head injury, the most well-known psychological issues include memory impairment, cognitive processing speed reduction, and difficulties with attention or impulse control. Nonetheless, a wide range of intellectual abilities might be influenced, including comprehension, language, self-awareness, and cognitive development in general (Kumar et al., 2021). Cognitive functioning and psychological awareness, both of which are required for logical reasoning and decision-making, suffer significantly.

In the early phases of a brain injury, whether in a hospital or at home, the expectations imposed on the survivor are frequently minor, as a result, modest cognitive impairments may not be readily apparent (Stevenson et al., 2024). A study by Zakopoulou et al. (2024) interestingly hints that people who have suffered head injuries face issues like loss of memory and dyslexia, which affect self-esteem and can intrude into more psychological problems.

Whilst it is true that cognitive dysfunction is one of the sequelae that may not necessarily manifest or cause salient functional impairment shortly after the TBI, there are other sequelae that can be identified early on. These may include, among others, the symptoms of post-traumatic stress disorder (PTSD), generalised anxiety, emotional dysregulation, adjustment disorder, and psycho-affective disorders. Therefore, the sensitivity and complexity of TBI does not warrant delayed interventions, including assessments.

As a result, this is a big challenge for TBI survivors as they sometimes struggle to align with the rationality level they once held before the accident. According to Roos and Vorster (2009), individuals who sustain physical injuries in car accidents may also endure psychological distress and cognitive difficulties over time. The affected individuals often realise that their problems aggravate over a period of time. Nevertheless, individuals who have suffered head injuries through road accidents are more vulnerable, especially if they pass by the scene of the accident (Naglieri & Goldstein, 2013).

The appreciation of the extent of the vulnerability of TBI survivors should be taken into account in crafting appropriate care pathways for TBI survivors, especially because it is understood that TBI survivors tend to endure psychological and cognitive deficits from the time of the injury and over time, which leave them vulnerable.

According to Zakopoulou et al. (2024), memory issues take on numerous forms and are a significant area of difficulty after a brain injury for many people. Memory issues generally

include a period of amnesia surrounding events that occurred when the injury took place. Following a study by Stangor and McMillan (1992), the deficiency of memory for events leading up to the injury is known as retrograde amnesia. Consequently, retrograde amnesia may extend from only a few seconds to minutes, hours, days, weeks, or even longer.

Despite the period of complete amnesia, individuals often report fragmented or unclear memories spanning days, weeks, or even months before their injury (Roos & Vorster, 2009). However, they may recall some of these memories when prompted by family or friends. Nonetheless, when retrograde amnesia extends to years in extreme cases, it is distressing for the individual and troubling for their relatives.

Studies (Mavroudis et al., 2024) suggest that, following TBI, cognitive deficits may occur in various domains such as attention, executive function, memory and decision-making. However, these may be due to structural damage to specific brain regions, including the prefrontal cortex, hippocampus, and thalamus. This, points to an aspect where there is still much to be understood about the pathophysiology of cognitive deficits – if appropriate health care intervention pathways are to be crafted.

2.5.2. Post-Traumatic Amnesia

According to Stangor and McMillan (1992), post-traumatic amnesia covers the timeframe from the injury until the individual begins to regain coherence in their memory function and retains some information. This period may range from a few moments (after a mild injury) to weeks, months, or even years (after a severe injury). In post-traumatic amnesia, individuals might be able to hold a reasonable conversation about familiar topics, such as the weather or recent events, yet recall nothing afterwards. This can be detrimental to a person's ability to socially participate in conversations, generate ideas, provide factual explanations, and organise thoughts.

Parker et al. (2021) have argued that clinical manifestations of post-traumatic amnesia are often more complex, with numerous cognitive domains commonly affected as well as, consequently, behaviour. As a result, this condition may go unrecognised, thus presenting potential challenges for reliable easements. One of the issues that can be inferred from Parker et al.'s (2021) point is that the gaps in our understanding of post-traumatic amnesia have huge implications for the management of people with this condition.

2.5.3. New Recollections and New Learning

According to scholars like Roos and Vorster (2009), individuals with head injuries usually experience trouble learning and recalling information. This difficulty ranges from intermittent forgetfulness to an inability to remember essential details, such as personal and family information, current circumstances, and daily routines. Additionally, many individuals with severe physical injuries report issues in learning and remembering names, messages, appointments, routes, plots of books, or television programs. Individuals with more severe memory challenges may forget where they are going or what they are doing, relying on relatives to help remind them of daily activities (Stangor & McMillan, 1992). Interestingly, long-term memory (such as school, work, and family history) may remain well-preserved.

This, points to the complexity of TBI and how TBI survivors' premorbid functioning in a variety of areas of functioning may be significantly compromised if left totally neglected or if there is confusion about the available healthcare pathways.

2.5.4. Attention and Concentration

As stated by Naglieri and Goldstein (2013), another complaint is difficulty paying attention or maintaining concentration in activities. While some individuals with head injuries struggle with tasks requiring divided attention or multitasking, many others find that their concentration and thought processes are easily disrupted by noise or interruptions (Milner & Petrides, 1984). They may need to restart an activity or ask for information to be repeated. Challenges with attention and concentration can significantly impact work, leisure, and social activities. These issues may worsen when the individual is tired or uninterested in the topic.

Most of the areas of functioning (or contexts) require the ability to maintain concentration and attentiveness. Therefore, people who have suffered TBI might have difficulty paying attention or staying focused. This denotes that reduced concentration span and difficulty paying attention cause interference in the survivors' educability, employability, and work ability.

2.5.5. Speed of Information Processing

According to Stangor and McMillan (1992), individuals typically experience a reduction in their thought and reaction speed, even after relatively minor brain injuries. For example, they may find that they cannot absorb new information as quickly as before. They may frequently

lose track of conversations or television programs, take longer to read newspapers or books, be slow to respond, or generally feel sluggish at work or in recreational activities.

This means that impaired speed of information processing causes an individual to require more time than necessary to finish tasks that they ordinarily would have managed to complete in less time. This causes interference in the survivors' quality of life as they tend to have difficulty taking in information. Processing speed is one of the critical cognitive skills, and it plays a central role in our daily functioning in various contexts, including academic, professional, and interpersonal/ social settings.

2.5.6. Language Skills

According to Roos and Vorster (2009), while profound loss of language abilities is moderately prevalent after a head injury, individuals may have word-discovering troubles and may encounter fluency problems. Individuals may likewise have difficulty articulating their ideas, particularly when communicating complex thoughts. Most importantly, they face challenges in comprehension. Individuals may experience issues with distinguishing speech sounds, differentiating singular words, or separating sentences. Individuals may also experience issues in choosing and communicating words or in building sentences and experience difficulty with reading or spelling.

This denotes that deficits in language skills have serious implications for the survivors' ability to assume normal roles in terms of their daily functioning. Difficulties associated with language impairments, for example, can have social implications such as social interaction difficulties. This may result in social exclusions and isolation, difficulty maintaining conversations, and even avoiding interaction with peers or colleagues.

2.5.7. Perceptual Skills

According to Milner and Petrides (1984), individuals with serious head injuries may have problems in one or more cognitive domains, as well as issues with perception, such as difficulties with interpreting sensory information. Their ability to perceive and distinguish items, faces, and other visual material may become compromised. These issues might be muddled by double vision, loss of coordination of the muscles controlling eye movements, or a decrease in the individual's field of vision (Hellerstein et al., 2024). Perceptual issues are not, however, limited to vision.

Emerging from the foregoing discussion is that impaired visual perceptual skills negatively impact the survivors' ability to navigate their world by reading, writing, and manipulating items. This has far reaching implications for their quality of life.

2.5.8. Spatial and Constructional Skills

According to Hou et al., (2024), individuals who have sustained TBI may see objects precisely; however, they experience issues with their spatial abilities – for example, deciding spatial relationships between at least two objects or between themselves and objects in their environment. This may prompt them to misconstrue distances (for example, reaching to get something and missing), see things in reverse (Smith et al., 2022), confuse left and right, or experience issues in locating objects or following even natural courses. Additionally, individuals may often neglect to respond to stimuli coming from one side or neglect a specific side of their body, for instance, when shaving or dressing (Eisenberg, 2023). Others may retain spatial and constructional abilities; however, they experience difficulties in completing complex activities, such as dressing, or cooking (Petersen et al., 2025).

This has serious implications for survivors' functionality and their ability to assume normal roles in their daily lives. Spatial skills are used in various contexts. Impaired spatial skills may compromise the survivors' ability to interpret graphs, navigate using a physical or mental map, merging into traffic, or brushing hair. Again, this points to compromised quality of life.

2.5.9. Executive Function

According to Crambert (2023), individuals with a head injury normally experience challenges with primary skills, that is, in planning, problem solving, logical reasoning, self-motivation, and introspection. TBI survivors may become confused in their thought process and they go off-topic. Others might be rigid in their reasoning, repeating one inflexible opinion and neglecting to value others' perspectives (Smith et al., 2022). This implies that discussions can be frustrating and unrewarding for others, especially when the same discussion is repeated several times. As stated by Maas et al. (2022), it could be hard for an individual with a brain injury to recognise and analyse problems, consider potential solutions, and decide on and implement coping strategies. They may also be poor at planning, monitoring, and assessing their performance, and managing their lives effectively.

The forgoing discussion suggests that executive function is one of the critical cognitive skills that have implications for day to day functioning. This domain, as stated by the above-mentioned researchers, includes a set of cognitive skills which is used to manage everyday tasks like making plans, problem solving, logical reasoning, proactivity, decision-making, and cognitive flexibility. Impaired executive function causes interference in areas of functioning, placing demands on planning, proactivity, cognitive flexibility, abstraction, decision making, and problem solving. Basically, this means that survivors who retain impairments in executive functioning have difficulty assuming normal roles in such critical areas of functioning as academic settings, occupational settings, adaptive functioning, and social settings/interpersonal functions.

2.5.10. Awareness and Insight

According to Polit and Beck (2004), a head injury can significantly affect self-awareness and awareness of others. Individuals with head injuries may be unaware of how they present themselves and may lack insight into their difficulties. Furthermore, as individuals recover, they may gradually regain awareness and understanding of their more visible issues (such as mobility, speech, or memory) but may never achieve insight into more subtle changes in their skills or behaviour. As a result, they may subsequently fail to pick up on cues or expressive gestures, which may lead to social misunderstandings and discomfort in social settings, as well as inappropriate behaviour. This points towards compromised quality of life. Furthermore, this means that appropriate psychological interventions or healthcare services must be designed and provided in a way that maintains sensitivity to the difficulty of poor insight, which often causes TBI survivors to be unaware of their impairments and the implications thereof.

2.5.11. Behavioural and Emotional Changes

According to Polit and Beck (2004), a head injury can result in a broad range of emotional and behavioural changes. These reflect a combination of biological damage and psychological reactions to the injury and its consequences. Basic changes due to brain damage (such as irritability, impulsivity, aggression, mood swings, nervousness, depression, apathy, difficulty managing emotions, and decreased frustration tolerance) interact with secondary reactions to these (such as frustration, loss of confidence, and depression). These commonly observed

responses are comparable to those in people healing from other injuries or trauma. Still, they are influenced specifically by the cognitive, behavioural, and emotional changes caused by the brain injury (Polit & Beck, 2004).

While social and emotional changes are common after a severe head injury, some individuals with minor injuries endure post-concussion syndrome, which includes a wide range of symptoms such as dizziness, headaches, fatigue, irritability, poor memory and concentration (Mullally et al., 2024). Although generally short-lived, Haque (2024) contends that these symptoms may persist with subtle changes in cognition, behaviour, or mood, known only to the individual or close family members. If not appropriately addressed, these changes can increase the anxiety of the individual and their family and lead to long-term emotional difficulties (Polit & Beck, 2004). According to the National Academies of Sciences, Engineering and Medicine (2022), people may appear to have recovered well after a head injury but be left with the unsettling feeling that they are not quite the people they used to be. Behavioural changes after head injury are numerous and varied. Some of these changes may exaggerate past personality traits, while others may seem unusual (Polit & Beck, 2004).

In light of the foregoing discussion, it is clear that emotional and neuro-behavioural disturbances, underpinned by neurocognitive mechanisms, are common among TBI survivors, and they negatively impact the survivors' quality of life and ability to assume normal roles in various areas of functioning. What seems to have significant implications for the management of TBI is the fact that these symptoms may persist with some changes in cognition, behaviour, or mood, known only to the individual or close family members. If not appropriately addressed, these changes can increase the anxiety of the individual and their family and lead to long-term emotional difficulties.

2.5.12. Disinhibition

A common change towards the beginning of recovery, especially in cases of frontal lobe damage, is disinhibition, or lack of control over behaviour, which results in socially inappropriate actions (Polit & Beck, 2004). This ranges from a tendency to share personal information too freely, to disturbing and unpredictable outbursts of unrestrained anger. Frequent complaints include a tendency to make thoughtless remarks, laugh inappropriately, and be overly familiar with others (Parkinson et al., 2014). A particularly challenging area, especially early in recovery, is sexual behaviour – leading to inappropriate gestures or

comments. Abusive or aggressive language can be offensive and highly embarrassing for relatives or in social situations. Many people gradually regain control over their behaviour; however, those with severe injuries may continue to exhibit impulsive or socially inappropriate actions (Petrie & Zatzick, 2010). A few individuals never fully recover control over their behaviour, remaining unpredictable, aggressive, and dependent on others to maintain a level of control over their behaviour.

Against the backdrop of the foregoing discussion, disinhibition should be considered a significant difficulty with which most TBI survivors present. It refers to behaviour that is at variance with social norms. It is characterised by behaviours that are impulsive, risky, unhealthy, and/or dangerous. This means that it can often result in addictions, in trouble with the law, and even contracting preventable diseases. Again, this has significant implications for the management of TBI as due regard for secondary difficulties to inhibition are quite complex.

2.5.13. Irritability, Frustration and Aggression

According to MacKenzie et al. (2024), the most common behavioural change after a head injury is increased irritability. Individuals with a head injury are often restless, intolerant of others' mistakes, and easily disturbed by interruptions, such as noise from children or equipment, which disrupt their focus.

Naglieri and Goldstein (2013), on the other hand, opined that they are frequently described as irritable, for instance, when things do not go according to plan or there is a difference of opinion with family or work colleagues. Many individuals with head injuries become frustrated with the slow pace of recovery, and some also remain angry with anyone deemed responsible for their injury. Consequently, Naglieri and Goldstein (2013) noted that when irritability, frustration, and anger are combined with a loss of behavioural control, it may result in verbal or physical outbursts of aggression. Some individuals with head injuries experience sudden and unpredictable outbursts of uncontrolled anger without warning, which cause interference in their quality of life and ability to assume normal roles in various areas of functioning, including social settings, interpersonal relationships, and work.

2.5.14. Apathy and Loss of Initiative

Individuals with brain injuries may have impaired impulse control and increased irritability. Some, on the other hand, may retreat, become unresponsive, and lose motivation (Ncube et al., 2016). Some of the survivors may seem indifferent and unconscious of their troubles, particularly in the beginning stages of recovery. Some individuals may have the desire and willingness to take part in activities; however, struggle with planning, organising, and starting tasks (Petrie & Zatzick, 2010). This may happen to any of us when feeling discouraged, yet for the individual with a head injury, this may be a direct result of the actual injury instead of exclusively being caused by depression. Lacking motivation to do things or just not caring much about what's going on around you can compromise the quality of life and functioning in different contexts.

2.5.15. Egocentricity

According to Ncube et al. (2016), following a head injury, people may become egocentric, focusing solely on their own desires and seeming unconcerned about the feelings or needs of those around them. A study by Petrie and Zatzick (2010) reveals that, while it is natural for people to prioritise their personal interests, those who have sustained head injuries may demonstrate this tendency to an extreme degree; however, this can be incredibly overstated for an individual with a head injury. Therefore, one can infer that psychological debilitations can imply that TBI survivors are careless about, or unfit to appreciate, others' perspectives and might be ignorant of the needs of others. This can interfere with their daily functioning in various areas, especially at work, at home, and in their overall interpersonal relationships.

2.5.16. Emotional Changes

According to Owsley et al. *(*1991), the emotional impact of a head injury relies on an individual's pre-injury personality, coping skills, awareness of his/her own issues, and the availability of family and professional assistance. Nkosi (2012) supports the idea by indicating that emotional liability is associated with decreased behavioural control, as many people who have suffered a head injury lose emotional regulation. As a result, they may respond excessively to events that would not previously have disturbed affected individuals and may likewise be subject to rapid and marked mood swings, for instance, being cheerful one moment, sad the next.

2.5.17. Depression

According to Petrie and Zatzick (2010), depression is a typical emotional reaction to a brain injury. For some, this might be an early response to the injury and the resulting disability, whereas, for others, it may develop as they struggle to regain their lost abilities. Generally, depression develops when active treatment is complete, and the individual returns home, only to be confronted by the realisation that life will likely never be as it was (Nkosi, 2012). The deficiency of previous physical, intellectual, social abilities, the impact on personal relationships, and the inability to resume premorbid leisure and social activities or meet previous work ambitions can be difficult to accept and can lead to depression. Furthermore, mood and emotional changes can occur if the TBI affects areas of the brain that control emotions.

2.5.18. Anxiety

Numerous individuals experience anxiety after a head injury, which impacts their everyday lives and may hinder their recovery (Owsley et al., 1991). Those with a less severe injury might be anxious early in recovery, feeling unsettled by the changes to their cognitive abilities and personality. Individuals with a more severe injury may become anxious later when they come to understand the extent of their long-term disability and feel anxious about the future (Ncube et al., 2016).

Anxiety has serious implications for the management of TBI. Anxiety may lead to social isolation and can cause impairment in a person's ability to work, study and do routine activities. It may also cause interference in the interpersonal relationships with friends, family and colleagues.

2.5.19. Post-Traumatic Stress Disorder

According to Owsley et al. (1991), some people may experience post-traumatic stress disorder (PTSD) following a traumatic event. This is a severe mental response to a traumatic experience, involving persistent re-experiencing of the trauma, avoidance of stimuli that remind the person of the event, heightened arousal, and numbed emotional responses. However, Naglieri and Goldstein (2013) show that memory loss for the conditions of the trauma often means that distressing memories of the event do not trouble many individuals with severe head injuries. Thus, PTSD is most commonly observed following mild head

injuries where memories of the traumatic conditions are retained. Nonetheless, some may develop a fear of similar situations (e.g. being attacked), and a few may have distressing memories of the early stages of recovery.

The foregoing discussion suggest that PTSD can affect the TBI survivors' ability to work, perform day-to-day activities or even relate to their family and friends. They normally seem uninterested or distant as they try not to recall painful memories. This has direct implications for the crafting of TBI management strategies.

2.5.20. Changes in Self-concept

After a head injury, individuals may experience marked changes in their perception of themselves, that is, in their self-concept. Those with a minor injury may have the unsettling feeling that they are not quite the person they were before. By contrast, those with a more severe physical injury face unpredictable and confusing neurological impairments, entirely outside the realm of everyday experience (Owsley et al., 1991). Owsley et al. (1991) noted that those with marked physical disabilities may struggle to perform essential personal and household tasks, while those with serious communication issues may experience immense frustration and a troubling sense of isolation.

Serious perceptual or spatial issues present a confusing world where it is challenging to maintain complete control. For those with thinking difficulties, life may seem, at times, like an unsolvable puzzle. Severe memory issues can result in an unsettling lack of continuity and order in one's life, especially for those experiencing extended amnesia for events before and after their injury (Flores, 2021). Changes in behaviour and emotion, particularly those involving loss of control over emotions, thoughts, or actions, can be significantly disruptive. According to Sansonetti et al. (2024), while initially bewildered by new limitations, which some may see as a personal failing, individuals with head injuries initially tend to view such changes as temporary, hoping for a good, if not complete, recovery.

Often, only after completing treatment and returning to familiar surroundings do these limitations become clear (Gallagher, 2022). There may follow a gradual and painful process of accepting their disabilities and understanding that they may not, after all, regain their previous abilities and lifestyle. Affected individuals may set themselves unrealistic goals, which may lead to repeated disappointment and despair (Højgaard Nejst & Glintborg, 2024).

In society, the limited opportunities for individuals with a head injury can create a sense of powerlessness until survivors can find a new direction and meaning in their lives.

2.5.21. Leisure and Social Activities

Numerous individuals with TBI do continue participating in their premorbid leisure and social activities even though they may recognise that their performance in sports, for example, is not as good as it was before or that they do not, at this point, fit in as well with their counterparts as they did previously. According to Sansonetti et al. (2024), those with severe TBI may resume premorbid leisure activities, but these are always compromised by, among others, their decreased attention span. In addition, some affected individuals, who have psychological difficulties, may lose interest and drive to engage in their premorbid leisure activities. As a result, Downing et al. (2022) note that some individuals disappear from their leisure and social environments after TBI, with the individual becoming unable to contribute as (s)he did in the past and feeling embarrassed about his/her post-morbid difficulties.

According to Petrie and Zatzick (2010), some individuals may end up being totally socially detached from their family and friends.

2.5.22. Family Relationships

According to Stangor and McMillan (1992), brain injury can be a significant source of stress for close relatives. The shock of the underlying injury, and the waiting for signs of recuperation in the beginning stages can cause interference in family relations. According to Roos and Vorster (2009), the family, at that point, shares in the long and significant battle to regain lost abilities. During this time, the family becomes the main source of solace, consolation, and support. Families may, likewise, develop feelings of social detachment from the affected individual.

At last, the family is confronted with the difficulty of adjusting to the numerous physical and mental changes experienced by the individual with a brain injury (Roos & Vorster, 2009). It is these difficulties that tend to place the most significant strain on relatives.

According to Davies (2024), children ordinarily feel confused by any unusual conduct as a result of their parent’s sudden change in personality due to a head injury. Roldán Restrepo

(2022) noted that adjusting to the post-morbid reality following a head injury, especially with regard to interpersonal relationships with family and partners, can be extremely challenging.

Numerous families become affected by the TBI phenomenon. However, other families tend to show resilience in adjusting to the post-morbid reality (Haynes et al. 2025).

2.5.23. Impact on Relationships

Traumatic brain injury can significantly affect family relationships and increase the burden on caregivers. In a study by McDonald et al. (2011), the findings revealed that caregivers with demanding occupations may face additional pressure when caring for family members with mental disorders, as their work duties can contribute to psychological stress. Interpersonal and interactive disturbances associated with TBI sustained by a family member can be distressing for their family members (McDonald et al., 2011).

2.5.24. Financial Difficulties

In a study by Oosthuizen (2015), TBI was found to be an economic burden. The following were the findings: having enough resources for oneself and one's family was one of the most critical needs, whereas having enough resources for oneself and one's family and having enough resources for the injured child, both came under the most often unmet category of needs (McDonald et al., 2011). There is also the issue of stigma associated with traumatic brain injury in the African context. Shame, embarrassment, or humiliation tend to be associated with TBI, as shown in a study by Van den Broek et al. (2022), examining the factors related to the quality and stability of partner relationships after traumatic brain injury in a systematic literature review. This study highlighted how a significant number of families were concerned about the views of both relatives and non-family members.

Findings show how shame seemed to be a strong cultural dynamic, as several participants and family members reported lying to friends and family members about their accident, withholding crucial information from family members and rehabilitation services, or withdrawing from their usual social networks to try to reduce the effect of the sense of shame and embarrassment. A South African study by Owolabi et al. (2023) points out how cultural perceptions contribute to the meaning of medical terminology, similar to an Arab bilingual interviewer's observation that the term "brain damage" in Arabic is perceived as implying insanity, which carries a social stigma (Simpson et al., 2000).

2.6. Consequences: Societal Costs in the African Context

Traumatic brain injury (TBI) remains a significant public health issue, despite advances in 21st-century medical care. Bramlett and Dietrich (2015) stated that most traumatic brain injury patients, with up to 75-80%, have mild head injuries; the rest are divided equally between moderate and severe categories. Brooks et al. (2013) argued that TBI is a non-degenerative, non-congenital insult that happens to the brain from an external mechanical force, which may lead to a permanent or transient deficiency of neurological, physical, and psychosocial functions, accompanied by a reduced or impaired state of consciousness. However, the definition of TBI has not been the same, tending to vary according to specialities and conditions.

Furthermore, the term 'brain injury' is often used synonymously with injury that occurs to the head, which may not be related to neurologic deficits. The TBI cost to society is from both economic and emotional standpoints. Fong (2020) estimated that virtually 100% of people who sustained a severe TBI and as many as two-thirds of those with a moderate TBI become permanently disabled in some fashion and would not return to their premorbid level of function. Research conducted by Adeleye (2017) shows that road accident trauma ensued from motorcycle and motor-vehicle crashes (MCC/MVC). Motorcycle and motor vehicle crashes accounted for 56.8% (473/833) of these accidents.

There is a general contention that the most vulnerable road users (VRU) include pedestrians, cyclists, and motorcyclists, and they account for approximately 74% of all incidents. Furthermore, fewer than 90% of these accidents involve people from low-income families, who may have restricted access to basic road safety and healthcare facilities (Adeleye, 2017). Using the Glasgow Coma Scale (GCS) grading, Adeleye (2017) opined that, "The Brain Injury was moderate/severe in 52% of the cases and loss of consciousness was present in 93% of the cases" (Adeleye, 2017, p.7).

Significant extracranial fractures resulted in various organ systems, with 421/833 (50.5%) getting an Injury Severity Score (ISS) of less than 25 (Adeleye, 2017).

Understanding the epidemiology of TBI is critical for formulating preventive measures, designing population-based key prevention approaches, and arranging effective and appropriate treatment, including providing rehabilitation facilities. This information could then be used to improve TBI outcomes. Low- and middle-income countries, such as African

countries and parts of Asian countries, account for the highest burden of global motor vehicle road traffic injury (MVRTI)-related head injuries (Fong, 2020).

The researchers further indicate that head injury usually accounts for the major proportion of case fatalities in studies that examine the burden of road traffic injuries (RTI), also known as road traffic accidents (Kareem, 2003). Despite being a global problem, RTI-related deaths have the most considerable toll in the world's low and middle-income countries (LMICs) (Adeleye, 2017). It is particularly more prevalent in the African region (Ameratunga et al., 2006). Most of the previous research studies on head injury in Africa are generally from all causes even though RTAs were usually the most frequent cause (Ibrahim et al., 2017). As a result of the increasing motorisation in most African countries in recent times, there is a rapid deterioration of national road infrastructures.

Adeleye and Olayemi (2010) argued that increasing motorisation in most African countries has invariably translated to, or resulted in, a daily surge of RTI cases of head injury in most neurosurgical units. The sociodemographic characteristics of RTI-related cases resulting in head injury, as typically observed in Nigeria, a sub-Saharan African country, involve falls and motor vehicle crashes as leading causes, with intentional self-harm also significant (Centres for Disease Control and Prevention, 2019). Nevertheless, the Centres for Disease Control and Prevention (2019) noted that an estimated 812,000 children (age 17 or younger) were treated in emergency departments in the United States for concussion or TBI, alone or in combination with other injuries. Recognising the above, it is imperative to develop intervention strategies to rehabilitate MVA-induced head injury patients' pre- and post-Road Accident Fund (RAF) claims. Apurba, Ahana, and Rohit (2016) argue that TBI is among the fundamental causes of morbidity and mortality globally, highlighting a need for appropriate cognitive rehabilitation plans (Apurba et al., 2016).

2.7. Different Perceptual and or Cognitive Rehabilitation Training Approaches

This section discusses several rehabilitation options for perceptual and cognitive deficits caused by traumatic brain injury (TBI). Cognitive impairments after TBI vary in severity and can have a major influence on everyday functioning, necessitating tailored rehabilitation treatments (Fong, 2020; Gururaj, 2002).

According to Apurba et al. (2016), persons with TBI frequently exhibit lasting cognitive deficits, necessitating a comprehensive rehabilitation strategy. This comprises

neuropsychiatric examination, cognitive retraining, and behavioural therapy. Cognitive communication disorders, for example, are frequently treated using metacognitive strategy training and problem-solving therapy, which assist patients in regaining executive function and with adaptive skills. Furthermore, compensatory methods and errorless learning training are commonly used to address memory deficiencies, while pragmatic language therapy and social behaviour coaching aid communication recovery (Khan, 2018). Cognitive rehabilitation can include systematic training programs such as attention process training, memory rehabilitation, and visuospatial training (Gururaj, 2002). Pharmacotherapy is also utilised as an adjunctive treatment to improve cognitive performance (Apurba et al. 2016). Kraus and Maki (1997), as well as Hyder et al. (2007), underline the necessity of tailored rehabilitation approaches, taking into account the diversity of cognitive deficits.

The World Health Organisation (WHO, 2013) emphasised the importance of well-designed rehabilitation programs that incorporate prevention, management, and recovery techniques. For example, India has observed a rise in TBI incidence due to rising motorisation, needing comprehensive rehabilitation frameworks (Apurba et al., 2016). According to Gururaj (2002), over two million people in Bengaluru suffer brain injuries each year, with nearly a million requiring long-term rehabilitation treatments. TBI survivors frequently experience chronic deficiencies in the cognitive, behavioural, psychological, and physical domains. To improve quality of life and social reintegration, rehabilitation activities must be comprehensive, including vocational training, psychiatric counselling, and physical treatment (De Lisa, Gans, & Walsh, 2005). Among them, according to Apurba et al. (2016):

> Cognitive disabilities are often the most disabling and distressing for the affected persons, family members, and society. Cognitive deficits can significantly impair activities of daily living (ADL), employment, social relationships, recreation, and active participation in the community (p.27).

The level of awareness, especially the duration of coma and posttraumatic amnesia (PTA), determines whether a traumatic brain injury (TBI) is mild, moderate, or severe. According to Boake et al. (2011), cognitive impairments in moderate to severe TBI often appear around one month after damage. According to Kreutzer, Gordon, Rosenthal, and Marwitz (1993), cognitive impairments can occur shortly following PTA resolution. Furthermore, Skandsen et al. (2010) found that cognitive deficits lasting longer than three months are related to a higher probability of disability. According to research, cognitive recovery in moderate to

severe traumatic brain injury does not normally return to baseline even two years after the damage (Apurba et al., 2016). Other studies, however, reveal that cognitive recovery tends to be rapid in certain patients with moderate traumatic brain injury, returning to "normal baseline functioning" within three months (Schretlen & Shapiro, 2003).

PART II: INTERVENTION STRATEGIES: EXPLORING THE PATHWAY TO TBI PATIENT RECOVERY

2.8. Mapping Access to TBI Healthcare: A Bio-Psycho-Socio-Ecological Perspective

The conceptual framework in Chapter One and the foregoing sections demonstrate the multifaceted nature of TBI as it affects the individual's cognitive, psychological, physical, and social functioning as well as quality of life. Some scholars (Tenovuo et al., 2021) have described TBI as one of humanity's most complex diseases, affecting the brain, the body's most complex organ. It has further been reported that most patients receive inadequate or inappropriate and delayed treatment (Deng et al., 2024).

Given this discovery, Kaurani et al. (2024) propose a bio-psycho-social healthcare pathway characterised by the right diagnosis, which must be timely, accurate, and lead to targeted management consisting of "a specialist interdisciplinary traumatic brain injury team, led by a neurosciences-trained brain injury consultant [who] would engage during the acute phase and for a longer term after TBI to provide accurate diagnoses, which guides subsequent management and rehabilitation" *(*p. e198). It is argued that such a clear pathway, based on a well-defined infrastructure, would ensure effective rehabilitation – and ultimately better long-term life quality.

Many other scholars have focused on the question of TBI management. Muili et al.'s (2024) study of the status of TBI management in Sub-Saharan Africa revealed a myriad of challenges as well as opportunities and concluded that:

- Sub-Saharan African patients with severe TBI have a mortality risk that is almost twice as high as that of patients in high-income countries (HICs).
- This high mortality rate can be attributed to the substandard healthcare coverage regarding TBI care in the region.

- Capacity building for neurosurgeons is highly imperative to improve survival and recovery for the expected ten million or more TBI cases in Africa by 2050.

Muili et al. (2024) concluded that the lack of studies on the incidence, risk factors, and prevalence of TBI in Africa hampers the development of effective treatment strategies. Despite these challenges, the following opportunities were identified:

- Health infrastructure and addressing socio-economic inequalities.
- Enhancing pre-hospital care transportation systems and fostering evidence-based research collaboration and implementing prevention strategies.
- Expanding TBI care facilities.
- Mobilisation of community leaders to promote awareness of TBI risk.

In a similar vein, Owolabi et al. (2022) explored access to TBI care pathways in a South African township, identifying several barriers to accessing care. These ranged from a lack of resources at various entry points of the health system to individual and, sometimes, community factors that influence the decision to seek assistance, resulting in delays in accessing timely quality care that can prevent excess morbidity and mortality.

There is a paucity of literature around TBI care pathways for TBI in KwaZulu-Natal province, South Africa. There is a need for this particular area to be further explored in order to improve TBI management.

2.8.1. Psychological Interventions: A Bio-Psycho-Socio-Ecological Perspective

Against the backdrop of features of care pathways in other countries and South Africa, I now explore the psychological intervention strategies – first from the Eurocentric bio-psycho-socio-ecological perspective, a community psychology perspective, and then from an Afrocentric approach.

2.8.1.1. General Overview

The severity of a TBI may range from mild (i.e. a brief change in mental status or consciousness) to severe (i.e. an extended period of unconsciousness or memory loss after the injury); most TBIs that occur each year are mild, commonly called concussions (CDC, 2019).

Finally, there is the question of how big the problem of traumatic brain injury is. Neumann et al. (2012) note that in recent years, millions of TBI-related emergency department visits, hospitalisations, and deaths have occurred globally, significantly impacting public health. Traumatic brain injury has contributed to the deaths of over 56,800 people, including a considerable number of children, during the study period (Neumann et al., 2012). Traumatic brain injury was found in thousands of hospitalisations, including cases involving children; these consisted of traumatic brain injury alone or in combination with other injuries (CDC, 2019). Head injury is a significant root of morbidity and mortality across all age groups, including adults and children.

Pretorius and Broodryk (2013) indicate that injury to the head resulting from motor vehicle accidents can lead to traumatic brain injury (TBI) of varying severity. Traumatic brain injury is common, with a self-reported lifetime prevalence of up to 40% among adults (Naidoo, 2013). There is no effective treatment to reverse the effects of the primary brain injury sustained; most treatments aim to reduce the secondary level of brain injury. The secondary level injury can occur due to the effects of ischemia, hypoxia, and raised intracranial pressure, and it may occur immediately, within the following hours or days, or after a further head injury (Bramlett & Dietrich, 2015).

2.9. Psychological Interventions

2.9.1. Cognitive Evaluation/ Intellectual Assessment

Traumatic brain injury is a complex, diverse disorder with numerous factors contributing to a range of severities from mild TBI to severe brain injury. Traumatic brain injury is not classified as a disease, but it is an event that occurs in the brain as a result of an insult. Precisely, traumatic brain injury "is an event or a sequence of events that can, in some instances, lead to a diagnosable neurological or psychiatric disorder" (Rapp & Curley, 2012, p.34). The Oxford Dictionary defines cognitive function as "the mental action or process of acquiring knowledge and understanding through thought, experience, and senses." Sun et al. (2020, p.6) state that, "It encompasses the processes which include knowledge, attention, memory, and working memory, judgment and evaluation, reasoning and 'computation', problem-solving and decision-making, comprehension and production of language."

Cognitive practices utilise existing knowledge and generate new knowledge. Therefore, to assess the TBI person's residual cognitive abilities and inabilities, a detailed neuropsychological assessment is necessary to start cognitive rehabilitation. Besides, Apurba et al. (2016) argue that a repeat of neuropsychological assessments at a regular interval is necessary to evaluate the effectiveness of ongoing treatment. However, although there are commonly used regular assessment measures for neuropsychological evaluations for cognitive function (Apurba et al, 2016), as a requirement, an improvement in the neuropsychological test does not essentially mean that the patient has improved in functional activities of daily living (ADL) contemporaneously (Willacy, 2017).

As a result, functional effect is assessed using assessment instruments such as the Functional Independence Measure (FIM) and the Disability Rating Scale. According to the literature, cognitive assessments, especially neuropsychological test results used to measure cognitive capacity, have a strong link with functional outcome measures such as FIM and DRS (Adeolu et al., 2013).

There is a correlation between neuropsychological success in intellectual, academic, executive, and visuoperceptual domains and DRS scores, implying that cognitive tests could forecast the degree of activity in the recovery period. Neuropsychological assessment was conventionally carried out to measure the degree of impairment to a particular skill and attempt to determine the area of the brain which may have been damaged following brain injury. “The assessment focuses on the cognition and behaviour, including examining the effects of any brain injury or neuropathological process that a person may have experienced” (Adeolu et al., 2013, p.2) Therefore, it is essential that neuropsychological assessment also includes an evaluation of a person's mental status.

2.9.2. Cognitive Behaviour Therapy and Family Therapy

A traumatic brain injury could have a significant impact on emotional, and behavioural stability, and the self-confidence of the injured persons and the primary caregivers of persons with TBI undergo a lot of emotional stress and burden. The study conducted by Apurba et al. (2016, p.179) shows that an educational program “given to caregivers and family members of a TBI patient, helps reduce their distress and coping abilities.” According to Apurba et al. (2016), traumatic brain injuries frequently cause behavioural changes such as anger,

depression, agitation, and verbal or physical aggression. Maintaining emotional stability is important. Otherwise, the traumatic brain injured person cannot participate and benefit from the cognitive rehabilitation processes.

Psychotherapy, that is, individual and group psychotherapy, stresses emotional and behavioural therapy; this ultimately facilitates the training of cognition-specific interventions (Apurba et al., 2016). Some studies have revealed some benefits of coping skills training and anger management in reducing aggression (O'Leary, 2000).

2.9.3. Cognitive Rehabilitation

The goal of cognitive rehabilitation (CR) following traumatic brain injury is to enhance the person's ability to process and understand information, thereby helping to improve the person's ability to perform mental functions (Apurba et al., 2016). This procedure is especially important for those who present with deficits in attention, memory, executive functioning, and problem-solving abilities, as TBI affects these cognitive domains. Silver et al. (2009) reported that cognitive rehabilitation is best suited for well-motivated and functionally independent persons with mild to moderate cognitive impairments. Cognitive rehabilitation cannot be, and is not, a ‘stand-alone’ therapy for persons with cognitive deficits. According to Apurba et al. (2016), cognitive rehabilitation has continuously shown more advantages when administered as part of a multidisciplinary/interdisciplinary approach. This strategy guarantees that rehabilitation is comprehensive, addressing not only cognitive deficits but also the behavioural, emotional, and physical impairments that frequently accompany TBI. In this essence, the multidisciplinary team approach incorporates physicians, neuropsychologists, speech and language therapists, occupational therapists, physical therapists, and social workers. Each specialist plays an important role in developing individualised solutions that address the patient's particular needs, resulting in excellent results. Cognitive rehabilitation for traumatic brain injury consists of diverse interventions. However, there is a consensus in the literature that cognitive rehabilitation must be tailored to individual needs (Koehler et al., 2012). Personalised treatment programs take into account the severity of the injury, the patient's pre-injury cognitive ability, and their rehabilitation objectives. In the past, studies have divided cognitive rehabilitation therapy into two main components: The restorative and the compensatory methods or approaches (Koehler et al., 2012). The therapeutic method aims

to reinforce, strengthen, or restore the impaired skills caused by the injury; this includes repetitive exercises using standardised cognitive tests of increasing difficulty that target specific cognitive domains (e.g. selective attention, memory for new information). These exercises frequently include computerised cognitive training programs, structured problem-solving tasks, and real-life simulations to enhance cognitive abilities.

On the other hand, the compensatory approach involves bypassing or recompensing for the impaired function (Koehler et al., 2012). Various authors such as Koehler et al. (2012), Silver et al. (2009), and Apurba et al. (2016) have stated that the effective usage of assistive technologies (AT), calendars, electronic memory devices, alarms, or reminders are a compensatory technique. In addition to these external supports, individuals may benefit from cognitive strategy training, which teaches skills like verbal self-instruction and regular routines to improve daily functioning. Pharmacotherapy is based on two principles: catecholaminergic and cholinergic augmentation, which is a helpful adjunct in cognitive rehabilitation (Apurba et al., 2016; Silver et al., 2009). While medicine alone cannot replace rehabilitation therapy, it has been shown to aid cognitive recovery by increasing neurotransmitter activity, which improves attention, memory, and executive functioning.

2.10. Pharmacotherapy

A drug, rivastigmine, as noted by Silver et al. (2009), which is an acetylcholinesterase and butyrylcholinesterase inhibitor (3-6 mg/day), is safe and well-tolerated and may improve attention and working memory. Citicoline (cytidine diphosphate choline), though termed a neuroprotective agent, has not been found to significantly affect functional and cognitive recovery (Apurba et al., 2016). However, in his study, Levin (1991) reported that citicoline may reduce post-concussive symptoms and improve cognition memory during the early period, that is, after mild to moderate traumatic brain injury. Contrary to the above, Zafonte et al. (2012) did not find "any significant improvement in cognition and functional status even after 90 days' trial of citicoline in traumatic brain-injured persons."

Similarly, Wilkinson et al. (2009) also did not find any difference in the quality of life in brain-injured persons after a trial of citicoline. Other intervention strategies include training programs designed to improve visuospatial perception, where changes such as unilateral neglect, impairments of body scheme, and constructional skills are common in severe traumatic

brain injury. In addition, agnosia and apraxia are not uncommon. When such deficits are combined with cognitive impairments, they have a "significant impact on rehabilitation participation and ADL along with posing a safety concern" (Apurba et al., 2016, p.178). However, pharmacotherapy does not help with visual perceptual impairments.

Kraus and Maki (1997) have shown that treatment with amantadine, started within the first few days following traumatic brain injury, can help improve arousal and accelerate the frequency of functional recovery. "This ultimately improves attention, visuospatial function (constructional praxis), executive function, and general cognitive function of persons with TBI." A few studies conducted by Kim et al. (2012); Kim et al. (2006); and Apurba et al. (2016, p.175) have similarly shown that "methylphenidate may improve hyperarousal, attention and processing speed, and general cognitive function." Even though "methylphenidate was found to improve cognitive functions in several studies, the results were conflicting, which to date does not have enough evidence to support its usage among moderate to severe brain injury patients" (Apurba et al., 2016, p.175).

2.10.1. Cognitive Rehabilitation Therapy: Memory

For traumatic brain injury persons, memory impairment is seen as one of the most common cognitive impairments (Tsaousides & Gordon, 2009). According to Apurba et al. (2016), it is often the first function to be conspicuously impaired and one of the last functions to be regained in the recovery process. Tsaousides and Gordon (2009) added that cognitive rehabilitation therapy interventions aim to restore or compensate for memory deficits. Restorative approaches for memory intervention include word lists, paragraph listening, visual imagery, and mnemonic strategies (Tsaousides & Gordon, 2009; Apurba et al., 2016).

Computer-assisted solutions, on the other hand, can help improve overall cognitive functioning, attention, memory, and executive abilities. However, access to such interventions in low- and middle-income countries (LMICs), such as South Africa, remains a considerable barrier (Allen et al., 2023). Limited access to technology, high expenses, and discrepancies in healthcare infrastructure sometimes impede the broad use of computer-assisted cognitive rehabilitation. Furthermore, a lack of educated personnel and patients' computer literacy may limit its effectiveness in these contexts. There is strong evidence that supports the usage of external memory aids in compensating for the memory impairments in traumatic brain-injured

persons. Compensatory strategy training, including internalised strategy training (e.g. visual imagery) and external memory compensations (e.g. memory notebooks, assistive technology tools), is found to be effective in mild memory impairments after TBI. A memory notebook usually includes a "section of orientation (injury-related information), memory log, calendar, to-do lists, transportation (maps, public transportation schedule, and taxi phone numbers), a feelings log, names, and more" (Tsaousides & Gordon, 2009, p.77). Assistive technology is defined as devices, software, or equipment that assist individuals with cognitive, physical, or communicative disabilities in managing daily activities more efficiently (Leopold et al., 2015).

According to the scholars, assistive technology (AT) instruments include portable electronic devices such as personal computers, personal digital assistants, voice recorders, and pagers. While these technologies can greatly benefit people with cognitive impairments, their availability remains an issue in low-income communities, where limited financial resources and inadequate technological infrastructure prevent widespread use (Tsaousides & Gordon, 2009). Other studies from scholars like Dou et al. (2006), Ehlhardt et al. (2005), Clare and Jones (2008), Landis et al. (2006), and Apurba et al. (2016), have articulated that errorless learning (EL) is another useful strategy for teaching specific information or procedures. As stated by Apurba et al. (2016), the errorless learning technique simplifies compensatory approach training targeted at personally relevant memory problems, such as taking medications at mealtime or keeping keys in a consistent location.

2.11. The Holistic Rehabilitation Programme

Research shows that traumatic brain injured persons undergoing comprehensive, holistic neuropsychological rehabilitation are found to achieve greater community functioning improvements than those who received conventional rehabilitation. The application of a comprehensive, holistic rehabilitation programme (CHRP) is the combination of therapeutic services that include individual and group therapies and psychotherapy, psychoeducation, and family therapy. Giacino et al. (2012) state that the holistic neuropsychological intervention stresses metacognitive and emotional regulation techniques for cognitive deficits and emotional difficulties. However, Apurba et al. (2016) believe that CHRPs facilitate skill

transfer and generalisation with behavioural and affective regulation and community integration.

2.11.1. Emerging Afrocentric Psychological Perspectives on TBI Interventions

In many African communities, systems of cultural belief play an essential role in the experience of adversity. It must be noted that witchcraft, the role of ancestors, and religious beliefs are barriers to the effective rehabilitation of people with traumatic brain injuries. According to Mokhosi and Grieve (2004), many Africans believe that all sorts of ills, misfortunes, sicknesses, injuries and tragedies are caused by using the magical force of a sorcerer, witch or wizard. There is a belief that nothing bad occurs by chance; something is induced either directly or by supernatural forces. There is also a belief in the role of ancestors in creating adversity.

According to Juma (2011), from an African viewpoint, ill-health manifests itself in physical disorders or mental illnesses and a deterioration in individuals' and societies' social and spiritual structures. The interconnectedness of the phenomenal universe and spirituality are two main aspects of traditional African worldviews concerned with ill health, the causes of ill health, and healing. Disease in health, from an African viewpoint, is caused by various factors that are often external. These external causes have human, spiritual and ancestral spirits as agents of different kinds of diseases. As an entry into the TBI interventions which are based on African perspectives, it is important to make three points.

The first draws on the work of Asante (1998), which proposes that any social and professional practices in the African context should be anchored in the philosophical assumptions and worldviews of the people of Africa. The second draws on Shange and Ross (2022), who estimated that approximately 80% of the population in South Africa consult both traditional and Western-based healthcare systems on matters of health, regardless of the type of illness. This implies that, in theory, South Africa has a framework for patient-centred collaboration between biomedical and traditional African healthcare providers. However, in fact, this relationship is frequently condemned as one-sided, with traditional practitioners claiming that Western medical experts rarely send patients to them, but they are required to refer patients to biomedical facilities. Given the high proportion of the population that utilises traditional healthcare, it can be concluded that the health interests of the TBI survivors are not likely to be served if only Western-based interventions are deployed.

The third point is that, although there may be similarities between the Western and African traditional approaches, the latter is inextricably intertwined with spirituality, while the former pays minimal attention to it, if at all. Despite the more holistic Western biopsychosocial intervention models, Nwoye (2015) postulates that African psychology and the Afrocentric paradigm of clinical diagnosis and treatment go beyond the information given – driven by the fact that certain occurrences or illnesses are symbolic and have hidden meanings. As Shange and Ross (2022) point out, the starting point for an Afrocentric intervention is the guiding question of *why* things happen and not *how*. In other words, an illness or accident can at times originate from the spiritual or ancestral background of the individual manifesting the suffering or bad happening.

Relating this viewpoint to TBI, the question of, for example, why an accident, which caused TBI happened in the first place, would arise. Similarly, the resultant consequences of TBI would presumably be an extension of this misfortune. To appreciate this point, it is useful to draw from Sodi et al. (2021), who postulate that African human existence is influenced by the coexistence of multiple forces or energies that are hierarchically arranged, as depicted in Figure 2.1 below.

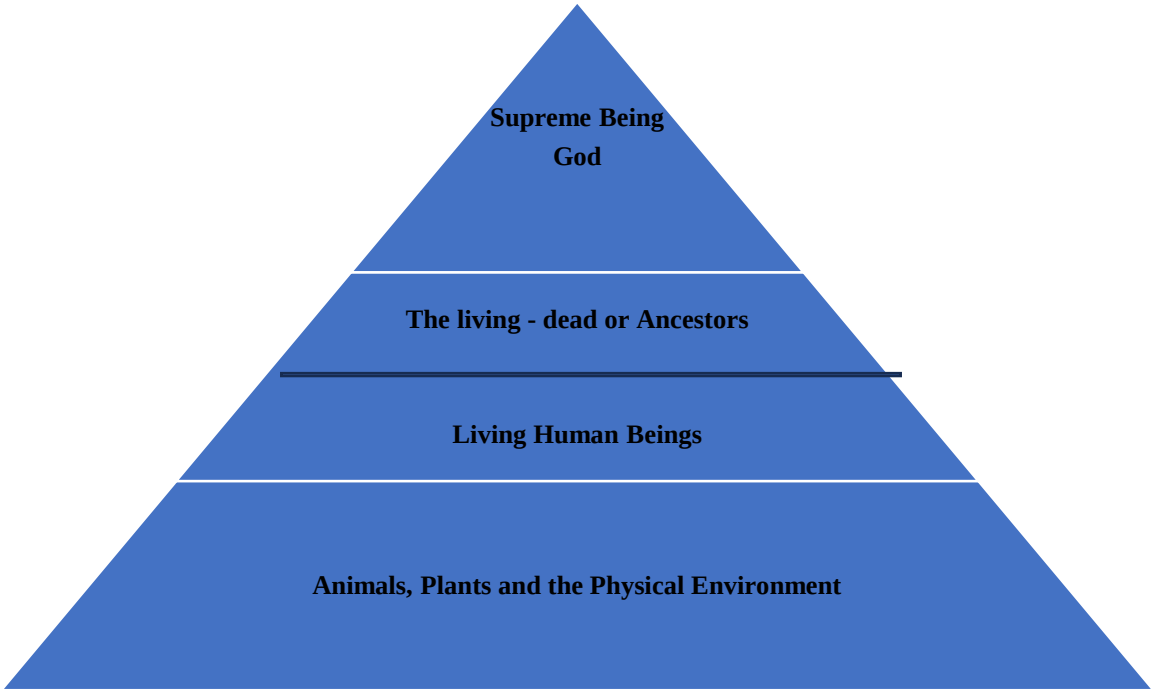


Figure 2. 1 Representation of the Levels of Forces or Energies (Adapted from Sodi et al., 2021).

According to Sodi et al. (2021), Figure 2.1 depicts a hierarchy of forces or energies affecting the lives of human beings. At the top, the spiritual being, God, is seen to have the greatest force. The ancestors (or the living dead) play a crucial role in the lives of the living. When revered or unappeased, the ancestors can either punish with suffering and illness or reward the relatives with good fortunes. The ancestors are seen as a spiritual conduit through which the living can communicate with God. All are connected to animals, vegetation and other non-living things. Sodi et al. (2021) conclude that, "Afrocentricity is a useful theoretical lens that can help us in researching African phenomena and experiences, […] African spirituality, personhood, interconnectedness, and communalism as key ingredients of African psychology" (p. 9 & 10).

Nwoye (2015) concurs that the missing dimension in Eurocentric health care interventions is the spiritualist perspective, which is encompassed in the Afrocentric approach. Put differently, and in contrast to Eurocentric approaches, the holistic being, in the Afrocentric perspective, is understood and constituted as body, mind, and spirit. However, although acknowledging similar holistic perspectives, the biopsychosocial paradigm fails to appropriately emphasise the spiritual dimension (Masuku et al., 2023).

2.11.2. Emerging Afrocentric Interventions to Illness

Given the key features of the emerging Afrocentric paradigm as outlined above, a study by Galvin et al. (2023) in Johannesburg, South Africa, reports that:

> Among these were throwing of bones (*tinhlolo*) to start communicating with ancestors, steaming (*ukufutha*) to start a cleansing process, sneezing (*umbhemiso*) to forcefully dispel the spirit causing the illness, induced vomiting (*phalaza*), and the administration of laxatives (*mahlabekufeni*) to remove the spirits poisoning the body as well as animal sacrifice to purge spirits and communicate with ancestors. This is all followed by cutting (*ukucaba*), which is the final part of the treatment and ensures that the evil spirit cannot return (p. 403).

What seems to be given prominence in the Afrocentric treatment regime in some African societies is the role of the spirits. These appear to be part of the central mechanism through which various hierarchical forces and energies, as depicted in Figure 2.1 above, are communicated and deployed to execute specific tasks. Furthermore, the Afrocentric treatment process appears to answer the question of 'why' an illness or a misfortune has happened. The other point to glean from the process is that it demonstrates how a holistic approach, physical,

emotional, spiritual, family and community elements, can *intersect* on an individual to inflict illness. Conversely, it also shows how the same can intersect to deliver a cure or wellbeing for an individual. The theoretical framework in Chapter Three delves into the phenomenon of how intersectionality works and explains human existence in contemporary life.

The final contribution that can be extracted from the Afrocentric perspective is that it offers a clear pathway of treatment, as captured in Figure 2.2 below. The question that remains regarding the efficacy of this pathway of treatment, and which could be the focus of further research, could be answered by enlisting the participation of TBI survivors who may have gone through the Afrocentric healthcare pathway to share their experiences, and thereby, generate further insights that can inform future intervention strategies.

2.11.3. Emerging Afrocentric Healthcare Pathway

In Figure 2.2, Galvin et al. (2015) depict a clear treatment pathway that appears to accommodate the Western treatment system. The flow chart shows that when using bones to diagnose the illness, a decision is made either to refer the patient to Western medical care or to deploy the traditional healers' arsenal, which includes steaming, sneezing and vomiting. The final stage, cutting or making an incision on part of the patient's body, is designed to fortify him or her in a way that wards off future misfortune or harm. The emerging Afrocentric care pathway is coming at a time when the phenomenon of a clear health pathway for TBI survivors, captured in this literature review, has eluded Western scholars and practitioners alike. In this respect, it offers a promise to make a meaningful contribution to the plight of TBI survivors.

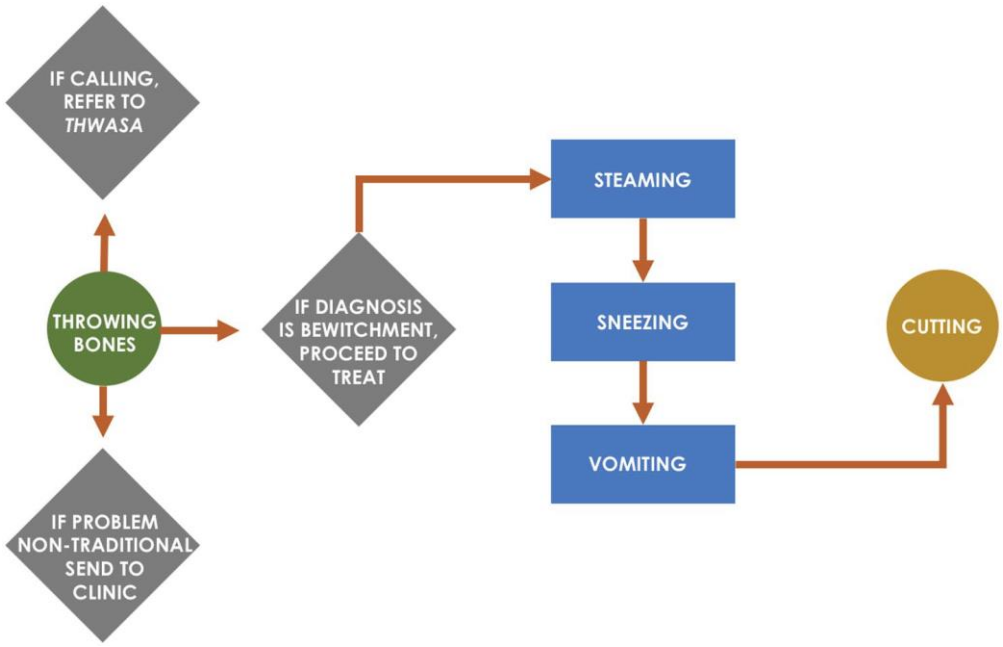


Figure 2. 2 Flow chart Depicting Commonly Cited Treatment Pathways by Afrocentric Traditional Healers (Source: Title adapted from Galvin et al., 2023, p. 409)

2.11.4. Community Psychology Intervention Perspectives

Various approaches to the psychological interventions for TBI have been variously examined. Some of these approaches include Eurocentric and Afrocentric approaches. However, reflecting on how community psychology can be useful in the management of TBI, can help psychologists understand TBI from a different perspective, and broaden their holistic interventions in relation to the management of TBI. I decided to review literature on community psychology interventions because of its focus on understanding and addressing the social and environmental factors that impact a person's ability to reintegrate into their community after experiencing a traumatic brain injury.

This is in line with the suggestion of Levine and Perkins (1987) that community psychology represents a new way of thinking about people's behaviour and wellbeing in the context of all the community environments and social systems in which they live their lives (Levine & Perkins, 1987). It may be useful to describe community psychology by distinguishing it from other disciplines with which it is closely allied. As we will explain more fully below, community psychology is like public health in promoting healthy environments and lifestyles, in considering problems at the population (not just individual) level, and, especially, in

adopting a preventive orientation. That is, community psychologists try to prevent problems before they start, rather than waiting for them to become serious and debilitating (Francescato & Tomai, 2001). But community psychology differs from public health in its concern with social and mental, as well as physical, health and the quality of life in general.

In many ways, community psychology is like social work, except that it has a strong research orientation. Community psychologists are committed to the notion that nothing is more practical than rigorous, well-conceived research directed at social problems (Snow, Grady & Goyette-Ewing, 2000). Community psychology is like social psychology and sociology in taking a group or systems approach to human behaviour, but it is more unabashedly applied than those disciplines and more concerned with using psychological knowledge to resolve social problems. It borrows techniques from industrial and organisational psychology, but tends to deal with community organisations, human service delivery systems, and support networks (Francescato & Tomai, 2001). Plus, it focuses simultaneously on the problems of clients and workers, as opposed to solely the goals and values of management (Francescato & Tomai, 2001). It is concerned with issues of social regulation and control, and with enhancing the positive characteristics and coping abilities of relatively powerless social groups such as the poor, minorities, children, and the elderly.

From its 'official' origin in 1965 by Bennett et al. (1966), community psychology has been guided by the dual objectives of understanding people in context and attempting to change those aspects of the community that pollute the possibilities for local citizens to control their own lives and improve their community. An ecological perspective, directing attention to the social and cultural contexts of communities and the community life of individuals, has been central to both the research and action arms of this agenda (Kelly 1968). Conceptually, the ecological perspective provides a framework for understanding people in community context and the community context itself. It adopts a coping and adaptation perspective on individual behaviour in community context and assumes that people are agentic and not passive responders to their environments.

Therefore, attention is drawn to transactions between individuals with different cultural histories, skills, resources and personal difficulties, as well as the opportunities, resources and constraints of the social context that influences them (Francescato & Tomai, 2001). The ecological perspective also explicitly affirms the adaptive value of the diversity of behaviours that individuals choose in their efforts to survive and even thrive (Angelique & Culley, 2007).

The adaptive value of individual behaviour is, therefore, valued only in the context in which it appears as a coping tool. Not every form of adaptive behaviour is right for everyone. In terms of the societal context, an ecological perspective focuses on describing influential social environments, communities and their impact on individuals. Attention is drawn to how the societal context can be viewed and assessed at different ecological levels, how culture is expressed in different parts of society, and what role traditions, resources, structures, social and societal norms have at the level of individual influence as well as in group life (Angelique & Culley, 2007). He takes a historical perspective (Kelly 1968) on the social context and emphasises the formative role of cultural and social history in understanding the current function of society (Chatterjee, Camic, Lockyer & Thomson, 2018). Taking into account the traditional psychological study of individual differences, an ecological perspective pays particular attention, not only to the main effects, but also to the interactive effects of social contexts and individuals representing different cultural identifications, coping styles, gender, and social roles within them.

The action program is based on an appreciation of knowledge about the ecology of society and the lives of the individuals that make it up. From an ecological point of view, knowledge of the local community is a precondition and prelude to decisions about which actions serve the goals and interests of the community, and which individuals, groups and social contexts are the main goals of the action (Angelique & Culley, 2007). In addition, the action is based on the importance of developing collaboration and strengthening relationships with community groups and organisations in the intervention process. The identification of local resources, definitions of problems, and the hope of societal change are central to this quest.

The goal is to increase local resources to increase the community's ability to improve community life. The specifics of these efforts can range from creating and maintaining a locally valued social program, to developing local skills and inter-organisational networks, creating mechanisms for citizen participation, to defending necessary social resources. Both in research and in action, an ecological perspective in social psychology puts the concept of context at the forefront of the work. As Hess (2005) notes, "The importance of context is, of course, not a new idea for social psychology; it is undoubtedly the dominant intuition of the domain" (p. 245).

The historical background of social unrest and protest that formed the basis of the establishment of the estate in the 1960s is currently reflected in the ongoing work and

represents a continuity of dedication over time. Researchers such as Prilleltensky and Prilleltensky (2006) and Watts and Flanagan (2007) offer a socio-political perspective on local ecology and guidelines for community interventions aimed at eliminating oppression and promoting social justice. The continued emergence of concepts such as empowerment (Rappaport 2005) as a value, process and intended result of much of the research, and social intervention reflect this socio-political tradition. In addition, the growing international visibility of social psychology (Reich et al. 2007) promotes an appreciation of social research and intervention in a wide range of cultural ecologies. Previous evaluations have addressed both of the domain's actions – oriented obligations, and concerns regarding the assessment of social contexts with great impact and their effects on individuals. Reppucci et al. (1999) continue the long tradition of examining social, societal, and prevention efforts with a focus on violence prevention and the promotion of lifelong skills. Shinn and Toohey (2003) examined "societal contexts for human wellbeing," suggesting that psychologists have traditionally made "context minimisation errors" by ignoring persistent and important influences from neighbourhood and societal contexts on human behaviour.

This review builds on these previous articles by providing an updated view of the field, which includes community interventions as well as research into community contexts and the people involved in them. The review develops the problem of context minimisation, which Shinn and Toohey (2003) present by applying an ecological perspective that makes context a central organising concept for both social research and intervention (Kelly, 2006). The specific implications of an ecological perspective are illustrated in the following sections, starting with recent discussions of the philosophy of science and methods that are crucial to understanding people in context. Next, the review describes work that describes the ecology of life in different societal contexts, followed by work that assesses the context itself and its effect on individuals.

2.11.4.1. Assessment of Contexts and its Effect on Individuals

In addition to the ecology of lives, an ecological perspective in community psychology draws attention to the community context itself and high-impact social settings within the community (Chatterjee, Camic, Lockyer & Thomson, 2018). Focal questions here involve how to characterise such contexts, as well as what effects, both main and interactive, they

have on individuals. Three themes predominate in recent community psychology literature: (a) measures to assess social/ community settings, (b) within-setting processes that both describe the setting environment and affect individual behaviour in the setting, and (c) research linking varied aspects of communities, such as the extent of social disorganisation or resident fear of crime, to individual outcomes. Shinn & Yoshikawa (2008) provide a useful ecological template for each of these topics in their edited book on the power of social settings to influence youth development.

2.11.4.2. The Relationship of Community Contexts to Outcomes

In addition to describing important processes within social settings, community psychology has devoted considerable attention to assessing the effects of community contexts on individuals. Recent research adds to Shinn & Toohey's (2003) earlier integrative review of this literature. Dupere & Perkins (2007), for example, reported neighbourhood differences in how patterns of environmental stressors and social resources combined to affect the mental health of adults. Employing multilevel models for nested data (residents within blocks), they found that "in environments facing average levels of environmental stressors, higher levels of formal citizen participation are associated with better mental health outcomes, whereas in environments facing relatively high levels of stressors, low informal ties with neighbours are associated with better mental health outcomes" (Dupere & Perkins, 2007). Furthermore, the influence of neighbourhood social ties differed across community settings such that "the positive impact of informal social ties found in advantaged, predominantly white, communities is not necessarily found in minority communities, and the protective effects of informal ties may even be reversed in those communities" (Dupere & Perkins, 2007). Birman et al. (2005) studied the effects of community ethnic density on adolescent acculturation in a sample of demographically comparable former Soviet adolescents living in two communities: one ethnically dense, the other more multicultural and ethnically dispersed. The emerging community psychology literature on the relationship of community contexts to outcomes, thus, continues to advance our understanding of how person-environment transactions in diverse communities have both main effects and interactive effects on a wide variety of outcomes.

2.11.4.3. Community Intervention: Systems Theory, Community Capacity, and Context

One of the characteristics of community psychology is its dual emphasis on community research and community intervention. Prior Annual Review chapters written by community psychologists have summarised social, community, and preventive interventions (Reppucci et al. 1999). The ecological perspective of the field, however, focuses less on specific programs and more sharply on how interventions are coupled with community contexts. Here, attention is drawn to such questions as how the social and cultural context can affect the definition and implementation of community interventions, how community organisations assess the relevance of outside evidence based interventions for their particular setting and organisational mission, and how community organisations might be mobilised and coordinated to achieve a community-wide goal (Ramirez, 2017). In short, emphasis here is placed on contextual issues related to developing, implementing, and assessing community interventions that (a) emphasise intervention-community interdependence and/or (b) emphasise community level outcomes and processes related to achieving those outcomes. Each of these contextual issues is well represented in recent community psychology literature.

2.11.4.4. Building Community Capacity/Resources

From an ecological perspective, community capacity building is defined in terms of efforts to increase local resources for current and future problem solving or community betterment. Capacity may be expressed in multiple ways and at varied ecological levels of the community context. Illustrative examples in recent community psychology literature include (a) efforts to increase the capacity of community organisations, and (b) increasing capacity at the community level (Ramirez, 2017). At the community level, the meaning of capacity building has taken multiple forms. Two recent examples include efforts to understand conditions affecting community mobilisation and the creation of supportive community contexts that enable successful behaviour change (Snow, Grady, & Goyette-Ewing, 2000). Community capacity is, therefore, understood in terms of community mobilisation potential. Foster-Fishman et al. (2007a) assess the conditions under which local residents become involved in individual activism and neighbourhood collective action in a community-building initiative.

They define community capacity as the degree to which a context has structures and processes in place to help mobilise residents for action – the interaction of human, organisation, and social capital. In other words, community capacity building is understood as creating a supportive community context. Another pathway to community capacity building is through

mobilising various sectors of the community relevant to specific community issues (Trickett, 2009). Capacity is reflected in how these targeted change efforts affect the development of six psycho-social resources needed to develop a TBI-competent community: (a) knowledge and skills, (b) safe social spaces, (c) ownership of, and responsibility for, dealing with the problem, (d) confidence in local strengths and identifying them, (e) solidarity or 'bonding social capital,' by viewing social capital as shaped by economic political factors such as poverty and gender, and (f) bridging partnerships with networks and agencies outside the community.

An ecological community psychology perspective on community intervention, then, focuses on how interventions are coupled with the host settings; how factors in the community or setting context affect the relevance, fidelity, and impact of such interventions; and how, through collaborative relationships, local practices can be better understood and built upon as a community resource (Ramirez, 2017). In so doing, the concept of intervention is broadened from a focus on specific programs or activities to a more systemic perspective that views any specific intervention as an 'event in system,' inclusive of both the requirements of the intervention and the culture, resources, and hopes of the organisations or communities involved. At the organisational level, recent research has addressed both local indigenous efforts undertaken by organisations to improve their functioning as well as efforts to improve and increase capacity through the introduction of externally developed programs (Snow, Grady & Goyette-Ewing, 2000). Several specific strategies to enhance capacity of local service organisations and universities have been recently reported. With respect to changes in organisational mission and climate, Uttal (2006) describes how a social service agency engaged in an action research project to transform its organisational culture from a philosophy of individual treatment to one emphasising community involvement and attitude change about local responsibility for child rearing. This philosophy was operationalised, not only in the development of culturally appropriate training for community members, but also in addressing structural issues, such as local racism, and a critical analysis of how cultural values and traditions could be reflected in the new mission of community involvement.

Cauce (2007) describes an action research initiative at the University of Washington to build capacity in the work environment through a collaborative process, addressing four aspects of campus ecology: leadership and empowerment, support and resources, climate for diversity, and sense of community and satisfaction. An additional series of papers reflect on the notion that capacity building can be fostered through the introduction of externally developed

programs into existing community organisations (Maton, Perkins & Saegert, 2006). The evidence-based practice movement represents one example of this approach. As previously described, an ecological perspective considers interventions as events in systems (Hawe et al. 2008). How organisations, as systems, respond to the introduction of externally developed interventions, is a question that has received considerable recent attention in the field.

Against the backdrop of the foregoing points, TBI survivors stand to benefit from community psychology interventions. Whilst there are common features between the community psychology intervention perspective and both Eurocentric and Afrocentric approaches discussed above, community psychology represents a new way of thinking about people's behaviour and wellbeing, in the context of their community environments and the social systems within which they live. Drawing from the community psychology perspective, TBI survivors can be regarded as the vulnerable human beings, whose environment and social systems should provide them with support and protection. From a community psychology perspective, TBI survivors are understood at the population level, rather than primarily at the individual level, meaning the primary focus should be on helping the TBI survivors reintegrate into society and be functional members of their communities. Since community psychology places emphases on adopting a preventative orientation, in the context of TBI, community psychology would, from an advocacy point of view, advocate timely rehabilitation to reduce chances of deterioration of the psychological sequelae with which the TBI survivors present. Principles of the community psychology perspective can ideally be used as underpinnings for other psychological approaches.

2.12. Chapter Summary

This chapter reviewed the literature on the epidemiology of TBI and identified the gaps that characterise the field, threatening to adversely affect the delivery of healthcare across the world, but which is more acutely experienced in Africa, where resource constraints exacerbate the situation. Against this backdrop, the efficacy of the current Western psychological intervention in delivering lasting recovery and wellbeing to TBI survivors is brought into question. Finally, community psychology perspectives and an emerging field of Afrocentric perspective, if further explored, could not only complement the Western approaches, but could also offer an effective alternative that can address current gaps.

CHAPTER THREE

THEORETICAL FRAMEWORK

KEY PERSPECTIVES FROM INTERSECTIONALITY THEORY

3.1. Introduction

This chapter presents the theoretical framework that was used as a lens to interpret and make sense of both ideas from the literature review as well as the data from those who participated in the study. It has been seen, from the two previous chapters, that TBI, especially the one resulting from RTAs is a complex public health challenge that calls for interventions, which are informed by robust theorisation that should lead to a deep understanding and crafting of appropriate and effective responses. In Chapter One, it has been seen that the bio-psycho-socio-ecological approach (See the BPSE model) captures the interconnectedness of a phenomenon that defines TBI and, by implication, the elusiveness of intervention outcomes. In this connection, the assertion below from a blurb of a recently published book on researching wellbeing and health captures the spirit of the theory used in this chapter. It suggests that we live in a complex world where causes, meanings and contexts interweave. Useful research relies on sophisticated and creative methodologies that respond to this complexity. More than ever in health and wellbeing research, we need to free ourselves from traditional methodological constraints to successfully grapple with the urgent problems of our time (Cooper, 2022).

One of the points to highlight is that health issues are characterised by entanglements. This concept implicates all the clinical psychologists, attorneys, health practitioners, researchers, as well as TBI survivors within a context which they co-construct, in which they live, and which also shapes their lifeworld as well as their wellbeing. Cooper (2022) has argued that the researcher is of the world of the data they are in. Entanglement is both ontological and epistemological, bringing an ethical lens to the researcher’s unpacking of their involvement in the issue being considered.

Given that the concept of entanglement is based on the notion of inseparability of relationship or interconnectedness of health issues, this proposition, therefore, stands to suggest that the TBI health practitioners, including those mentioned above, are equally entangled as they dispense health interventions. TBI itself is complex, with Crawford et al. (2017) demonstrating the interconnected nature of symptoms and comorbidities across the condition's spectrum, which ranges from acute to chronic consequences and mild to severe

cases. This study collected data from three categories, that is, mild, moderate and severe, as outlined in the methodology chapter.

Against this backdrop of complexity, intersectionality theory has been seen to hold the promise that can enable scholars and practitioners to unravel the efficacy of intervention strategies. There has been a growing body of scholarship (Minary et al., 2017) calling for the adoption of the intersectionality framework in researching public health matters, including psychological intervention strategies on TBI. The appropriateness of the theory has been articulated by Whitebread et al. (2022, p.117) who contend that intersectionality is "a tool that offers a more complete picture of the impact and limitations of [intervention activities.]" This chapter will, therefore, outline the key tenets of the theory, drawing relevant insights from them. It ends by highlighting salient features of research informed by intersectionality, thus foregrounding the methodological approach used in this study.

3.2. Conceptualising Intersectionality

Although it originated from Black critical race theorists, intersectionality has gained prominence across social science disciplines, and recently, in health research. Proponents of the theory posit that intersectionality is a research framework that uses a combination of epistemology and techniques that can identify the relationships among individuals' identities, which unfold within concrete socio-culturally and historically specific practices and forms of living (Von Maur, 2021). In other words, as Hankivsky (2022) posits, intersectionality promotes an understanding of human beings' interactions (including TBI patients and those who deliver healthcare) as shaped by their different social locations such as race, gender, age, class, sexuality, geography, religion, and others. "These interactions occur within a context of connected systems and structures of power (e.g. laws, policies, state governments and other political and economic unions, religious institutions, media)" (Hankivsky, 2022, p.2).

In short, participation in all social encounters is inevitably mediated by the situatedness of actors in particular moments in history (Yuval-Davis, 2017; Alpes, 2021). In summation, by employing the intersectionality theoretical tools, the researcher and practitioner can uncover multiple axes of entanglements, personal and structural, which overlap and interact or intersect within a single individual (such as a TBI survivor) to impact their health or road to recovery (Yaussy, 2021). This phenomenon is illustrated more fully in the sub-sections below, which are elaborated upon in Figure 3.1.

3.3. Psychological Intervention Strategies: An Intersectionality Perspective

As can be seen from the foregoing conceptualisation, persuasive arguments are emerging in the literature that seek to demonstrate the relevance and necessity of using the intersectionality perspective in healthcare generally, and in psychological assessments and care of TBI in particular. Fujii (2022) has unequivocally stated that the perspective is germane to appreciating brain functioning. The author laments the preoccupation by clinical and neuropsychologists with assessment and cognitive rehabilitation respectively, as some of the primary reasons for the omission of insights from intersectionality. Fujii (2022) sees this as unfortunate and argues that the intersectionality concepts "can enhance our understanding of the brain and improve our interventions […] the brain is malleable through epigenetic processes that provide a mechanism for the environment to impact brain organisation within one's lifetime with the potential to influence brain organisations of progeny" (Fujii, 2022, p.155-156).

This proposition not only resonates with the bio-psycho-socio-ecological depiction of TBI, but it also means that ignoring ecological factors can work to reproduce the symptoms through epigenetic processes that could eventually manifest in the offspring (progeny) of TBI survivors. Compelling concomitant arguments for the intersectionality approach to TBI are articulated by Clauss-Ehlers et al. (2019) in the layered model illustrated in Figure 3.1 below

3.4. Intersectionality: The Layered Conceptualisation

When understood from the angle of BPSE (see Chapter One), nested within the intersectionality perspective, it would not be meaningful to assess the role of psychological intervention strategies on TBI in isolation of the interconnectedness of dimensions within which it occurs. The representation in Figure 3.1 is an attempt to summarise the natural relationships of the layered entanglements that define TBI and give some pointers on how care pathways can be mapped and delivered. Going through the figure also gives some indications on how various tensions and contradictions that cut across the levels of the layers can be navigated, to produce desired outcomes.

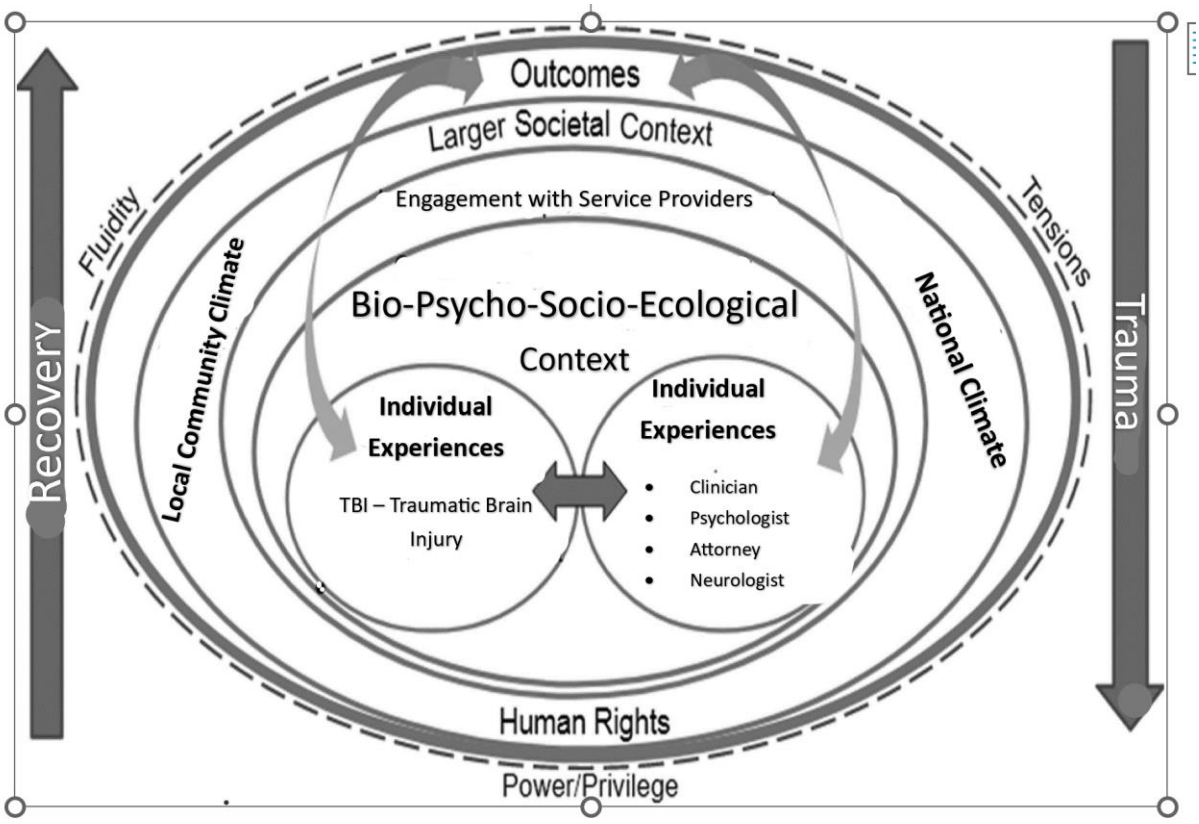


Figure 3. 1 Intersectionality Representation of Psychological Intervention in TBI (Source: Adapted from Clauss-Ehlers et al., 2019, p.234)

According to Clauss-Ehlers et al. (2019), in the conceptualisation in Figure 3.1 there are three dynamic processes – power/privilege, tensions, and fluidity – creating a circle or layer around five levels (illustrated below), which depict how the multiplicity of the individual's (TBI survivor's) ecological contexts mediate experiences, self-definition, or identity, as well as ultimate recovery. For example, regarding power/privilege, it is argued that during encounters between a TBI survivor and clinical psychologist, attorney, or neurologist, all of whom are in a position of power and privilege to pronounce an outcome, which may or may not set the TBI client on a recovery trajectory, it becomes evident that the dynamism of this situation must be considered and managed when assessing the efficacy of any intervention.

The second and third aspects of dynamic processes encompass tensions that may be witnessed within, between, and among various levels. This is illustrated by the notion of fluidity understood as "the dynamic interaction between and among concentric circles and shifts within them" (Clauss-Ehlers et al., 2019, p.234). How these dynamics play out within and between various levels of the ecological model is outlined below.

3.4.1. Level One: Bidirectional Outcomes

The conceptualisation in Figure 3.1 highlights three dynamic processes: power/privilege, tensions, and fluidity, which create a circular layer around five levels. This model represents how a multiplicity of a TBI survivor's ecological contexts mediate experiences, self-definition, or identity and ultimately, their recovery. This situation underscores the need for careful management and consideration of these dynamics when assessing the efficacy of interventions.

3.4.2. Level Two: Bio-Psycho-Socio-Ecological

The second level can be seen in the second circle of the figure, capturing the contextual understanding of TBI within the bio-psycho-socio-ecological model as described in Chapter One. This perspective recognises that brain injury and recovery are influenced by an interplay among elements including physical, medical, psychological, and behavioural factors. Family, community, neighbourhood, and physical space circumstances also play a significant role.

Drawing from the points raised in Level One, reflexivity is necessary for psychologists when conducting psychological assessments. This involves adopting a critical stance towards the validity and applicability of standardised assessment tools in different linguistic and cultural contexts. Such reflexivity supports the development of culturally centred interventions, such as Afrocentric ones.

3.4.3. Level Three: Engagement with Service Providers

The care journey traversed by TBI patients can be long, tortuous, and sometimes overwhelming. The various stages, which may include recognition, assessment of the nature and severity of TBI, and recommendations about care trajectory, may or may not lead to recovery and reintegration into society. During this care journey, a TBI patient may or may not encounter an appropriate diagnosis and care pathway. This is made possible by the previously discussed complex and evolving processes, which are influenced by professionals' diverse roles and perspectives, their specific social and institutional contexts, and the interconnected impact of key decision makers at local, national, and international levels (Bhatia & Priya, 2021; Parashar et al., 2023).

Professional organisations like the Psychological Society of South Africa, the Law Association of South Africa, and the Road Accident Fund, all play an important role in shaping

policies, guidelines, and legal frameworks that affect the treatment, rehabilitation, and support available to people with TBI. Their institutional impact may help or hinder access to necessary care, money, and legal recourse, so influencing patient outcomes. Given the potential impediments that may intersect and lurk along the pathway of recovery from TBI, it becomes imperative for service providers, in this case, psychologists, to recognise and understand them.

To improve the effectiveness of psychological interventions, institutional barriers like constrained availability of specialised rehabilitation services, administrative complications in funding and insurance approvals, inadequate integration of healthcare and legal systems, and a lack of culturally inclusive treatment approaches, must be addressed. These problems increase the already complicated and irregular care journey to recovery for people who have TBI. How interventions by different service providers along the care pathway can be synchronised such that they work with a common goal to promote justice, human rights, and access to quality and equitable mental health, becomes an underlying question that should guide the search for mitigating adverse effects of intersectionality in the delivery of healthcare for TBI patients. Level Four below further elaborates on this conundrum.

3.4.4. Level Four: Larger Societal Context

As implied under Level Three above, the larger societal context in the fourth cycle of Figure 3.1 encompasses domestic, local, and international professional assumptions, hegemony, and their impact on the work of local professionals. The larger societal context epitomises a globalised world described by scholars of decolonisation as having been engulfed by what Mignolo and Bussmann (2023) describe as “the enduring colonial matrix of power”, which manifests in various colonies in the everyday lived experiences of people in a post-colonial society such as South Africa. The important point here is that these colonies intersect with individuals, including TBI patients and caregivers alike, to yield outcomes that may reproduce and sustain the health conditions that are sought to change or remedy.

In short, this proposition raises two main implications. The first is that the knowledge, skills, and worldviews that the service providers, as indicated in the above levels, use to render services to TBI patients cannot be assumed to be universally valid, appropriate, adequate, and relevant in different social contexts for the treatment of TBI that results in recovery and reintegration into society. The second is that the efficacy of policy frameworks that the

postcolonial state employs to regulate the provision and delivery of healthcare for TBI survivors must be critically interrogated through a decolonial lens to deconstruct, expose, and confront the intersectionality that the current policies tend to sponsor.

3.4.5. Level Five: Outcomes

This level is influenced by the interactions and experiences in the above Levels One, Two, Three, and Four. According to Clauss-Ehlers et al. (2019), this level captures "results, both positive and negative, that are derived from the bidirectional transactions between the client […] and consultant" (p.234).

The most important thing to emphasise at this level is the need for psychologists to strive for culturally appropriate and informed interactions with clients in order to conduct meaningful evaluations of the efficacy of their interventions within the context of the layered ecological model in Figure 3.1. This postulation underlines an important concern from Levels One to Four: the nature of TBI, as well as the systems and mechanisms in place to address it, can lead to mischaracterisation or neglect of behavioural health requirements in a variety of populations. Cultural and geographical disparities, stigma, health literacy, distinctive symptom presentation, explanations of psychological discomfort, and overall distrust of practitioners and authorities all contribute to this risk. Furthermore, the limits of current evaluation methods and clinical approaches increase these issues. When all the factors in the above intersect, they create fluidity and tensions, as depicted in the outer (dotted) ring around Levels One to Five, cutting through issues of human rights and privilege.

3.5. Some Key Insights from the Layered Intersectionality Approach

In Figure 3.1's conceptual framework, Uzan (2022) defines three dynamic processes – power/privilege, tensions, and fluidity – creating a circle or layer around five levels (illustrated below), which depict how a multiplicity of the individual's (TBI survivor's) ecological contexts mediate experiences, self-definition, or identity, as well as ultimate recovery. For example, regarding power/privilege, it is argued that, during encounters between a TBI survivor and clinical psychologist, attorney, or neurologist, all of whom are in a position of power and privilege to pronounce an outcome that may or may not set the TBI client on a recovery trajectory, it becomes evident that the dynamism of this situation must be considered and managed when assessing the efficacy of any intervention.

The second and third aspects of dynamic processes encompass tensions that may be witnessed within, between, and among various levels. This is illustrated by the notion of fluidity understood as the dynamic interaction between and among concentric circles and shifts within them.

How these dynamics play out within and between various levels of the ecological model is outlined below.

In line with this thinking, Wymer et al. (2023) propose a human-centred approach to healthcare designed to deliver insightful and effective interventions for patients and their communities. Healthcare provisions that fail to recognise these caveats, at best, may not yield desired outcomes, and at worst, may reproduce conditions that give rise to the prevalence of TBI as well as the non-attainment of wellbeing. In summation, grappling with and understanding how axes of disadvantage intersect on any one individual, reflecting structural societal inequalities, can enlighten patients and practitioners on how to navigate the contours of disadvantage in a way that leads to the attainment of just and equitable healthcare and, by implication, enhances the efficacy of psychological interventions.

3.6. Research Informed by Intersectionality Theory

Using intersectionality theory in research has generated a lot of debate. Some scholars have highlighted the difficulties a researcher would encounter in concretely applying the framework, citing the challenge of determining which intersections are relevant to a particular study focus (Kelly et al., 2022). Other scholars take a more accommodating approach by acknowledging that, while the theory does not always offer a clear set of guidelines for conducting research, it offers strands of thought, pointing to different methodologies and methods for doing intersectional research (Kelly et al.,2022). Based on this thinking, the authors have called for "doing justice to intersectionality in research." Some of the strands of thought that intersectionality researchers can employ include the following:

- Intersectionality is dynamic and versatile and can be used with many research methods and approaches, including quantitative and qualitative.
- The theory enables researchers and practitioners to account for the multiplicity of situatedness of identities, thus recognising the interplay of many commonalities and differences within society.

- It has the potential to foster liberative change by revealing how interactions between people in different social locations and power structures manifest in oppression and privilege. This can enable differently socially located individuals to think or feel deeply about their privilege and/or disadvantage regarding the issues at hand.
- Encourages reflexivity on the part of the researcher and practitioner in a way that disrupts power dynamics embedded in social interactions, generating a process of mutual vulnerability that transforms the powerful and the less powerful.

In a similar vein, and in addition to the foregoing strands of thought, Misra et al. (2021) have argued that intersectionality is a powerful approach that calls upon researchers to be more explicit about the "important relationship between intersectional theorising, epistemology, and methodological choices" (p.2). The justification for their stance stems from the *a priori* rejection of hiding behind the cloak of neutrality, arguing that the knowledge production process is shaped by the researcher's positionality as well as status hierarchies within the discipline. From their orientation to research, the authors pick out six methodological tenets that focus on inequality, relationality, power, social context, complexity, and social justice, as already variously elaborated within the foregoing text. These are further distilled in Table 3.1 below.

Table 3. 1 Summary of Intersectionality Research Focus and Guiding Canons

Areas of focus/interest	**Guiding canons of rigour**
Demographics, their situatedness and other socially constructed identities; culture and societal values; socio-economic and material contexts; entanglements of psychic and somatic aspects of patients.	Giving voice to all, deconstructing silences and assumptions of expertise; practice-based research and collaborative learning; awareness of situatedness of research and practices; reflexivity on intervention tools and techniques; recognising interconnectedness of health phenomena, complexity and multidimensionality; commitment to social justice and health equity.
Lived experiences	Empathetic stance, critical hermeneutic engagements
Appropriateness of healthcare pathways	Mapping of healthcare provisions and pathways

It can be seen from Table 3.1 that research informed by intersectionality places a huge responsibility on the researcher at all stages of the research process. This is achieved by

determining what is researched (areas of focus or interest) through affecting what or how (rigor and quality) evidence is produced and applied to practice.

This study has sought to identify and incorporate the foregoing intersectionality theoretical principles and strands of thought. It will be seen in the next chapter on methodology that the research design, with regard to philosophical foundations, phenomenological approach, and practice-based enquiry, together with the associated ethical as well as the quality of research considerations, is couched in terms of the salient features of intersectionality theory.

3.7. Conclusion

This chapter has attempted to uncover some key insights of the intersectionality theory that are relevant to this study. It highlighted the need to pay critical attention to, and navigate the complexity and entanglement of, not only TBI as a phenomenon, but also a question of how psychological intervention strategies are themselves constructed and applied. Of particular importance in this regard is that the experiences of TBI survivors, during their encounter with psychological and other care interventions, as well as the entire healthcare delivery system and pathway, must be placed at the heart of any evaluation of efficacy.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1. Introduction

This chapter presents the methodology used to conduct the study, including the design and structure used to examine the efficacy of psychological intervention strategies as part of the healthcare pathways. The chapter is divided into seven subsections covering the philosophical foundations of the research, the research design, methods of data collection and research instruments, data analysis, research quality, and ethical considerations.

4.2. Philosophical Foundations of the Study

Research has been defined as a way of constructing knowledge about a phenomenon (Varkevisser et al., 2003). However, this view begs the question of what knowledge is, how we know what we know, what counts as knowledge, and who defines it? The foregoing ontological and epistemological questions are at the heart of research methodology; hence the need to explore the philosophical foundations of a research design that lays claim to the actual activity of knowledge production.

The crux of the matter lies in the fact that, over time, different ontological and epistemological stances have influenced research. The research activity itself cannot avoid the fact that it deals with contestations about the nature of reality or ontology. As Denzin and Lincoln (2020) have sought to clarify, different understandings of the nature of reality have given rise to different paradigms or philosophical frameworks that provide an orientation to how the research should proceed. This chapter does not go on to outline various paradigms but will outline the one relevant to this study, namely, the interpretivist paradigm and hermeneutic (interpretive) phenomenology.

4.2.1. Interpretivist Paradigm

Arising from the motivation of this study, as well as the research aim and problem, this study is anchored on the interpretivist paradigm whose ontology focuses on the fact that reality is internal to a person's subjective experience. Hence, interpretivism asserts that natural reality (in the natural sciences) and social reality are different and, therefore, require different kinds

of methods. Interpretive methods focus on interpreting research participants' behaviour, whether spoken or acted out. Interpretive research is further thought to rely on first-hand accounts, seeking to describe what is heard and seen in rich detail. Furthermore, the interpretivist paradigm posits that the world, including administering an intervention to TBI and reporting on the impact of that intervention, is socially constructed. A researcher guided by this perspective will use interviews in an interpretivist mode to uncover meanings to build an understanding of the phenomenon under study.

4.2.2. Hermeneutic (Interpretive) Phenomenology

The history of hermeneutic phenomenology can be traced back to European philosophers such as Husserl and Heidegger (Keshavarz, 2020). Keshavarz (2020) further states that hermeneutic phenomenology was first used by Heidegger (1962), who tried to describe human existence by combining Hursserl's ideas about understanding. In this combination, it can be said that phenomenology is concerned with the world as it is lived and experienced by a person. However, this assertion raises the question of understanding what 'the lived experience' of a person is; in the case of this study, a survivor of an MVA accident being treated for TBI.

The issue of understanding is at the heart of hermeneutics. In this connection, Schwandt (2000) problematises the interpretivist notion that one can reach understanding by setting aside and escaping managing and tracking one's biases, prejudices or subjectivity. The argument put forward by Schwandt (2000) is that understanding is not an isolated activity of human beings but a basic structure of our experience of life. The point of the foregoing argument is that the goal of hermeneutic philosophy is to understand what is involved in understanding. This calls for one to exercise reflexivity in research, which is defined by Duncan (2021) as a process of taking a "step back" to reflect upon and question how research is conducted, and how researchers place themselves in relation to people and events during the research process.

Thus, reflexive research practices foreground subjectivity by focusing researchers' attention on their reactions, bringing them squarely into the interpretive process (Duncan, 2021). Despite contestations in research methodology literature about reflexivity, Duncan (2021) claims that most qualitative researchers agree that reflexivity is necessary for making qualitative research thoughtful, trustworthy, and well-rounded (see also the section on the

ethics of reflexivity). Considering the aim of the study and armed with the technical research ideas from the interpretive paradigm and hermeneutic phenomenology gave me enough philosophical foundations for designing the study.

4.2.3 Relevance of Phenomenological Framework

Given that the nature and etiology of mental health manifestations of TBI, as seen in Chapter Two (including a combination of brain dysfunction and psychological trauma and interrelationships between cognitive, affective, and physical symptoms), are complex and have been a focus of recent research (Howlett et al. 2022), one of the ways in which this and other studies can contribute to closing the knowledge gap is in the deployment of a phenomenological attitude.

Irarrázaval (2020) has argued for the adoption of a phenomenological attitude, stating that "the phenomenological attitude is a paradigmatic commitment of a non-pregiven reality" (p.7), which does not take for granted the validity of an objective given reality such as that constructed from biomedical psychiatric diagnoses. In line with this thinking, Irarrázaval (2020) proposes that incorporating a phenomenological attitude in empirical research in psychiatry and psychology will enhance the chances of achieving more precise, complete and different diagnoses, which would ultimately improve psychotherapeutic interventions and patients' wellbeing.

4.3. Research Design

Research design has been described by a number of scholars as a strategic framework that serves as a bridge between the research aim and questions and the execution or implementation of the research. It is concerned with procedures employed within a research paradigm (Kekeya, 2021). Drawing on the interpretive ontology and epistemological rigour of producing knowledge, this study used a combination of a qualitative case study and techniques from the practice-based enquiry. The latter was influenced by the fact that the researcher was both a researcher and a practising psychologist working with TBI patients who are participants in this study.

Literature on practice-based research supports the researcher's dual function as a clinical psychologist and researcher. Persons (2023) emphasises that doing research in a clinical

practice setting allows for the immediate application of findings to patient care, which increases the study's relevance and ecological validity. This approach allows researchers to combine real-world clinical experiences with systematic research, resulting in more practical and usable conclusions. Furthermore, private practice research has been regarded as an effective way to develop evidence-based interventions, especially for complicated conditions such as TBI, where clinical context plays an important role in understanding patient outcomes. Details of each design are outlined below.

4.3.1. The Case Study Design

This study had two main design aspects. One was a qualitative case study, and the other was a practice-based enquiry. The latter was primarily because the participants were the patients I had seen as a practising psychologist. This aspect was chiefly relevant in providing ethical guidelines for researching one's practice. These are discussed in the ethical considerations section below. In designing the study, I drew insights from the work of Yin (2003**)**, who has given a rationale for choosing a case study. Those relevant for this study are those the research aim focuses upon, showing behaviours and experiences and exhibiting psychological interventions in treating TBI. These cases are what the study sought to describe and understand in a heuristic way.

In this way, a case study can be described, following Yin (2014), as an empirical enquiry that investigates a contemporary phenomenon within its real-life context. In carrying out a case study, it is important to be clear about what the case is. In this connection, Kekeya (2021) argues that a case can be a single unit, such as one individual or one group; or an organisation, such as an institution or a program. In this study, TBI survivors who have been through various stages of the healthcare pathways since sustaining TBIs were categorised as listed in Table 4.1. The question of how the participants were selected is outlined below.

At the time of the study, I was working as a psychologist who worked with road accident survivors who had sustained TBIs. I, therefore, had access to 45 medical records/files. The files entailed medico-legal reports with recommendations from various experts as well as psycho-legal reports with recommendations based on the results of the victims' neuropsychological assessments. From these files, cases were first categorised in accordance

with the classification of the severity of TBI. Three categories were established as shown in the table below.

Table 4. 1 Distribution of Participants by Severity of TBI

Category of severity of TBI	Number of selected participants
Mild	1
Moderate	2
Severe	2
Total Participants	5

A purposive sample of five participants was selected. According to Hennink and Kaiser (2022), sample sizes in qualitative research are typically lower because the focus is on gathering precise, rich data from persons with special knowledge or experiences. This strategy is especially useful in studies involving specialist groups, such as those with traumatic brain injury (TBI), since a smaller sample size allows for more in-depth involvement with each participant. Persons (2023) adds to this perspective, stating that the goal of qualitative research is not broad statistical representation, but rather an in-depth investigation of participants' actual experiences. In the case of TBI patients, this provides for more concentrated and relevant knowledge of their cognitive and psychological states, as well as the role of interventions. Despite the small sample size, this methodology improves data quality and depth, which is critical for investigating complicated disorders such as TBI.

All participants were from Kwa-Zulu Natal. The ethical implications of my approach to the study are detailed in the section on ethical considerations. The sample was purposively selected to support the depth of a case-oriented analysis. I purposively selected five participants by their capacity to provide richly textured information relevant to the phenomenon under investigation. To conduct phenomenological interviews, I selected a total of five participants with fairly representative demographic characteristics of the population of the study. Refer to 4.3.2. below regarding the representativeness and generalisability of this study. Furthermore, consequent to the fact that the primary focus of the study was on exploring access to healthcare through assessing the healthcare pathways, I deemed that, to

work with information-rich cases, I had to have participants whom I had assessed more than two years previously, and whose cases against the RAF had been finalised, as well as two recently injured participants. The decision to choose participants from those on whom I had conducted the assessments was, in part, informed by the fact that the instructions or referral letters for the neuropsychological assessments I was given were only for the purposes of the assessment in order to determine the presence of any neuropsychological sequelae, the extent to which their functioning in various areas of functioning had been negatively impacted, impairment rating, and prognosis. These assessments are ordinarily constitutive of once off encounters with the clients. Inasmuch as there is a professional relationship, which the practitioner conducting the assessments would have developed with the clients, it is not entirely the same as the therapeutic relationship, which is ongoing and based on the collaborative bond, consisting of the working alliance, transference/countertransference, and the real relationship.

However, working with participants who would have been assessed by a different practitioner – a neutral practitioner – would have yielded more objective findings. In light of the foregoing acknowledgement, it is important to indicate that there are complications embedded in the fact that there are not any other studies similar to this study which have been conducted before. Also, the referral system in the private sector, particularly regarding the RAF claims-related matters, poses some challenges. Against the backdrop of the forgoing, selecting participants evaluated by other practitioners proved to be a challenge, mainly due the confidentiality agreements between the said psychologists and the referring or instructing individuals and organisations. Furthermore, the researcher works as both the defendant's and plaintiff's psychologist, who engages in the joint minutes with virtually all the other psychologists in KwaZulu-Natal. Therefore, it might have been complicated to obtain permission from the organisations or firms that would have referred the clients to the other practitioners, as they know the researcher as a psychologist who is often on the other side (the defendants' or other plaintiff attorneys'), and also because of the uncertainties arising due to the litigious nature of the context in which they work. I, then, opted to obtain permission from the firms or organisations to which I provide my professional services, who would not suspect any hidden agenda. However, I was not oblivious to the issues of ethical conundrum embedded in having the clients I assessed in my professional capacity as my participants.

In minimising the risks posed by ethical dilemmas, and avoiding potential conflicts of interest, I formulated an informed consent and information sheet that explained the purpose of the

study, that, for example, the study had no bearing on their RAF claims, that the information they shared for the purposes of the study would be kept confidentially, that they were empowered to decide against participating in the study and discontinue participating in the study at any stage, that there would not be any financial incentives for participating in the study, and that there would not be any consequences or repercussions for withdrawing from the study at any point. These were explained in detail at the beginning of each interview, and the participants were asked if they understood everything explained to them, and they were encouraged to ask any questions. Refer to Appendices Two and Three.

The relevant ethical considerations are explained under the ethical considerations section below. Refer to 4.11 below.

The rationale was that it was expected that the participants assessed more than two years previously would have been through various stages of healthcare pathways and they would provide rich information based on their unique experiences, which would be contrasted against the information provided by the recently injured participants.

4.3.2. Justification for the Selection of Participants

As Ataro (2020) explains, the purpose of phenomenological data collection is to understand the essence of social phenomena from the perspective of those who experience it. In other words, the focus was on 'digging deep' into the experiences of the five participants from each classification of severity category. The data was collected through in-depth interviews. Interview is considered to be the most common method of qualitative data collection. Interviews involve conversations with the participants for the purpose of collecting data. They are often preferred because they enable researchers to easily understand the actual feelings of the participants regarding the phenomenon under study. When an interviewer finds repetition of the same information from the subjects, that is when saturation is considered to have been reached (Saunders et al., 2018). In reaching said point, the number of interviews conducted has an impact. The researcher found repetition of the same information during the third interview, probably because of a homogenous population.

Since there has not been sufficient research on the area upon which this study focused, and given the extent of the complexity and sensitivity of the TBI phenomenon, working with

larger samples and more independent or neutral researchers, focusing on the areas this study identified, would be handy in improving TBI care.

The particular five participated voluntarily, as they were willing to share their experiences at their convenience. Furthermore, as this was a case study design, the issues of representativeness and generalisability do not apply to this epistemology – instead, understanding and laying the ground for further research is what is important.

4.3.2.1. Case Description

The cases involved in the study are presented separately under the aforementioned categories of the classification of the severity of TBI (mild, moderate, and severe categories), which were used as a component of the selection criteria. The names of the participants are pseudonyms. This was done for ethical reasons.

4.3.2.2. Participant One (Mild TBI)

Mr. Collett sustained a mild head injury in a motor vehicle accident in 2021 when he was a passenger travelling with his family. The accident occurred in Hilton, KZN. He lives in the aforementioned area. He is a 52-year-old White English-speaking male South African. He is married and has two children. He has had difficulty resuming running his small business as he was self-employed in running a cafeteria. He holds a diploma in Business Management. After the accident, he reports that he sometimes hears voices that are not heard by anyone else. He has become increasingly short-tempered and quick to anger, grapples with low self-esteem, has become socially withdrawn and avoidant, has become forgetful, has decreased concentration levels, is suicidal, and often experiences accident-related nightmares, flashbacks, and travel anxiety.

4.3.2.3. Participant Two (Moderate TBI)

Mrs. Monalisa is a 39-year-old married African woman (Zulu ethnicity) who sustained injuries to the head in a motor vehicle accident (head-on collision) when she was driving from work in 2017. The accident happened in KwaMashu Township, KZN. She lives in the area of the incident. She holds a degree in Human Resources Management. She was, and still is, employed as an Industrial Relations Officer. However, she reports that her work ability has

since deteriorated. She is divorced and has become more vulnerable after the accident. She reports grappling with depression, anxiety, mood problems, and memory problems.

4.3.2.4. Participant Three (Moderate TBI)

Mrs. Singh is a 38-year-old Indian South African woman who was knocked over by a vehicle while crossing the road in the Umhlanga area, KZN, sustaining a head injury in the process. The accident happened in 2019. She is married and has three children. She holds a Bachelor of Science in Information Technology degree. She was employed as an office manager at a private company that provides IT-related solutions. She had difficulty returning to work in the aftermath of the accident. She reports still grappling with depression, anxiety, personality changes, mood problems, and memory loss.

4.3.2.5. Participant Four (Severe TBI)

Mr. Sibisi is a 23-year-old third year LLB student who sustained a head injury in a car accident that happened during 2021. He was involved in the accident as a passenger in a taxi that had capsized. He has since failed numerous modules, as a consequence of which, he has not been able to complete his degree. He is originally from a deep rural community in Pongola, KZN. He reportedly presents with mood swings, shyness, low self-esteem, irritability, significant memory loss, and reduced concentration span.

4.3.2.6. Participant Five (Severe TBI)

Mr. Henker is a 32-year-old Coloured male. He is married and has one child. He holds an N6 certificate in Mechanical Engineering. He was involved in a motor vehicle accident in 2019. He was a driver involved in a head-on collision. The accident happened on the N2 on his way to Umhlanga, KZN. He lives with his family in Newlands West, KZN. He used to run his mechanical workshop before the accident. However, his workshop was shut down after the accident in question. He laments grappling with anxiety, poor memory, concentration problems, reduced thinking ability, emotional and mood problems, adjustment difficulties, and personality changes.

The cases described above were part of the participants with whom I worked in the practice-based research part of the design.

4.4. Practice-Based Research

The other aspect of the design was practice-based enquiry. According to Horn et al. (2015), practice-based research (or practice-based evidence) is a research approach that collects real-world clinical data from diverse healthcare settings to evaluate psychological treatment effectiveness. This approach was particularly relevant to this study, as it allowed for a reflective examination of my own practice and its outcomes. This study aimed to explore the role of psychological intervention strategies in facilitating access to appropriate care pathways for traumatic brain-injured patients. In South Africa, Practice-based approach was used with notable results by an intervention project in the Eastern Cape (Lipinska & Thomas, 2017). The project identified six interrelated process steps that characterise PBE.

- **IDENTIFY** an issue or element, for example, what survivors of TBI present with, and what the appropriate course of treatment is. Then, collect information about that to understand it more clearly or glean deeper insights.
- **GENERATE** as many ideas for action (strategies) as possible and make an action **PLAN** with the action strategy that seems most useful in the context of those being treated.
- **ACT** by carrying out the plan and systematically collecting information about what happened.
- **REFLECT** together, as practitioners and participants, about what happened.
- **EVALUATE** what happened, draw conclusions (to what extent was the treatment action successful and why).
- **PLAN** the next action that is needed to achieve the vision.

The practice-based approach in this study was primarily employed to ensure that the study is ethically grounded as the researcher was also a practitioner. The ethics of practice-based research are outlined in the ethical considerations section below.

4.4.1 Justification for a Practice-Based Approach

Working within a phenomenological attitude (see section 4.2.3 above), Johnston et al.'s (2017) research sought to demonstrate how 'insider' knowledge and experience related to the research questions can be used to both explicate assumptions and pre-understandings of a

health phenomenon (such as TBI) under study, and to generate additional data. In other words, far from being viewed as a conflict of interest, tangible benefits can be derived from insider/outsider issues arising out of practice-based research of health phenomena. Johnston et al. (2017, p.582) state that:

> Ultimately, the objective of health research […] should be to improve practice and aid in the provision of better health outcomes for all; ensuring methodological rigour assists in acceptance of qualitative research findings and allows a variety of perspectives to inform healthcare practice and policy development.

The foregoing authors' words capture the leitmotif of a practice-based approach to researching the role of psychological interventions in the management of TBI, as encapsulated in the phrases "improve practice", "better health outcomes", "ensuring methodological rigour", and "inform healthcare practice and policy development." The ideas here foreground what follows in the sections of the chapter that follows.

4.5. Methods of Data Collection

To enhance the credibility of the empirical work of the study, I employed methodological triangulation by collecting data from and through phenomenological interviews and insights from the practice-based enquiry process (also see the section on Research Quality). Dźwigol and Dźwigoł-Barosz (2020) view triangulation as a combination of methods and techniques through which empirical data are obtained. However, they go on to warn that the researcher must be consistent with the ontological and epistemological orientation in which the study is located. They further argue that the triangulation strategy must consist of complementary methods and techniques that will allow for the gathering of convergent results.

Although Abdalla et al. (2018) raise caution in the use of triangulation, pointing out that the process is contested in the social sciences, some doubt its usefulness and others stress its importance. Following the principles of research quality outlined below, my position in this study is that it is important to be aware of the strengths and pitfalls of triangulation. I take the view that there are times, such as in the context of this study, when it may be necessary to combine methods, given the ever-present weaknesses of relying on a single methodological route to data collection. Thus, as detailed below, I used a combination of phenomenological interviewing and principles of a practice-based enquiry.

4.5.1. Phenomenological Interviewing

It has been argued that phenomenological interviewing is suitable for research which seeks to capture accounts or descriptions of lived experiences, to develop an in-depth understanding of the phenomenon, which in this case is the psychological treatment of TBI. Thomas (2020) advises that, during the process of interviewing, the researcher must maintain an attitude of openness and be able to manage emotions that can be co-created during the dialogue, especially when dealing with TBI participants who may be suffering from the disorders discussed in Chapter Two.

Hence the statement that:

> Rather than attempting to suppress emotions, phenomenologists must strive to fully embrace them. Feelings can lead to new insights regarding the phenomenon. It is the researcher's task to stay the course in turbulent waters with the participant while experiencing multiple layers of feelings that are ethically and epistemically important (Thomas, 2020, p.40).

The above guidance resonates with the ethical concern of reflexivity. Armed with the above technical principles, in this study, I conducted in-depth interviews with a view to capturing accounts or descriptions of lived experiences.

4.5.2. Data Collection in Practice-Based Intervention Research

As a psychologist researcher, working with participants who are clients, I had to adhere to all the relevant ethical considerations. The following information was recorded for each participant: pseudonym, age, gender, time since injury, length of coma if any, injury severity (i.e. mild, moderate, or severe, as explained in Table 2.3 in Chapter Two above), coma score report (i.e. Glasgow score), type of injury (i.e. TBI or Acquired Brain Injury [ABI]), cause of injury (e.g. pedestrian vehicle accident or motor vehicle accident), and a description of the injury (e.g. subdural haematoma). This information was easy to gather as I had access to the participants' files and professional insight into the medical and psychological concepts and descriptors. How this study employed a practice-based approach is explained under 4.3 and 4.4.1 above. The use of phenomenological interviews allowed me to gain an emic (internal) view of participants' beliefs about the role of psychological intervention strategies as part of healthcare pathways.

4.5.3. Unstructured Interviews

In-depth interviews were chosen for this study because it was a conversation with a specific purpose. In other words, in-depth interviews were selected in this study because there was a goal to be pursued. The unstructured interview questions are included in Appendix II. The study used in-depth interviews as they were repeated face-to-face meetings between the researcher and informants, aimed at understanding the participants' views of their lives, experiences, or situations. According to Kumar (2005), unstructured interviews should be a dialogue between researchers and informants. The aim was to access a record of the participants' life experiences related to the phenomenon.

Interviews were used in this study, especially unstructured in-depth interviews, as these are considered to be one of the best data-gathering methods in qualitative research, as set out by Marshall and Rossman (2006), who argued that the main goal of the in-depth interview strategy is to understand the deep meaning of the experience in the participants' own words. This study's in-depth, unstructured interviews were critical as they provided insight into the participants' perceptions and experiences. In this study, unstructured in-depth interviews helped me get information or interpretations specific to the respondents. In this study, extensive, unstructured interviews were carried out.

The phenomenological, unstructured interviews were conducted in a room at the practice facility, and their duration varied. The interviews were recorded, following obtaining informed consent from the participants.

While qualitative in-depth interviews are recommended as a method of data collection in qualitative research, they have advantages and disadvantages. In this study, interviews were seen as a way to get data quickly. Interviews have some drawbacks in that cooperation is essential, and the interviewer may not ask questions that evoke long narratives (Marshall & Rossman, 2006). Chapter Six of this study substantively puts this into perspective as it concludes the combination of empirical data and literature.

4.6. Data Sources

This study used primary and secondary data sources to collect data from participants in the South African province of KwaZulu-Natal. To make the primary and secondary data more reliable, interviews were conducted with people with first-hand experience. Primary data includes interviews, empirical observations, case studies, and life stories. In contrast,

secondary data sources include the participants' neuropsychological reports and available reports from other experts, books, academic journals, published research reports, and medical records. The difference between primary and secondary data is that while the former is "constructed by the researcher in connection with his or her research project", the latter is "constructed by others, co-investigators or not, for purposes that may or may not be researched" (Kallet, 2014, p.19).

Constructively, and in contrast to some opinions, secondary data is not necessarily inferior to primary data. It is believed that secondary data allows for a wider range of interpretations, increasing the consistency and scope of the study. In addition, websites useful to scientific organisations and databases for the study were used or consulted to increase the credibility of sources in the above material. The evidence in this set of data sources provides an adequate basis for answering the study's main research questions: i.e. to evaluate the scope and effectiveness of intervention strategies recommended by clinical psychologists for the rehabilitation of survivors of TBI.

4.7. Data Analysis and Interpretation

Participants' responses were recorded in preparation for data analysis. The qualitative research in this study has produced raw data that makes no sense unless the data is subjected to in-depth analysis. The main purpose of data analysis is to understand these vast amounts of data. Data analysis in this study highlighted inductive analysis, exposing patterns, themes, and categories in the data, as summarised by Patton (2002), which develop inductively from the data and rise to a higher level of abstraction through the concepts of analytical induction. It is also necessary to recognise that data analysis is not an activity that takes place entirely at one point. This study used Huberman's (1994) idea of a cyclical or recursive process of data collection to analyse data in the research project.

In this study, the data were analysed according to five phases, as emphasised by Creswell (2018): data management, immersion, memorisation, description, and classification. The steps used in this study appear to summarise the steps outlined by Marshall and Rossman (2006), namely: organising data; generation of categories and themes, immersion in data, data encryption, giving interpretations through analytical memory, and the search for alternative insights.

4.7.1 Data Management

I stored the recorded data and transcripts in an encrypted folder on my computer used for the purposes of research only. Furthermore, the data was labelled with the participants' pseudonyms. Each participant's data was also classified by thematic categories, so that linked data sets could be easily retrieved and analysed. The study adopted the philosophy of Patton (2002), according to which the organisation of analysis begins with an inventory of what data there is, and then the question arises, "Are the field records complete?" To make this possible, data organisation and validation became central aspects of the management process. Each stage involved a systematic evaluation of the acquired data to ensure that no information was missing or incomplete.

As Creswell (2018) confirmed, data management is the first step, in which researchers must organise their data into folders, records, or files on a computer. In this study, each item of data was systematically categorised and filed according to the participants' pseudonyms and the type of information recorded. Regular backups were also done to prevent data loss. This method ensured that the data was well-organised, secure, and easily accessible for analysis. The transcribed data was saved according to the sequence of the interviews to guard against mixing up the data. Furthermore, the folder's name was such that it does not give an indication that it contained research-related data. Then, the contents of the folder were encrypted to prevent any possible unauthorised access.

4.8. Description, Classification, and Interpretation

The qualitative data in this study was sorted by topic and category, which constituted a data segmentation process. Segmentation divides data into meaningful analysis units (Johnson & Christensen, 2008). This study created categories through long-term interactions with data, evolving these categories into segments where data segments were stored (Marshall & Rossman, 2006). By delving into the data, the researcher categorised patients' perceptions of the impact of intervention strategies on facilitating access to appropriate healthcare pathways for the survivors of head injuries following car accidents in the South African province of KwaZulu-Natal. The main purpose was to define categories with internal and external homogeneity related to the phenomenon studied. Patton (2002) affirmed that internal homogeneity refers to the extent to which data belongs to a particular category or is

meaningfully related, while external homogeneity refers to how differences between the categories are clear and graphical.

Subject identification has been linked to a category process. Gibson and Brown (2009) argued that subject analysis refers to analysing data based on similarities, contexts, and differences within the dataset. This research used content analysis, a technique that analyses both the content and context of documents (Krippendorff, 2018). Topics were identified while considering the way the topic was presented and its frequency of occurrence. The study, concretised by Gibson and Brown (2009) pursued the following objectives for a thematic analysis:

- Examining common similarities of the data, including finding ways to combine all examples from the dataset into categorisation.
- Studying differences to find and analyse functions and contrasts within a given dataset and examining their potential relevance to specific research questions; and
- Relationship studies, where researchers examine the relationships between different elements in their analysis.

The use of categories and topics was crucial in developing codes widely used in data analysis.

4.9. Offering Interpretations

As mentioned earlier, qualitative data lacks inherent meaning, so interpreting qualitative data is essential. Marshall and Rossman (2006) state that interpretation involves telling the story. Gibson and Brown (2008) agree that interpretation seeks to create meaning from data and develop creative perspectives on it. In this study, the researcher collected answers from study participants. Based on the identified themes and categories, the researcher presented a holistic view of participants' perceptions of the impact of intervention strategies on survivors of motor vehicle accident-induced head injuries in KwaZulu-Natal Province, South Africa.

Marshall and Rossman (2006) advise the researcher to determine how useful the data segments are in supporting the new narrative to shed light on the problems studied and their centrality to social history phenomena. The data was interpreted using hermeneutic phenomenology.

4.10. Research Quality

It is argued that if qualitative research is to contribute to knowledge through its findings, it is crucial to ensure rigour in every aspect of the research process. In this study, the researcher was guided by a framework of rigour developed by Daniel (2019), consisting of trustworthiness, auditability, credibility, and transferability (TACT). The four dimensions of the TACT framework are outlined below:

4.10.1. Trustworthiness

One of the key features of trustworthiness is that it should reveal the degree of trust or confidence readers have in the qualitative research findings. Therefore, qualitative researchers must demonstrate different ways in which the outcome of their study can be trusted. To achieve this, it is necessary to be explicit about the phenomenon under study. Thus, the clarification in the literature review chapter of the phenomenon of intervention strategies and the treatment of traumatic brain injury (TBI) was essential. Furthermore, as argued in the methodology and ethical consideration sections, the employment of reflexivity tools is crucial to demonstrate an acceptable degree of integrity in compiling research outcomes. An important point raised by Daniel (2019) is that it is not important that the reader necessarily agrees with the researcher, but rather that the reader can follow how the researcher arrived at the conclusion.

4.10.2. Auditability

The dimension of audibility, according to Daniel (2019), can be categorised into two types. External audibility involves subjecting the research results to verification. Authentic findings and conclusions must be auditable regarding the systematic procedure for collecting, analysing, and interpreting data. Following Guba and Lincoln (1989, p.243), who termed this an "audit trail," an acceptable level of auditability must include evidence such as field notes, memos, pictures, and other sources used during data collection and analysis. Internal audibility relates to methodological issues, including clarity of the research questions and alignment with the research design, data analysis, and conclusions drawn.

In other words, all parts of the study, including the entire empirical work, must be read as a cohesive whole (thesis) that communicates a clear, auditable research outcome. In this study, the researcher sought to achieve audibility by documenting the research thought process and

procedures, from the motivation of the study, the statement of the research problem and questions, and the review of related literature, to the theoretical framework, the ontological and epistemological basis of the research design and methodology, data analysis, and findings.

4.10.3. Credibility

The idea of credibility straddles across and incorporates some elements of trustworthiness and auditability outlined above. It also leans on quantitative concepts of internal validity, which involve the issue of reliability in quantitative research. According to Daniel (2019), credibility is similar to audibility and is achieved through a careful description of the data analysis and verification of sources of data obtained with participants from whom data was collected. A further critical element of credibility is triangulation. It is argued that triangulation relates to the convergence of data obtained using two or more sources and techniques. Methodological triangulation described in Section 4.5 is an example of how this study sought to achieve credibility.

4.10.4. Transferability

The essence of transferability is that findings obtained from one study can be applied to other settings with similar groups of people. In other words, using the same methodology, the experiences of the role of psychological treatment interventions for head-injured survivors of MVA from KZN should offer valuable lessons to participants in Johannesburg or other similar settings. To achieve the measure of transferability, the researcher must compare the characteristics of the participants or informants to the demographic information available on the group being studied. The study also articulates the delimitation of the research and the context in which it was undertaken, including the choices made during data collection and analysis. This study drew on the four principles of the TACT approach to enhance the quality of the research.

4.11. Ethical Considerations

This section explores the ethical considerations that guided the study. It covers a range of issues, from permission to conduct the study and obtaining ethical clearance from the institution of study (i.e. the University of Zululand) and the law firms involved, to those

articulated by Wassenaar (2006), who outlined four pillars of ethical consideration in social science research. These include informed consent, confidentiality, anonymity, and freedom to withdraw. However, due to the special circumstances in which the study was conducted, this section covers other pertinent ethical issues, including researching what might be seen as vulnerable research participants and the dilemma of the insider/outsider set-up in the research process. How I understood each of these aspects and their application to the empirical work of the study is discussed below.

4.11.1. Ethical Clearance from the Institution and Permission from the Law Firms Representing the Participants

The study received ethical clearance from the University of Zululand as well as permission from law firms to conduct the study on TBI survivors. The University Research Ethics Committee approved the study after assessing its design and methodology and found no significant ethical problems. While it is true that issues of multiple relationships and potential conflicts of interest were immediate concerns in this type of research, these issues were explored and controlled throughout the study. The researcher took precautions to reduce potential bias by fully informing participants about the nature of the study (that their participation and the information they would subsequently provide would have no bearing on their RAF claims) and preserving absolute confidentiality of their personal and clinical information. Furthermore, attempts were made to distinguish between the researcher's roles as a clinician and researcher to avoid undue impact on participants' replies. In this regard, the participants were empowered to give honest views with regard to their experiences, as the study was aimed at contributing to the improvement of TBI care. The University Research Ethics Committee accepted the study after assessing the precautions that had been put in place, with the understanding that these possible ethical issues had been considered. Nevertheless, the foregoing does not negate the need for future studies to be conducted by neutral researchers. Therefore, while all the critical ethical issues were considered and the researcher rigorously minimised the risks posed by the ethical dilemmas throughout the study, the researcher opines that, had the study been conducted by a totally neutral person, the findings of the study would have been without any blemishes concerning the aforementioned ethical issues.

Evidence of meeting these ethical requirements is attached in the appendices section of this thesis. Having satisfied the ethical requirements above, it was important to ensure that, during

the data collection process, I applied rigour in adhering to the accepted ethical principles of conducting the type of research design outlined above. The rigour applied included obtaining informed consent from all participants, protecting anonymity with pseudonyms, and securely storing data in encrypted files. I also made sure that participants were fully aware of their freedom to withdraw at any time without any consequences. Furthermore, I used strategies to reduce potential bias, such as distinguishing between my roles as a practitioner and a researcher and preserving transparency throughout the study process to encourage trust. These measures were important in maintaining the study's ethical integrity and making sure that the research process followed the highest ethical standards.

4.11.2. Informed Consent

Wilkins and Forester (2019) argue that an important cornerstone of research ethics is the principle by which people who participate in a research study are supplied with the necessary information to make informed and voluntary decisions regarding their participation. The authors further add that taking this step is a show of basic respect for persons in the study, which is then formalised as informed consent and can be scrutinised by a board or committee that awards ethical clearance. In this study, participants were informed of the study's purpose and the procedures used to collect the data, with the assurance that there were no potential risks, costs, or conflicts of interest. They were further treated as autonomous agents by giving them more detailed information about the study and giving them the option of participating or not, as well as the option of withdrawing whenever they felt like it.

4.11.3. Anonymity

The essence of anonymity is that research participants must be assured by the researcher that their identities will be protected and that the information given will be used for research purposes only (Morrison et al., 2011). In the instance of the two newly injured patients, they were made aware that their neuropsychological reports, for which they were referred in the first instance, were already prepared and had been sent to their representatives, and that the pertinent referral questions (terms of reference for the assessments) were different from the research questions and objectives. On the basis of the foregoing, the participants were assured that the information they supplied throughout the research process would only be used for the purposes of the study.

Clear distinctions were made between clinical and research functions. I informed the participants that the information they volunteered in the research setting would not be used in their clinical treatment or medico-legal reporting. Furthermore, a stringent approach, which ensured no information was exchanged between clinical notes and research data, was employed through not retrieving their files during or after the interview process.

Although Gordon (2019) critiques the notion of anonymity in research, (s)he nevertheless acknowledges a range of arguments in favour of the practice from the perspective of research participants. Apart from the fact that it can be empowering and allow individuals to speak candidly without fear of being identified, it also protects the individual from harm and promotes data integrity. In this study, to maintain the principle of anonymity, the data collection was conducted in such a way that the researcher did not associate certain information with the people who provided it (Ruane, 2005). Also, as suggested by Singleton and Straits (2020), anonymity was achieved by removing names and other identifying information from data as quickly as possible, without revealing the identity of individuals in research reports. Pseudonyms were used when referring to a research participant who provided data.

4.11.4. Confidentiality and Vulnerability of the Participants

As outlined in the section on the characteristics of the participants and techniques of data collection, it can be argued that the participants in the study could be seen as vulnerable. Following the characterisation by Pieper and Thomson (2020), vulnerability signifies that research participants have characteristics and circumstances that warrant extra protection. The authors further state that the importance of sensitivity when dealing with vulnerable participants is emphasised by the United Nations Educational, Scientific, and Cultural Organisation's (UNESCO) Universal Declaration on Human Rights. The fact that the personal integrity of such individuals must be protected is highlighted.

In this study, participants were survivors of MVA accidents who had suffered TBI. This means that they could be seen as vulnerable individuals who were in a 'captive' research situation with a psychologist exploring the impact of treatment interventions. Pieper and Thomson (2020) argue that the notion of vulnerability must be nuanced, as inherent sources of vulnerability are an inescapable element of the human condition. What is important is that

the researcher must identify and manage sources of vulnerability that contribute to the reduction of personal agency.

As a psychologist-researcher, I had to ensure that I maintained a delicate balance of sharing sensitive information about the TBI condition while maintaining the privacy and dignity of the participant. Confidentiality was maintained in this study by keeping data records in a secure location, accessible only to the researcher. The research results were used for research purposes only. Participants were assured that the data provided would be used exclusively for research purposes.

4.11.5. Beneficence and Nonmaleficence

One of the key ethical principles in research is that of beneficence and nonmaleficence, where research participants receive treatment while the psychologist-researcher collects data (Varkey, 2020). In this study, as the researcher, I had only conducted neuropsychological assessments on the participants as a psychologist rather than providing treatment over a long period of time. However, I emphasised to each participant right at the beginning of each interview, that their participation in the study had no bearing on their reports that had already been finalised and sent to the referring attorneys.

In this study, MVA accident survivors suffering from TBI were handled according to these principles. Varkey (2020) makes clear distinctions between the two terms. “Beneficence”, refers to the obligation of the researcher to act for the benefit of the patient, which, in this study, refers to the TBI research participant. In exercising this principle, the researcher is obliged to protect and defend the rights of TBI participants and remove conditions that may cause harm. It also calls for the researcher to ensure participants benefit from the process and that their welfare is promoted. Beneficence can further be seen as a payback to society and participants for the privilege of acquiring and producing psychological knowledge and skills for the treatment of TBI.

However, the focus of this study was to explore the experienced effects of the treatment intervention. Regarding “nonmaleficence”, it is evident that the practical application involves weighing the benefits of the interventions and treatments against the negative impacts thereof, to avoid those that are inappropriate or undesirable. The aforementioned principles were particularly relevant during the practice-based enquiry (PBE) aspect of data collection. Helps (2017) is explicit about the ethics of researching one’s own practice, such as the PBE

intervention, as ethically complex but feasible. Person's (2023) findings support the above, which states that doing research inside one's clinical practice context allows for direct application of findings and comprehension of the process involved.

In applying the PBE approach to data collection, the researcher managed the dual task of being a researcher and practising psychologist, having conducted neuropsychological assessments and having prepared psycho-legal reports on the participants as clients. To deal with this complexity, I spoke openly with the participants, making sure they knew the difference between the assessments and the study. Data collection took place independently from assessment sessions, and all research data was securely and anonymously archived to avoid any crossover with clinical records. These methods were instrumental in maintaining ethical boundaries and avoiding any potential conflicts or biases. Helps (2017) further recommends that the complexity should not be avoided because it can be safely managed. It can be seen in the data collection section during PBE above that the principles of beneficence and nonmaleficence were built into the process and, therefore, guided it. The researcher managed the tasks while adhering to ethical standards by setting clear limits and guaranteeing openness.

4.11.6. Insider/Outsider Issues in Practice-Based Research

The psychological intervention constructed as Practice-Based Enquiry has features of research carried out in a clinical context by practitioners delivering treatment to TBI patients. This creates a duality of insider/outsider on the part of the psychologist-researcher. When such a situation arises, it can be assumed that there are power dynamics at play, as the service provider (psychologist-researcher) with "expert" knowledge of TBI occupies a position of power. At the same time, in delivering TBI treatment, the researcher becomes highly familiar with the people (s)he studies, thus operating as an "insider."

However, stepping back from the lived experiences of TBI survivors to collect data places the service provider (the psychologist-researcher) as an "outsider." Sapiro and Matthews (2020) suggest managing insider/outsider effects on data collection by carefully addressing the duality of power and control. If this remains unresolved, research may merely replicate the prevailing hierarchy of expert knowledge by failing to authentically capture the lived experience of research participants.

Avoiding this risk requires careful attention to complex dynamics of power, control, and dominance between the investigator and participants, and an awareness of how these dynamics influence the knowledge-building process. Sapiro and Matthews (2020) identify two main points in which the insider/outsider situation can promote good research: insiders may better understand participants' nuanced reactions, and participants may feel free to volunteer more detailed information if they perceive the insider researcher as sympathetic. Given the issues raised in the insider/outsider debate, it is argued that managing them to produce quality research without adopting a reflexive stance would be difficult.

4.11.7. Reflexivity in Research

Smith and Luke (2021, p.165) view reflexivity as an "act of exploring one's subjectivity throughout the research process […] it […] is an intersubjective act in which self, other, and self-in-relation-to-others are considered and recognized." In seeking to achieve the aims of this study and using data collection methods outlined earlier, as well as the ethical considerations outlined above, it can be seen that reflexivity is an ongoing negotiation process throughout the research process. Following the ethical concern of reflexivity, the researcher navigated the complex epistemological and methodological challenges of the study's research design, as outlined in the various sections in this chapter. Conducting the research process to yield trustworthy data required constantly adopting a reflexive stance.

4.12. Chapter Summary

This chapter describes the research methodology used to understand the subject of this research. This section of the research thesis presented the methodology chapter divided into six subsections: study design, study area, target population, sampling and sampling procedures, methods and tools for data collection, and operationalisation of the variables and concepts used in this study, including the data analysis plan. In this study, the researcher used qualitative methods with quantitative research elements, such as biographical data from the intervention program and tools for collecting data from family members.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1. Introduction

This chapter presents the data collected from TBI survivors. The narrative is arranged according to themes derived from the research questions and categories that have emerged from in-depth interviews.

5.1.1. Selected Demographic Characteristics of Participants of the Study

The demographic characteristics of the five cases of TBI survivors described in Chapter Four are summarised in Table 5.1 The table provides ease of reference for the purposes of connecting participants' responses to the research questions of the study.

Table 5. 1 Summary of Selected Demographic Characteristics of TBI Survivor Participants

Participant	Age	Gender	Ethnicity	Race	Occupation	Education	Lives in
1	52	Male	English	White	Self-employed	Tertiary	Small Town
2	29	Female	Zulu	Black African	Formal employment	Tertiary	Durban Township
3	38	Female	Indian	Indian	Formal employment	Tertiary	Durban Suburb
4	23	Male	Zulu	Black African	Tertiary Student	Tertiary	Deep Rural
5	32	Male	Coloured	Mixed Race	Formal employment	Tertiary	Durban Suburb

It can be seen from Table 5.1, that of the five participants who participated in the interviews, three were males and there were two females. In terms of ethnicity and race, these appear to mirror the demographics of the wider South African population. Concerning occupation, apart from one who was self-employed, the rest were in formal employment. It should be

noted that this sample does not reflect the broader demographic diversity in terms of educational levels, occupation, or living areas. The participants lived in urban areas, except for one who lived in a deeply rural area.

Although the cases of TBI participants constitute a small number, they give a snapshot of the experiences of people struggling with TBI, which are interpreted using insights from literature and a theoretical framework. It can be argued that the role of any health intervention, as well as the provision of a sustained care pathway that leads to recovery, can be accessed through investigating the lived experiences of the patients in traversing the journey and the outcomes of it. Thus, the narratives that follow capture the experiences of the participants as they interacted with medical and psychological experts and how that facilitated their access to healthcare as well as whether, during the consultations, the journey to recovery became clear.

5.2. Experiences of TBI Survivors

Some of the key insights that have emerged from the conceptual framework in Chapter One and the literature review in Chapter Two can be summarised as follows:

TBI is multidimensional. When it comes to treatment, it is time-sensitive, as seen through the lens of the intersectionality theoretical framework as outlined in Chapter Three. The illness lends itself to the need for the treatment regime to be cognisant of multiple structurally derived factors that can militate against the recovery of the survivors. In addition to the foregoing conception and contextual issues within which TBI is addressed, there is also the complexity and variety of TBI healthcare paths in various international settings.

Against this backdrop, the study found out from the participants how their encounters with various experts assisted them in embarking on a healthcare journey that they saw as being in line with their felt needs. The first theme, therefore, focused on this aspect.

5.2.1. Clarity of Healthcare Pathways

When asked about their experiences on medical handoffs, that is, the transfer from one healthcare provider to another, the following were the responses:

Participant One:

I have been to four [care providers] so far; I think you are the fourth one. I have been told I still need to see three more […] I think it was the orthopaedic surgeon, an occupational therapist, a neurosurgeon, and you as a clinical psychologist. They only saw me once for the purposes of my [Road Accident Fund] claim. I am not sure [of the one I am yet to see], but I remember an industrial psychologist being mentioned. **(Appendix 1)**

Participant Two:

I think I was seen by a total of ten doctors before my claim was settled. All of them only carried out evaluations rather than any treatment. I was advised that after the doctors appointed by my attorneys had submitted their reports, the decision for the Road Accident Fund to appoint their own doctors was taken so that they could compare the findings made by the initial doctors. I know I saw two neurosurgeons, psychologists, orthopaedic. surgeons, and others whose areas of specialisation I cannot recall. All of them only carried out evaluations rather than any treatments. **(Appendix 1)**

Participant Three:

I was seen by a neurosurgeon, clinical psychologist, occupational therapist, industrial psychologist, and ENT specialist. They were all about evaluation and examination. When I asked for the treatment, they told me that they were instructed to evaluate and report on their findings […] Yes, I am done, and I have received my pay-out. They were all about evaluation and examination. **(Appendix 1)**

Participant Four:

Yes, I think it was an occupational therapist, a neurosurgeon, an industrial psychologist, an orthopaedic surgeon, and clinical psychologist. I saw them for examinations only, and I only saw them once […] Yes, I have never received any treatment from any of them […] they used to tell me that they were seeing me for assessment purposes only. **(Appendix 1)**

Participant Five:

I was seen by six experts in total. It was an occupational therapist, a neurosurgeon, an ENT specialist, an industrial psychologist, an orthopaedic surgeon, and clinical

Psychologist. I was seen by them for assessment purposes only. I am done as my claim was settled a year ago. **(Appendix 1)**

The data from all five participants in the study indicate three sets of issues. The first is that none of them exhibited an understanding of what medical handoffs or handover meant for their health needs. This, by implication, also means that none of them had any sense of where they were going in their health journey – a pathway towards their recovery. The second point that arises from the data is that the healthcare providers did not focus on the treatment of TBI per se – the providers were preoccupied with conducting assessments to make recommendations to the Road Accident Fund (RAF), which compensates survivors for their injuries.

The TBI survivors themselves also seemed to think their encounters with providers were all about the facilitation of payment from the RAF, as Participants Three and Five thought they were "done" when they received payment from the RAF. Only Participants Two, Three and Four showed awareness of the need for treatment by stating that the experts "only carried out evaluations rather than treatments."

The third point is that the TBI survivors were only referred to see various experts, including biomedical experts, clinical psychologists, industrial psychologists, occupational therapists, among others, for evaluation purposes – apparently without them understanding where all this was leading them to.

5.2.2. Timeliness of Seeing Healthcare Professionals

The issue of timeliness in attending to TBI is emphasised in the literature. When participants related their experiences with regard to the period that had elapsed before they were referred to the first expert, their responses pointed towards significant delays, over which they had no control. This paints a picture, which is not very promising, for their recovery.

Participant One:

I think I waited for almost two years. I was increasingly getting frustrated as I was experiencing more complications, and I could not afford to pay private doctors since I stopped working after the accident due to failing to cope with my work demands. My attorneys informed me that they would tell me when it was time for seeing the doctors

[….] I was told that there were processes that still had to be followed before I could start consulting with the doctors. **(Appendix 1)**

Participant Two:

It took a good two years before I started attending the assessment sessions. It was draining and disappointing to say the least. At some point I thought it was never going to be finalised. My attorneys informed me that they would tell me when it was time for seeing the doctors. **(Appendix 1)**

Participant Three:

I think I waited for 18 months before my first assessment. I was told that it was a procedure that you wait for a certain period before you can undergo evaluations. **(Appendix 1)**

Participant Four:

I think I waited for two years. I was told that the processes stipulated that I had to wait for a certain period before I could start attending the appointments with different doctors. **(Appendix 1)**

Participant Five:

I think I waited for almost two years. I was told that, that is how it was done. **(Appendix 1)**

As can be seen from the responses from participants, it took an average of two years for them to see the first expert (refer to pathway). When probed further about what explanations were given for the delays, all the participants were given disempowering answers, which implied that their fate was dependent on the actions of the experts. Particularly poignant revelations can be picked up from Participant One, who was given the answer that, *"there were processes […] before […] consulting with doctors."* Participant Two was informed that she would be told "*when it was time for seeing the doctors*." Participant Three was told that *"processes stipulated […] to wait*." Participant Four gave similar reasons, and Participant Five was simply told that that is how things were done.

From the foregoing experiences, it is clear that the interests of the TBI survivors, as the main stakeholders, appeared to be given a back seat. The experts depicted themselves as knowing best what was good for the TBI patients because the reasons for the delays remained

mysterious and were framed as undisclosed technical reasons. It is hard to see how this kind of 'silencing' of TBI survivors' voices – despite the already perilous delays in attending to their health needs – can be in the interest of delivering healthcare that leads to recovery. The serious challenge in this regard is that the system, with regard to the RAF assessments, is related to the injury claim assessment, which would then inform the treatment aspect. Given the sensitivity and complexity of TBI and its sequelae, causing the victims to wait for prolonged periods without any form of intervention leaves space for deterioration of the survivors' post-morbid health conditions. The system seems to prioritise assessments, which is understandable; however, the system should demonstrate requisite sensitivity to TBI and possible complications if left untreated for prolonged periods. The possibility of maximum recovery or improvement is significantly compromised through the delays embedded in the system.

5.2.3. TBI Survivors' Experiences of Delays in Consultation with Experts

The participants were asked about how the delays in attending to their illnesses affected them. The responses indicate that the participants paid a heavy health toll. In the words of Participant One, "*I was increasingly getting frustrated as I was experiencing more complications, and I could not afford to pay private doctors since I stopped working after the accident due to failing to cope with my work demands*" **(Appendix 1).**

This demonstrates how three negative consequences of the delay – frustration, complication of the illness and not coping with work – **intersected** in the case of this individual to exacerbate the TBI condition. Equally concerning are the experiences of Participant Three who felt hard done by and let down "*because I had gone for more than three years without any treatments for headaches, nosebleeds, dizziness, personality changes, and depression"* **(Appendix 1).**

The examples of what the two participants experienced lends support to the view that pushes for timeliness in attending to the TBI condition. Failure to do so, as the two participants have stated, leads to suffering and potentially to complications, which can undermine the road to recovery. As if delays in accessing health care were not a big enough threat to the recovery and rehabilitation of TBI patients, the participants reported other challenges that they had to contend with.

5.2.4. TBI Patients' Articulation of the Challenges they Faced in Accessing Healthcare

As a follow-up to the delays, which were not explained convincingly, participants were asked to share what they saw as challenges they met in accessing health care that they needed.

Participant One:

> *The biggest challenge is that all the experts' services are too expensive. The issue is that, once you have started pursuing the claim so that you may get the compensation you deserve on the basis of the injuries sustained, you cannot seek any significant treatment or surgery because the ones who would examine you for the claim purposes have to identify and quantify the problem so that the compensation is congruent with the degree of the injuries. The problem with all of that is that you have to endure all these difficulties while waiting for the right time to start seeing the doctors for the examinations*. **(Appendix 1)**

Participant Two:

> *The public hospitals don't have enough capacity as I could not get the help I had sought. The psychologist was alone and had lots and lots of people to see. Another issue was the lack of money since most psychological services are expensive. I had to wait for more than five years before I could get help.* **(Appendix 1).**

Participant Three:

> *It was the issue of affordability as I was waiting for my claim to be processed and finalised*. **(Appendix 1)**

Participant Four:

> *It's the fact that most services are expensive. Also, it's the fact that you have to wait for a long time before you could get compensated so that you can access the services of the doctors.* **(Appendix 1)**.

Participant Five:

> *It's affordability problems and the fact that we don't have all the experts in our rural communities.* **(Appendix 1)**

From the foregoing responses, the one challenge that all participants mentioned was the unaffordability of services. These responses, however, conjure up two strands of issues. The one is that if the care pathway remains unknown to those who seek it, as responses in theme

3.2.1 show, then how would they even be aware of the costs associated with consultations? The other strand demonstrates the constellation of factors that affect an individual with TBI needing healthcare. The fact that the patients struggle to afford even assessment and evaluation of injury stages, even before treatment begins, means that even if they knew the path of their health journey, affordability would still be a handicap.

The forgoing appears to be tied in with the expectation to receive compensation from the RAF, which takes its own course of claim processing that does not necessarily follow the dictates of the health timeliness needs of the person with a TBI. Related to this issue is what Participant Two mentioned and what was implied by Participant Five with regards to a lack of resources. The fact that Participant Five lamented the lack of experts in rural areas gives an example of how being in a resource-constrained rural environment, along with an individual's injury-related health needs, causes further disadvantages.

5.3. Experiences with Psychological Interventions

Despite the lack of a clear pathway of interventions for accessing healthcare, delays, as well as resource challenges encountered in the delivery of health services, the participants exhibited mixed experiences – from expressing adverse consequences of TBI to a glimmer of hope reported in other interactions with psychologists. These are captured under their sub-themes, Consequences of TBI, Psychological Assessments following TBI and Psychological Treatment of TBI Consequences.

5.3.1. Consequences of TBI

The participants were asked to narrate their lived health experiences following TBI.

Participant One:

> *I have seen a lot, and I am afraid because I think I have become mentally disturbed. I sometimes hear voices that are not heard by anyone else; I have become increasingly short-tempered and quick to anger; I think I have a low self-esteem; I have become socially withdrawn and avoidant; I have become forgetful; my concentration levels have decreased; I am suicidal, and I often experience accident-related nightmares and flashbacks and travel anxiety. I think I will never be okay again. I have become useless*. **(Appendix 1)**

Participant Two:

> *I was mostly worried by depression, anxiety, mood problems, and memory loss.* **(Appendix 1)**

Participant Three:

> *I am grappling with mood swings, personality changes, depression, anxiety, and concentration and memory problems.* **(Appendix 1)**

Participant Four:

> *I have mood swings; I am shy; I have a low self-esteem; I get easily irritated; I forget a lot, and my concentration span is reduced.* **(Appendix 1)**

Participant Five:

> *I have psychological problems that started after the accident. I have anxiety, poor memory, concentration problems, reduced thinking ability, emotional and mood problems, adjustment difficulties, and social withdrawal.* **(Appendix 1)**

As can be seen from the data, all the participants reported cognitive impairments, which undermined their wellbeing and functioning in society. This is in line with what is extensively covered in literature as resulting from TBI (Mullally et al., 2024). These conditions underline the importance of timely diagnosis and channelling into appropriate healthcare interventions. Furthermore, although cognitive challenges may be induced by TBI, intersectionality theory also cites socio-structural conditions as factors that can lead to cognitive struggles, or complicate those caused by TBI.

5.4. Clinical or Neuropsychological Assessments

As seen in previous chapters, psychological assessments are an important part of charting a recovery journey for TBI patients. It is a stage where sequelae, as well as the type and nature of psychological problems, are determined. Participants were asked about what help they got from psychological assessment. The responses of the participants are given below.

Participant One:

> *Assessment will benefit a lot because the assessment results will confirm if indeed the problems I have stated are present, and if they are, the extent to which they are compromising my functioning. Also, the assessment results will help me know if there are other psychological problems I have that I probably did not notice or could not describe. Then, I think there will be suggested treatments that I would then seek after the settlement* **(Appendix 1).**

Participant Two:

> *My situation was deteriorating prior to the psychological services. My relationship with my kids was becoming toxic because of me. Now I am much better. I am also grateful to my kids who were also engaged by my psychologist on how to support and care for me* **(Appendix 1)**.

Participant Three:

> *It helped in terms of discovering the psychological problems I have and the extent to which they affected me. I also think the assessment helps in quantifying the final pay-out* **(Appendix 1).**

Participant Four:

> *I think the assessment results will help me understand myself better. Also, I think it will help in finalising my claim* **(Appendix 1).**

Participant Five:

> *The assessment helped me have insight into my psychological problems. It also helped in the finalisation of my claim. The therapy sessions have been helpful as I now feel much better; I have improved moods, less anxiety, better relationships with my family, and my concentration has improved* **(Appendix 1).**

What the participants shared regarding psychological assessment communicates a mixture of feelings of relief and anticipation that their health fortunes would be turned around for the better after encounters with clinical psychologists and neuropsychologists. This communicates an unquestioning trust in the assessment process, a factor which places huge responsibilities on those carrying out the assessments and those who design the assessment measures. Once again, intersectionality theory raises awareness of factors beyond

psychological interventions in the form of a TBI patient's material conditions and issues of the power of experts in pronouncing the outcomes of the assessment. Chapter Six delves into the potential for these to impede or promote the road to recovery.

5.6. Psychological Treatment of TBI Consequences

If the TBI patients are to be assisted to recover from their injury (shared by the participants in 3.3.2 above), it falls upon the experts they consult to advise them of where to go to receive appropriate psychological treatment. The participants were asked about what psychological treatment they had received and their experiences of it.

Participant One:

> *Long time ago, I would have sought psychological treatment. I want to feel myself again. I want to live a normal life again. However, I cannot afford to pay the fees* **(Appendix 1).**

Participant Two:

> *No, in fact the private doctor I had seen a few months after the accident advised me to seek psychological help from a private psychologist who would see me over a long period. However, the problem is the same issue of affordability. Yes, I did see the need, and even my family sees the need as we often talk about it, but we cannot afford the services* **(Appendix 1).**

Participant Three:

> *Yes, I only saw a psychologist for assessment purposes. I think the interventions would be impactful* **(Appendix 1).**

Participant Four:

> *No, I have not seen any psychologist for treatment apart from being assessed by them once. I was advised that you need to see a psychologist for a long time and you would need a lot of money. I could not afford such services. Yes, I need treatment* **(Appendix 1).**

Participant Five:

> *Yes, like I said, I started seeing a psychologist after the settlement of my claim because I always wanted to, but I could not afford it* **(Appendix 1).**

From the responses, it would appear not much happened to treat the mental health challenges they expressed above in section 3.3.3, which are well-documented in the literature. The responses reveal a feeling of desperation, for example, when Participant One expresses a feeling of wanting to "be myself again", and Participants Two, Four and Five, together with family, see the need for psychological treatment; however, they are constrained by lack of "affordability" to consult psychological services.

If the services come at a cost that TBI victims are unable to pay for, they face major obstacles in obtaining appropriate care, despite being aware of the need for psychological consultation. The main issue is a lack of financing, which interferes with their recovery. Herein lies another line of research which could focus on what happens to such 'abandoned' TBI survivors. The next chapter, Chapter Six, proposes a framework for developing relevant and sustainable interventions and care pathways for TBI patients.

5.7. Chapter Conclusion

This chapter presents and analyses data from the five interviewees who participated in the study. Although their profile in Table 5.1 shows a small number of, largely, educated participants, who were in gainful employment, they still reported barriers related to material deprivation and lack of a well-defined healthcare pathway. This may signal a bigger problem that could have been revealed had a larger sample, which included more materially deprived TBI survivors, participated in the study. In light of this observation, another study, which should include more diverse cases of people living with TBI, should shed more light on the nature, treatment and care as well as other related interventions.

CHAPTER SIX

DISCUSSION OF FINDINGS AND INSIGHTS FROM LITERATURE

6.1 Introduction

The previous chapter presented the data analysis; this current chapter is designed to discuss the empirical findings obtained from the selected participants while examining the role of psychological intervention strategies regarding access to healthcare for TBI survivors. The argument embedded in the aim has two aspects. One is to contribute to a quest for a better understanding of TBI as a disease process, and the other is to uncover the role of psychological intervention strategies in setting TBI patients onto a clear roadmap that leads to desired health outcomes. This focus was inspired by insights gleaned from the literature review – and corroborated in the data – from which it could be understood that there is a knowledge gap, indicating that little is known about what happens to TBI survivors after consulting with various professionals, such as psychologists and biomedical practitioners, for assessment purposes.

In other words, this suggests that the health outcomes of psychological and medical interventions are not known. Given this, it is important to investigate how this disparity affects the recovery and overall wellbeing of people with TBI. Debating the issues can also yield ideas to inform the crafting of and implementing of future interventions. In this connection, this chapter discusses the empirical findings of the study while drawing insights from the literature and the theoretical framework. This is done under three main thematic areas: Social and Material Conditions of TBI Survivors, Emerging Afrocentric Contributions, and a Framework for Building Improved Intervention and Care Pathways.

6.2 Summary Discussion of Key Research Findings

This section of the study presents a summary of the discussion of the research findings. In this regard, I examine and elucidate the relevance of the findings, contrast them with current knowledge, appreciate constraints, and imply future study paths in the discussion of research outcomes.

6.2.1 Theme: Clarity of Healthcare Pathways

A care pathway seeks to improve the quality of treatment across the continuum by means of improved risk-adjusted patient outcomes, patient safety promotion, patient satisfaction enhancement, and resource optimisation. Findings from the participants through the data collected show that all five research participants have three sets of problems. The first one was evident in the fact that none of the participants demonstrated awareness and understanding of what medical handovers or handoffs meant for their particular health requirements. This, by implication, means that none of them had insight into where they were heading towards in terms of their recovery journey.

The second observation from the data is that the healthcare professionals were more concerned with conducting evaluations to provide recommendations to the Road Accident Fund (RAF) regarding the survivors' claims for compensation, than providing treatments to TBI survivors. The findings show that some of the participants felt that they were "done" after they got compensation from the RAF. The TBI survivors themselves also tended to believe their interactions with providers were entirely aimed at facilitating their RAF payments.

The foregoing findings are at variance with what Moore et al. (2021) have suggested – that survivors of traumatic brain injury (TBI) negotiate complex healthcare systems that include both diagnostic and medico-legal tests, as well as rehabilitative interventions – as the findings indicate that the practitioners only conducted assessments, and they did not provide any rehabilitative interventions. Kommal (2022) provides context to this by stating that, in South Africa, the Road Accident Fund (RAF) claim procedure plays an important part in medico-legal assessments, which are largely concerned with assessing compensation rather than direct patient care. This, by implication, means that precedence tends to be given to compensation over rehabilitation.

Furthermore, there are two broad categories of post-TBI healthcare participation, particularly from a psychological point of view. The first category entails medico-legal assessments that are conducted largely for RAF claims, with a view to determining the extent of injuries for legal and financial objectives (Bainbridge, 2015). Bainbridge (2015) further argues that said assessments do not necessarily help the patient heal, but rather serve as a means of determining compensation. However, in South Africa, there is rising fear that RAF-related

tests may take priority over actual rehabilitation because of the financial incentives involved, resulting in a healthcare focus that is more claim-driven than patient-centred.

Against the backdrop of the foregoing literature, the findings suggest the fact that, when the survivors are seen by practitioners, they are assessed only as a result of a referral system that prioritises assessments geared towards compensation. It does not come as a surprise, therefore, that some survivors would consider themselves to be done once they have been compensated because, from the very beginning, emphases had never been on rehabilitation, but on the compensation-driven assessments.

6.2.2 Theme: Timeliness of Seeing Medical Professionals

Patient wellbeing and satisfaction depend on timeliness in healthcare, which is the speed and efficiency of obtaining and getting appropriate treatment. Delays might, thus, affect health results and negatively impact prognosis. Findings from the participants indicate that their experiences concerning the period before they were directed to the first expert were unfavourable, as there were prolonged delays over which they had no control.

The findings show that their first assessments with practitioners were preceded by prolonged periods of uncertainty and confusion – an average of two years. When they were asked further about the reasons for the delays, all the participants responded with disempowering responses, suggesting that their fate depended on the professionals' actions. All this is in spite of the fact that delayed or inadequate treatment of brain injuries raises the mortality or permanent handicap risk (Stocchetti & Zanier, 2016). Furthermore, in Uganda, where prehospital and in-hospital delays and non-adherence to standardised treatment lead to hospital mortality as high as 45% to 75%, this was also considered especially of great concern. Given the participants' experiences, it is understandable why there are those participants who felt let down and unfairly treated.

6.2.3 Theme: Experience of Delays in Consultation with Experts by TBI Survivors

The participants were asked about how the delays in attending to their conditions affected them. The findings indicate that the participants paid a heavy health toll.

This finding demonstrates how three negative consequences of the delay – frustration, complication of the condition and its sequelae, and not coping with work and daily functioning – exacerbate the TBI condition.

A study conducted by Galgano et al. (2017) indicated that early diagnosis and treatment involving suitable treatments can enhance survival.

According to Mehmood et al. (2021), efforts to lower delays, raise quality, and enhance outcomes of TBI treatment can be informed by better knowledge of the timeliness of care for patients with TBI and the variables predictive of treatment time in the resource-constrained environment of Uganda. Whilst the foregoing might be about TBI treatment in Uganda, the findings show that the TBI survivors in South Africa go through the same experiences.

6.2.4 Theme: TBI Patients' Challenges in Accessing Healthcare

As a follow-up to the delays which were not adequately explained, participants were asked to share what they saw as challenges in accessing the healthcare that they needed. The findings indicate that the unaffordability of services was a challenge. However, these findings bring up two strands of problems. If the care pathway is blurred to individuals seeking it, how would they ever be aware of the expenses connected with consultations? The other strand shows the constellation of elements influencing a person with TBI seeking treatment. Even if the survivors understood the course of their health journey, cost would still be a hurdle as they would struggle to afford testing and evaluation of damage levels even before therapy starts. The foregoing seems to be linked to the desire to get compensation from the RAF, which follows its own course of claim processing that does not necessarily follow the dictates of the health timeliness demands of a person with a TBI.

In line with the foregoing finding, is Knighton et al.'s (2018) suggestion that financial constraints, restricted access to critical health care, and a lack of sufficient resources all hurt TBI survivors' general wellbeing and chances of recovery.

It has been argued that a patient who lacks basic resources for living and resides in a neighbourhood with limited healthcare facilities, can be characterised as materially deprived. Material deprivation is closely related to socio-economic measures such as income, education level, and poverty, among others, which are correlated with healthcare disparities in terms of both provision and health outcomes (Knighton et al., 2018).

Although the social and material conditions of the participants in this study were not directly investigated, what can be gleaned from their profiles are some elements of material deprivation. For example, nearly all study participants showed concern about the cost of healthcare. While the participants might have been motivated by the RAF compensation, which is available to all road accident survivors regardless of their financial status, to go through the process of being assessed so that they could be cleared for RAF compensation, the cost of healthcare, which is high, also probably motivated them to go through all the processes so that, once they have been compensated, they would be able to seek healthcare services responsive to the challenges they present with in the accident aftermath. Notwithstanding the small sample size, the problem of material deprivation is significant. However, since nearly all participants have tertiary education, their level of deprivation may be less severe compared to the broader population.

The other challenge some participants cited was poor resources in the health facilities. Participant Five, in particular, pointed out that the type of experts he had consulted were not poised to serve in rural communities, thereby undermining the delivery of any needed interventions – be they psychological or biomedical – all of which are essential if a TBI patient is to stand a chance of recovery. The above circumstances demonstrate how a TBI patient can be in a space where three adverse conditions – lack of affordability, poor health resource provision, and lack of health experts or professionals – intersect to deprive an individual of healthcare

Yet, it stands to reason that materially deprived patients require interventions that are designed to mediate the impact of material deprivation on the healthcare outcomes of TBI patients. Furthermore, not only should materially deprived patients receive tailor-made interventions, but also, for this to happen, there must be clear healthcare pathways.

6.2.5 Theme: Consequences of TBI

All the participants reported cognitive impairments which compromise their wellbeing and functioning in society. This is in line with what is extensively covered in literature as resulting from TBI (Mullally et al., 2024). These conditions underline the importance of timely diagnosis and channelling into appropriate healthcare interventions. Furthermore, although cognitive challenges may be induced by TBI, intersectionality theory also cites socio-

structural conditions as factors that can lead to cognitive struggles, or complicate those caused by TBI.

Furthermore, cognitive (e.g. impairments in attention, memory, and executive function) and behavioural (e.g. aggressiveness, poor impulse control, irritability, anhedonia, or apathy) symptoms may emerge, and psychiatric/affective disorders may begin or worsen (Gómez-de-Regil et al., 2019).

This points to the fact that cognitive difficulties as a result of TBI are quite prevalent and cause interference in the survivors' ability to assume normal roles in various areas of functioning, especially those that place significant demands on the survivors' higher mental functions.

6.2.6 Theme: Personal Experiences with Psychological Interventions

Despite the lack of a clear pathway of interventions for accessing healthcare, delays, and resource challenges encountered in the delivery of health services, the participants exhibited mixed experiences – from expressing adverse consequences of TBI, to a glimmer of hope reported in other interactions with psychologists. These are captured under their sub-themes, Consequences of TBI, Psychological Assessments following TBI, and Psychological Treatment of TBI Consequences.

In this regard, it is important to emphasise that the participants' experiences were not solely about the assessments that were conducted by the researcher, but they were also about their experiences with the other psychologists they had seen for psychological treatment, especially those who had already been compensated. However, the researcher is aware that the positive responses regarding their experiences with psychological services might, to some extent, have been influenced by the fact that the researcher had already seen them of assessments. On the other hand, though, this does not apply to those participants who had been seen by other psychologists. Nevertheless, this is addressed in the methodology chapter above and limitations section below.

6.2.7 Theme: Neuropsychological or Clinical Evaluations

What the participants shared regarding neuropsychological or psychological assessments communicates a mixture of feelings of relief and anticipation that their conditions would improve after encounters with clinical psychologists and neuropsychologists. This demonstrates trust in the assessment process. Once again, intersectionality theory raises awareness of factors beyond psychological interventions, in the form of a TBI patient's material conditions and issues of the power of experts in pronouncing the outcomes of the assessment.

In line with the foregoing finding, are the findings of the study by Nwoye (2015) that participants were questioned about the assistance psychological tests provided, and they noted that the psychological assessments reveal a combination of relief and expectation that, following visits with neuropsychologists and clinical psychologists, their health fortunes will be turned around for the better. This conveys pure faith in the assessment process, which is very important for those who administer the tests and those who create the evaluation criteria.

6.2.8 Theme: Psychological Approach to TBI Consequences

Findings reveal that the survivors of TBI do understand that they need psychological interventions. However, they are constrained by lack of "affordability" to consult psychological services.

If the services come at a cost that TBI victims are unable to pay for, they face major obstacles in obtaining appropriate care, despite being aware of the need for psychological consultation. The main issue is a lack of financing, which negatively impacts their recovery prospects.

6.2.9 Theme: Social and Material Conditions of TBI Patients

In recent years, there has been a growing body of research reporting that health systems that ensure continuity of care through the treatment chain are likely to improve health outcomes for TBI patients (Cuevas-Østrem et al., 2023). While this proposition has become conventional wisdom, data from this study, as well as information from literature, reveal an array of barriers relating to the social and material conditions of TBI patients. Financial constraints, restricted access to critical health care, and a lack of sufficient resources all hurt

TBI survivors' general wellbeing and chances of recovery (Knighton et al., 2018). At the same time, however, exploring impediments has also been shown to uncover prospects for the realisation of desired outcomes for target individuals, the health system, and society at large. Addressing these issues could assist in closing the gap between existing healthcare and the needs of TBI patients, thereby improving both their physical and psychosocial recovery (Knighton et al., 2018). For analytical purposes, it is useful to discuss the sets of issues under two interconnected and mutually reinforcing strands of material deprivation and TBI health interventions and care pathways. Through eliminating both material deprivation and systemic healthcare constraints, health interventions can be better targeted to suit the varied needs of TBI patients, resulting in more comprehensive and effective rehabilitation.

6.3. TBI Health Interventions and Care Pathways: Challenges and Prospects

The matter of care pathways for TBI patients has eluded many researchers and practitioners across the globe. Elaboration of this point is done from the angle of Western-aligned interventions, i.e. bio-psycho-socio-ecological linked interventions and care pathways, as well as the efficacy of both biomedical and psychological assessments.

a) Bio-Psycho-Socio-Ecological Linked Interventions and Care Pathways

The importance of a well-defined care pathway has been highlighted by Steyerberg et al. (2019), whose study in Europe revealed that the achievement of desired health outcomes is undermined by two interrelated factors: poor understanding of care pathways, and the characteristics of TBI patients who are meant to benefit from the service. This is in line with the findings of Tenovuo et al. (2021) who contend that it is a basic issue that does not only limit therapy effectiveness but also causes major delays and mismanagement. In a similar vein, Tellmann (2022), in a United Kingdom study, reported that most TBI patients received treatment which was either inadequate, inappropriate, or delayed. This highlights the greater systemic issue of healthcare channels being fragmented, resulting in patients not receiving timely or appropriate therapies. Equally pessimistic was the report by the National Academies of Sciences, Engineering, and Medicine (2022), which concluded that, in the United States, there were widespread misunderstandings by the public and professionals regarding the long-term consequences of TBI, their manifestations, proper detection, treatment, and rehabilitation. This lack of awareness contributes to the previously existing obstacles and

challenges to receiving adequate care for TBI patients, compromising their recovery and long-term results.

The picture painted by the studies cited above from countries that are among the most well-resourced in the world underlines the need to build clear, appropriate healthcare interventions, grounded in relevant knowledge bases that inform the design of a roadmap for recovery from TBI. In this study, the care pathway, as shown in Figure 1.2 in Chapter One and the data from the five participants who shared their experiences, reveals similar gaps – possibly worse than those identified in the wealthier countries. One of the findings of this study points to a lack of a well-defined roadmap for TBI patients' recovery.

As reported in the previous chapter, the participants were simply transferred from one service provider to another, apparently without them understanding the rationale for the medical handoffs – a situation that suggests the absence of clear healthcare pathways, and system that prioritises RAF claims. This subjects vulnerable clients to prolonged waiting periods before they could even be seen for the assessments, and practitioners without proper insights to advise patients accordingly. While a lack of well-defined pathways can be seen as one of the major barriers to TBI recovery chances, another fundamental quandary is that focusing on psychological interventions only addresses one aspect of the TBI universe. This point will be explained further below. For now, it suffices to highlight the fact that TBI interventions happen in the context of a complexity of interactions and interconnectedness of legal requirements (for example, the RAF claims), health systems consisting of a variety of service providers, material conditions of TBI patients, the milieu in which they live, and professionals working under specific regulations.

This line of thinking gives due prominence to individual TBI survivors' location within a given context, which can enable or inhibit individual and community wellbeing. In other words, and as intersectionality theory outlined in Chapter Four explains, any interventions that focus only on the individual TBI patient level, at the exclusion of wider contextual dimensions, cannot deliver the desired health outcomes. This also means that the design and implementation of healthcare pathways for TBI patients must necessarily be informed by considerations at resource provision levels as well as knowledge and expertise levels.

b) The Efficacy of Clinical Assessment: Biomedical and Psychological

It has been argued that Western psychological clinical assessments, although globally universalised, may still carry the risk of misdiagnoses that can either undermine efforts to set a TBI patient onto a recovery roadmap, thus lessening chances of recovery, or set the patient on the wrong healthcare path with equally detrimental consequences. To unravel the apparent conundrum, it would be useful to cite areas of controversy in clinical assessments, for example, questions have been raised about the classifications of TBI into 'mild,' 'moderate,' and 'severe.' Tenovuo et al. (2021) raise the issue of the stability of the categories/classifications on which treatment and decisions about healthcare pathways are to be made.

The authors argue that despite the complexity, variability, and individuality of TBI classification, it still uses what they see as unreliable and patho-physiologically poorly understood measures, whose prognostic and long-term predictive value are doubtful. Tenovuo et al. (2021) recommend that it is time for change and the need to build international "consensus on how risk assessments should be defined, and on how imaging, physiologic, and molecular biomarkers can be incorporated into such assessments" (p.5).

Related to the above is the debate raised by Nielsen and Staios (2023), who cast the spotlight on psychometric assessment tests such as the supposedly culture-fair Wechsler Adult Intelligence Scale-IV (WAIS-IV), which is currently used globally and in South Africa. Nielsen and Staios (2023) warn that the test performance in cross-cultural high-stakes situations, such as in TBI assessments, must be properly contextualised and interpreted with caution, as they may not reflect cognitive impairment.

> [C]ognitive assessment tools play an essential role in objective evaluation of individuals with cognitive impairment and assessment of their clinical response to interventions. However, existing cognitive screening tools are susceptible to cultural and linguistic biases when adapted for use in different populations [while] scoring in different languages can be minimised by standardization, differential item functioning, occurring due to the effect of cultural and linguistic influences on cognitive processes, may be harder to eliminate. Other well-known sources of bias such as education, literacy, and age further add to the complexity (p.859).

With these cautionary notes lies the possibility of misdiagnoses, misclassifications, and ultimately, flawed healthcare pathways. To consolidate Tellmann's (2022) postulations, it can be said that no credible or effective TBI healthcare interventions and care pathways can emanate from only one discipline in isolation from other disciplines or perspectives. Put differently, it is time that, while inter- and/or trans-disciplinary interventions to TBI are being considered within Western scholarship and medical practice, Afrocentric frames of reference need to be brought to the fore and compared with the Western frames to deliver appropriate solutions for TBI patients and society at large. The development of culturally relevant approaches to TBI care is ideal.

6.3. Emerging Afrocentric Contributions

This study, in Chapter Two, ventured into Afrocentric perspectives in healthcare provision and detected some areas of overlap and possible contribution. However, this study did not investigate the Afrocentric perspectives. In formulating a framework for designing and enacting fit-for-purpose interventions and healthcare pathways, which is presented below, the research drew insight from both the findings of the study and literature review. The idea of interconnectedness of people, animals, and inanimate objects is, for example, strong in the Afrocentric worldview – and is also accommodated in the Western bio-psycho-socio-ecological thinking. In addition to this angle, is the dimension of spirituality which features highly in African cosmology and ways of being. According to this perspective, to understand wellbeing, which is the goal of providing healthcare services to TBI patients, interventions must be informed by a holistic perspective, where an individual is "understood in relation to others – the living, the yet to be born, and those who came before – as well as the world around a person" (Simango & Segalo, 2020, p. 82). This idea is captured in Figure 2.1 in Chapter Two.

The Afrocentric worldview emphasises spirituality, human connectivity, and the significance of ancestral energies in influencing individual and societal wellbeing. These factors influence how health is seen and managed, especially in the case of traumatic brain injuries (TBI). Mokhosi and Grieve (2004) suggest that some health disorders, such as TBI, are frequently attributed to supernatural influences, with ancestral and spiritual beliefs serving as primary explanations. According to Juma (2011), this worldview emphasises the interdependence of the physical, mental, and spiritual realms, with sickness considered as a disruption in the balance of these forces.

Simango and Segalo (2020) further argue that, if Western psychological interventions on, for example, TBI-linked cognitive impairments are to be used in an African context, for healing to take place, they must draw on African Spirituality and African knowledge systems in general. Western literature has shown that cognitive impairment can have a myriad of clinical manifestations whose impact on health-related quality of life is not well understood (Gorgoraptis et al., 2019). Herein lies one of the grey areas that can become a line of exploration into Afrocentric perspectives for answers, or at least types of explanations. This disparity in understanding highlights the significance of including Afrocentric viewpoints in creating a more comprehensive approach to TBI treatment. According to Galganoet al. (2017), the Afrocentric approach emphasises a balance of body, mind, and spirit, with the emergence of injury, including TBI, being linked to spiritual or ancestral origins rather than just biological ones. This viewpoint provides a unique lens for comprehending the complicated nature of TBI and its long-term implications on individuals, implying that rehabilitation necessitates treating the physical impairment and also the spiritual and social components of the individual.

An input that can contribute to plugging the knowledge gap in this respect is the postulation by Simango and Segalo (2020) that spirituality is central to "African essentiality of spirit, the African process of knowing and comprehension may be better understood as the interplay of radiations, vibrations, fields, planes, waves, and points of energy between and among the realms of reality" (p. 80). Put differently, a human being is a unity of the body, mind, and soul (spirit) – they cannot be separated. Incorporating these African philosophical elements into TBI therapies may enable more individualised care paths that consider the patient's entire life experience, including spiritual beliefs, social context, and familial obligations.

Arising out of this perspective, therefore, TBI-related cognitive impairments should not be pathologized – instead, as featuring strongly in the Afrocentric perspective, cognitive functioning should be assessed holistically (mind, body, and soul) to understand, explain and craft tailor-made interventions and a roadmap to recovery. An example from Galvin et al.'s (2023) depiction of an Afrocentric healthcare pathway is captured in Figure 2.2 in Chapter Two. It can form one of the foundations for developing care pathways which are fit for purpose in African conditions. This pathway offers a more inclusive, culturally sensitive approach to care that takes into account spiritual and community-based traditions, in addition to the more traditional medical model of care. This strategy is essential to ensure that TBI patients receive comprehensive care that addresses all elements of their health and wellbeing.

In summation, it can be said that none of the paradigms – the bio-psycho-socio-ecological or Afrocentric – have all the answers to the intricacies of TBI-induced illnesses and the treatment and care trajectory that leads to recovery and reintegration into society. They need to cross-fertilise knowledge and techniques of service delivery for the benefit of TBI patients. However, combining both concepts could result in a more balanced, culturally acceptable, and holistic form of TBI care. Combining information and approaches from both Western and Afrocentric viewpoints, the healthcare system can better fulfil the unique requirements of TBI patients, promoting more effective recovery and reintegration into society.

6.4. A Framework for Building Improved TBI Interventions and Care Pathways

One of the main insights from this study is that TBI is multifaceted, complex, and an entanglement phenomenon at all levels, from causes to interventions. It has been argued by Arosio et al. (2020) and Muthama and McKenna (2024) that, when dealing with complexity and intersectionality in social life, specifically in TBI prevention, mapping, and executing the recovery care journey, it is useful to invoke one of the famous adages from an ancient philosopher that "the whole is greater than the sum of its parts". In other words, an entangled and complex public health challenge, such as TBI, can neither be explained nor resolved from disparate and disjointed intervention strategies (or parts) without focusing on the whole TBI universe.

Relating this adage to this study (and as pointed out above) psychological interventions are only one part of the "whole" – the universe in which TBI happens and is managed. Indeed, as seen in the literature reviewed in this study, given the elusive nature of issues around the prevention, management, and treatment of TBI, there is a growing quest to recognise and seek to understand – to leverage – the links and interconnectedness of phenomena in ways that can lead to the achievement of desired health outcomes. To contribute to the pursuit of clarity on the TBI pandemic, this study proposes a framework that can lead to the creation and enactment of improved TBI care pathways.

The foregoing line of thinking is summarised in Figure 6.1 below, which has been built from the insights from literature and data. The figure captures and seeks to demonstrate the possibilities of developing a strong TBI survivor nexus, where intersecting inputs and relationships would be put together into a coherent compendium of fit-for-purpose

interventions – so that the whole is greater than the sum of its parts. Some thoughts on how this can be achieved are outlined below.

The argument depicted in Figure 6.1 is that at the centre of any healthcare intervention pathways are the TBI survivors. This means that TBI survivors are placed at the nexus where a myriad of material conditions and influences intersect to shape their experiences in ways that should form the basis of defining and mapping the road to their recovery. What has emerged from the literature, and interviews with participants in this study, is that interventions from agencies are not coordinated and do not give a sense of well-defined pathways, let alone cater to the diverse complex needs of TBI patients.

To elaborate further, it can be seen from Figure 6.1 that a substructure upon which six nodal spaces of interaction must be utilised strategically. These are "Regulatory Frameworks", "Afrocentric Interventions", "Traditional Assessments", "Clinical Assessments", "Western Aligned Interventions", and "TBI Survivor", nested on "Mechanisms for Navigating and Monitoring Healthcare Pathways." All must use their defined mandates to operationalise the purposes that have been promulgated and perform their roles in delivering coherent, quality interventions in a concerted way.

The configuration depicted in Figure 6.1 is designed to show how nexuses intersect with the TBI survivor as the centre of focus. To deliberately design interventional infrastructure that lays out a roadmap or pathways for TBI survivors towards their recovery and reintegration into society, how the nexuses work and should work must be identified, analysed, and understood to form the basis of health service delivery practices. This formulation lays the backdrop for unpacking the potential contribution and role of each aspect of the nodal spaces in Figure 6.1.

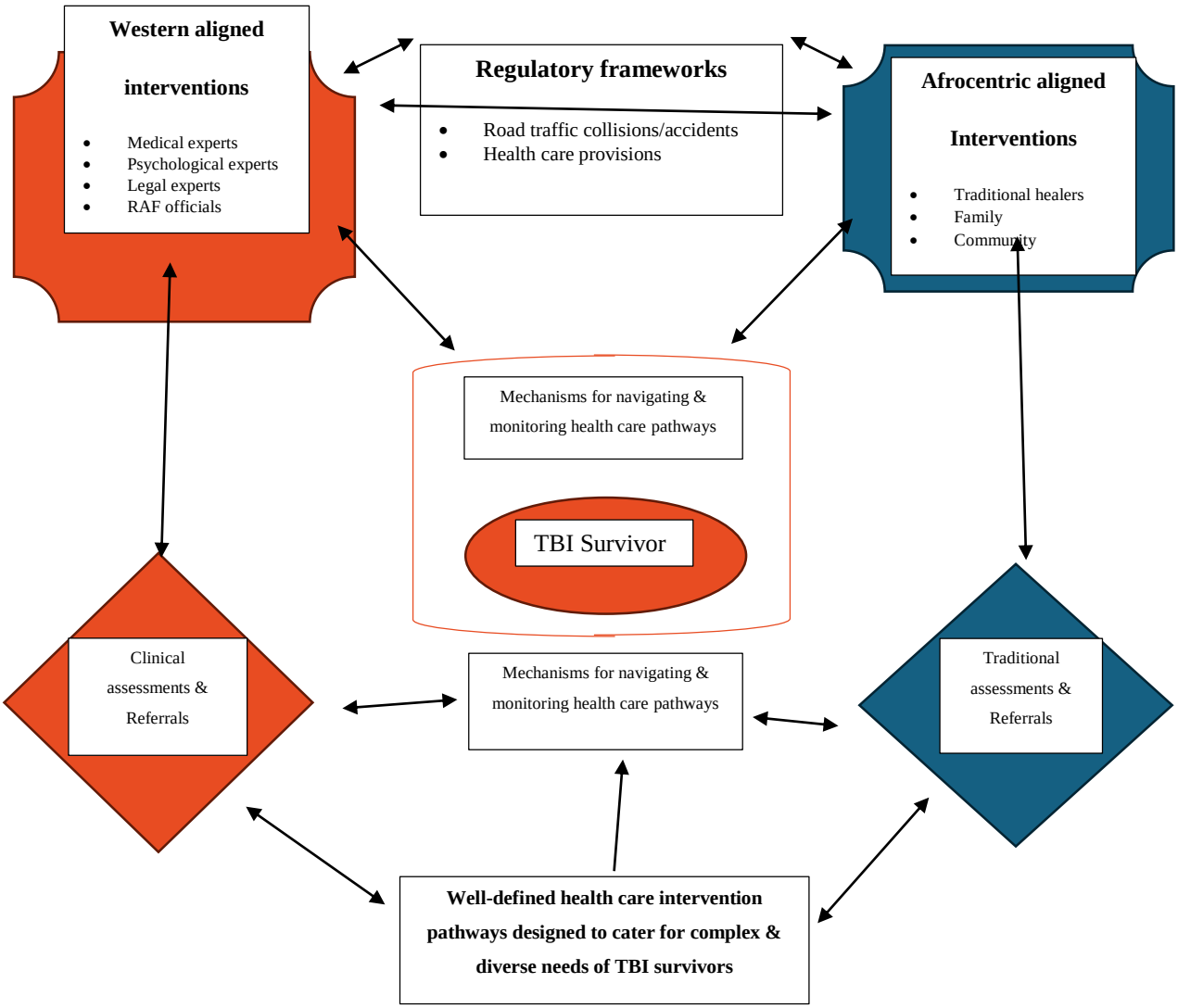


Figure 6. 1 Framework for Designing and Enacting Fit-for-Purpose Interventions and Healthcare Pathways (author's own formulation).

Regulatory frameworks: A regulatory framework from the state can be seen as a set of rules, regulations, and laws that govern the operations and conduct of a particular sector.[2] In practical terms – within this focal point – the road traffic regulations should be reviewed to tighten, clarify, and enforce rules and laws aimed at preventing road traffic accidents (RTAs), which have been identified as a major cause of traumatic brain injuries (TBIs). Likewise, healthcare for TBI patients must be governed by enabling legislation that promotes collaboration between Afrocentric (traditional healers, other family and community support

[2] https://www.google.com/search?client=firefox-b-d&q=regulatory+framework

individuals or groups) and Western intervention strategies. Within each orientation, especially the disciplinary hierarchised Western paradigms, inter- and trans-disciplinary intervention strategies should be encouraged.

This synchronisation of services should positively intersect TBI survivors via regulated mechanisms that facilitate navigation through the complex matrix of interventions required for recovery. Monitoring care pathways is essential to achieving the ultimate goal of recovery and reintegration into society. A significant finding of this study is that the interventions for TBI, be they assessments or treatments by different service providers, often go unmonitored, leaving TBI patients without the necessary follow-ups.

6.5. Afrocentric and Western Interventions

Afrocentric Aligned Interventions; Western aligned interventions; Clinical Assessments and Traditional Assessments:

Once the regulatory framework has been put in place, the traditional healers, family members, community and significant others, would exchange notes with their counterparts in Western-aligned practices. The practitioners and experts must not be constrained by exclusionary reference to Western binary notions such as 'scientific/unscientific' and 'religion/spirituality'. With so much that remains unknown and to be explored about human behaviour, health and illnesses, as well as unresolved human challenges, there does not seem to be any justification not to embrace epistemologies other than the dominant Western one.

As the arrows in Figure 6.1 suggest, all the foregoing ideas point to and seek to give impetus to efforts that are aimed at ensuring that TBI patients receive appropriate interventions and a tailor-made care pathway that enhances chances of recovery and reintegration into society.

6.6. Chapter Conclusion

The literature reviewed in this study and the data all reveal that access to healthcare for TBI survivors and the role of psychological intervention strategies globally, and at the site of this study, are fraught with knowledge gaps as well as a myriad of yet unsolved barriers. This has led to a quest for a better theorisation and understanding of the complexities and needs of TBI survivors that would lead to the development of transdisciplinary interventions and healthcare

pathways that are appropriate to the diverse needs of TBI patients. To this end, this study has sought to contribute to addressing the TBI pandemic holistically – by providing a framework for designing strategies, interventions and a clear roadmap to recovery and reintegration into society.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATION

7.1. Introduction

The previous chapter presented a discussion of the research findings of the study based on phenomenological interviews conducted with the participants. This chapter summarises, concludes and offers recommendations for the study. As indicated at the beginning of the study (see Chapter One), the study aimed to explore the role of psychological interventions in facilitating access to healthcare pathways for traumatic brain-injured patients. Traumatic brain injury (TBI) is a major public health concern, with far-reaching consequences for individuals and society. In this context, behavioural therapies have emerged as critical components in TBI care, addressing various needs of TBI patients.

According to the study, access to healthcare for motor vehicle accident-induced traumatic brain injury survivors remains a critical issue. Traumatic brain injury (TBI) is one of the primary causes of death and disability worldwide. Traumatic brain injury (TBI) is defined as any brain damage caused by external pressures to the head, including both open or penetrative (skull fractures) and closed or non-penetrative (intracranial) traumas. The most common causes of TBI in the South African context are motor vehicle accidents. As a result, continued care and rehabilitation that is responsive to the shifting obstacles experienced by survivors with varying degrees of TBI severity and at different stages of impairment, is crucial. This provides a platform for investigating the efficacy of psychological intervention strategies as part of healthcare pathways. The study aimed to explore the role of psychological intervention strategies in facilitating access to appropriate healthcare pathways for TBI patients.

7.2. Summary of the Study

This section provides a summary of the study by summarising all the preceding chapters.

Chapter One

The first chapter provided the introduction and background of the study. The chapter outlines a conceptual framework utilised to better comprehend the nature of Traumatic Brain Injury (TBI). This provided a platform for exploring the role of psychological intervention strategies

as part of healthcare pathways. The framework also serves as a platform for identifying and assessing healthcare pathways, defining the study's scope, and developing the research topic, purpose, and questions. The remainder of the chapter discussed the study's significance, methodology, literature evaluation, and ethical considerations. This chapter gave the justification of the design of the study and how the research process proceeded. It also laid the foundations that constitute the structure of the project. The subsequent chapters would flesh out, in more detail, various parts that, together, produce a coherent thesis.

Chapter Two

The second chapter was designed to explore the relevant literature in the field. The chapter evaluated the literature on the epidemiology of TBI, and found inadequacies that characterised the field, threatening to undermine healthcare delivery around the world, but particularly in Africa, where resource restrictions exacerbate the situation. Against this backdrop, the efficacy of existing Western psychiatric interventions in providing long-term healing and health to TBI survivors was called into question. Furthermore, community psychology perspectives in relation to the TBI phenomenon were examined and found to be ideal for the management of TBI. Finally, the argument arose that, if properly investigated, a developing area of Afrocentric perspectives could not only complement Western ways, but could also provide an effective alternative capable of filling current shortages.

Chapter Three

The third chapter presented the concept of intersectionality. It elicits some crucial concepts from intersectionality theory that are applicable to this investigation. It emphasised the importance of paying close attention and navigating the complexities and entanglements of, not only TBI as a phenomenon, but also how psychological therapeutic procedures are designed and implemented. Particularly important in this regard is that TBI survivors' experiences with psychological and other care interventions, as well as the overall healthcare delivery system and pathway, must be central to any evaluation of efficacy.

Chapter Four

The fourth chapter was structured to present the research methodology. The chapter covers the research approach utilised to better comprehend the subject of this study. This research thesis included a chapter on methods. The chapter was divided into six subsections: study design, study region, target population, sampling and sampling procedures, data collection methods and tools, operationalisation of variables and concepts used in this study, and a data analysis plan. In this study, a combination of a case study and techniques of a practice-based approach were used, working with five purposively selected participants from the study population of 45.

Chapter Five

The fifth chapter presented the data analysis and interpretation. The chapter presented and examined data from the five participants who participated in the phenomenological interviews. The study noted that greater issues could have been identified if a larger sample of TBI survivors from more materially deprived backgrounds had participated in the study. In light of this observation, a recommendation for additional study with a broader range of persons living with TBI to give more information on the nature, treatment, and care, as well as other associated interventions, was made.

Chapter Six

The chapter was designed to present the discussion of research findings. The study and data show that access to healthcare for TBI survivors, as well as the role of psychological interventions globally and locally, is riddled with knowledge gaps and unresolved impediments. This has resulted in a search for a better theory and knowledge of the complexities and demands of TBI survivors, which led to the creation of transdisciplinary therapies and healthcare routes tailored to the various needs of TBI patients. In line with that aim, this study has contributed to addressing the TBI epidemic holistically, by putting forward a framework for devising strategies that involve treating the causes of TBI, therapies, and a clear roadmap to recovery and reintegration into society.

7.3. Achieving the Objectives and the Key Findings

The study achieved the proposed objective by addressing the research questions. According to the findings from the study, results show that TBI, with its various clinical manifestations and long-term repercussions, needs a multidisciplinary approach to treatment. If the services are too expensive for TBI victims, it appears that these individuals have hit a dead end, with no apparent path to recovery. Another area of investigation may look into what happens to such 'abandoned' TBI survivors. To address the research objectives, the following research questions were posed:

c) *Main Research question*:

What role do psychological interventions play in facilitating access to healthcare pathways for TBI survivors?

d) *Sub-questions:*

v. What are the experiences of TBI patients when medical handoffs (transfer from one health care provider to another) are executed as part of psychological interventions?

vi. How do TBI patients perceive their encounters with various psychological intervention strategies?

vii. What challenges do TBI patients face in accessing health care?

viii. What are the implications for building improved TBI interventions and healthcare pathways?

7.4. Conclusions on Key Research Findings

Some of the key insights that have emerged from the conceptual framework show that TBI is multidimensional; when it comes to treatment, it is time-sensitive, as seen through the lens of the intersectionality theoretical framework as outlined in the study (see Chapter Three). The study also noted that the illness lends itself to the need for the treatment regime to be cognisant of multiple structurally derived factors that can militate against or promote the recovery of the survivors. In addition to the foregoing conception and contextual issues within which TBI is addressed, is the internationally elusive variable of TBI healthcare pathways.

7.4.1. Lack of Clarity on TBI Healthcare Pathways

The finding shows that some of the participants have been to multiple healthcare providers. They were subjected to seeing more healthcare providers for their Road Accident Fund

claims-related assessments. The healthcare practitioners did not provide treatment to TBI survivors, but were requested to conduct assessments upon which recommendations to the Road Accident Fund (RAF) could be formulated, whose twofold mandate is to compensate and to rehabilitate road accident survivors. The TBI survivors themselves also seemed to think their encounters with providers were all about the facilitation of payment from the RAF.

7.4.2. The Challenges Faced by TBI Patients in Accessing Healthcare

As regards the challenges they encountered in accessing healthcare, findings showed that one of the challenges is that all the experts' services are expensive. The study further discovered that TBI survivors tended to be subjected to prolonged waiting before they could be assessed. The problem with all of that is that the participants have to endure complications while waiting for the right time to start seeing the doctors for the examinations.

7.4.3. Timelines of Healthcare Delivery to TBI Patients

The issue of timelines in attending to TBI is emphasised in the literature. The study discovered that some of the participants waited for almost two years before seeing the first expert. They were increasingly getting frustrated as they were experiencing more complications and could not afford to pay for consultations with private healthcare practitioners since they had stopped working after the accident because they were failing to cope with their work demands.

7.4.4. TBI Survivors' Experiences

Findings from some of the participants indicated that they were increasingly getting frustrated, as they were experiencing more complications and could not afford any private healthcare since they had stopped working after the accident because they were failing to cope with their occupational demands. The study further found that, when the participants finally got to be seen by healthcare providers, they were only assessed, and not treated for the constellation of sequelae they would have developed since the time of sustaining TBI.

7.4.5. Experiences with Psychological Interventions

Despite the lack of a well-defined intervention pathway for healthcare access, as well as delays and resource constraints in service delivery, participants presented a variety of perspectives. While several emphasised the negative effects of TBI, others expressed periods

of hope, particularly during contact with psychologists. The sub-themes 'Consequences of TBI,' 'Psychological Assessments Post-TBI,' and 'Psychological Treatment of TBI Effects' go into these experiences.

7.4.6. Clinical or Neuropsychological Assessments

The study discovered that the participants considered assessments to be beneficial as the assessment results are central in confirming if indeed the problems, they have reported are present and, if they are, the extent to which they are compromising their functioning as human beings. Also, the study found that the assessment results were deemed to be helpful in terms of gaining new insights into the other psychological problems they might have been having without them knowing. Furthermore, the participants indicated that assessments informed recommendations regarding appropriate psychological treatments.

7.4.7. Psychological Treatment of TBI Consequences

The study found that the participants wanted to feel normal again and regain their normalcy. However, the issues of affordability and the absence of psychologists in their neighbouring healthcare facilities prevented them from accessing psychological treatment. The study further established that the participants saw the need for psychological interventions.

7.5. Conclusion

The study sought to explore the role of psychological interventions in facilitating access to healthcare pathways for TBI survivors. This was a case study of selected Road Accident-induced TBI survivors drawn from my practice as a clinical psychologist. In this regard, I was conscious of my dual role as a researcher and practitioner. In this study, a practice-based enquiry perspective for the purposes of pursuing canons of research quality as well as ethically grounding the study, was employed. Measures to minimise the risks arising from ethical dilemmas were taken.

The National Academies of Sciences, Engineering, and Medicine (2022) recommends that TBI should be perceived and managed through a bio-psycho-socio-ecological framework in order to recognise a constellation of factors contributing to a patient’s experience and recovery process; this study employed a bio-psycho-socio-ecological framework. This framework was

central to identifying and addressing the combination of various interconnected elements that influence the delivery and outcomes of intervention strategies. The framework further helped lay a foundation against which the role of psychological intervention strategies, as part of the healthcare pathways, could be explored.

With regard to motor vehicle accident induced TBI as a phenomenon, Gómez-De-Regil et al. (2019) suggest that 32% of TBI patients are victims of motor vehicle accidents, either as pedestrians or passengers.

A significant amount of findings suggests that survivors of traumatic brain injury (TBI) must traverse complex healthcare systems that include not just diagnostic and rehabilitative services, but also medico-legal procedures. Moore et al. (2021) emphasise that these survivors deal with many obstacles to getting essential medical procedures and legal evaluations. In South Africa, Kommal (2022) states that the Road Accident Fund (RAF) claim procedure plays an important part in medico-legal assessments, which concentrate mainly on deciding compensation rather than directly improving patient treatment. This is in contrast to rehabilitative interventions, which aim at restoring a patient's pre-injury ability to function and psychological well-being.

Furthermore, the National Academies of Sciences, Engineering, and Medicine (2022) state that TBI should be treated as a medical condition with acute and chronic phases, requiring a responsive healthcare system that can adjust to changing challenges. Evidence also reveals that many people with TBI face a lack of continuity of treatment and integrated assistance. Psychologically, post-TBI healthcare is often divided into two categories: medico-legal examinations for RAF claims, which, according to Bainbridge (2015), are more concerned with legal and financial determinations than patient healing, and rehabilitative interventions. There is growing fear in South Africa that the financial benefits inherent in RAF-related examinations would drive these medico-legal tests to take priority over patient-centered rehabilitation activities.

The second category includes rehabilitative psychological intervention geared towards functional recovery. These interventions are intended to help TBI survivors achieve cognitive, emotional, and social stability by providing ongoing assistance beyond the medico-legal assessment (Calogridis, 2017). Facilitating medical handovers, which occur when patients shift between various healthcare professionals, is an important part of these treatments

(Oyesanya et al., 2021). Effective psychological therapies aid in the continuity of care and reduce treatment disruptions.

The researcher had realised that, as a clinical psychologist, he was only getting referrals or instructions for conducting neuropsychological assessments and proving neuropsychological reports on motor-vehicle accident induced TBI survivors, despite having formulated recommendations geared towards psychological interventions aimed at addressing various sequelae the survivors presented with as a result of TBIs. The survivors were never referred for the interventions that would have been recommended in their psycho-legal reports. The researcher was also concerned that the survivors were referred for the assessments after a long period had elapsed since they had sustained TBIs. The researcher was further concerned about a dearth of clear care pathways for the TBI survivors, as well as the presence of a referral system that seems to give precedence to compensating the survivors over the delivery of timely access to quality care.

Therefore, the primary aim of the study was to explore the role of psychological interventions in facilitating access to healthcare pathways. Data was collected using in-depth phenomenological interviews with five selected participants from motor vehicle accident induced TBI survivors.

This study gives theoretical and ethical justifications for the practice-based approach, in a way that can further strengthen methodological rigour in the field. How the researcher sought to navigate the potential ethical dilemmas emanating from insider/outsider duality is explained in the methodology chapter, Chapter Four. Furthermore, ethical dilemmas were highlighted under limitations.

There were three main findings. The first was that psychological interventions are one part of a combination of necessary treatments in the delivery of healthcare for TBI survivors. This means that the nature of the condition, which is multi-dimensional, requires a multidisciplinary approach. The second finding was that healthcare pathways towards recovery – beyond assessments with experts following brain injury – were not clear. Without a clear healthcare roadmap, chances of recovery among TBI patients are jeopardised. The third finding is that the TBI survivors were not attended to on a timely basis. This raised concerns about the likelihood of deterioration and complications of their condition while they waited to be assessed by various experts, depending on the nature of injuries sustained in the motor vehicle accidents.

The study posits that psychological assessments are instrumental in charting a recovery journey for TBI patients. During the assessments, various sequelae as well as the type and nature of psychological and medical interventions the TBI patient requires are determined. However, these conditions underline the importance of a timely diagnosis and channelling into appropriate healthcare interventions.

The study concludes that while psychological interventions and assessments are constitutive of the necessary and important part of healthcare delivery, they are not alone sufficient to set a TBI patient onto a recovery trajectory.

Thus, the main recommendation is that further research on the management of TBI in South Africa be carried out, to develop more appropriate and effective intervention strategies.

Finally, premised on the findings and insights from the literature review, the study proposes a framework for building improved interventions for TBI survivors that will lead to the development of clearer healthcare pathways.

7.6. Recommendations

The study has sought to contribute to addressing the TBI phenomenon holistically by putting forward a framework for designing strategies that include addressing the causes of TBI and establishing interventions, as well as a clear roadmap to recovery for facilitating reintegration into society. This study posits that a regulatory framework from the state would result in the road traffic regulations being reviewed to tighten, clarify, and enforce rules and laws aimed at preventing road traffic accidents (RTAs), which have been identified as a major cause of traumatic brain injuries (TBIs).

The healthcare services should positively focus on TBI survivors via regulated mechanisms that facilitate navigation through the complex matrix of interventions required for recovery. Monitoring care pathways is essential to achieving the goal of recovery and reintegration into society. A significant finding of this study is that interventions into TBI – be they assessments or treatments by various healthcare providers – often go unmonitored, leaving TBI patients without the necessary follow-ups.

To ensure that the TBI patients receive appropriate interventions and a tailor-made care pathway that enhances chances of recovery and reintegration into society, and in line with the foregoing framework formulated by this study, the following recommendations are made:

a) The main recommendation is that further research on the management of TBI in South Africa be carried out – to develop more appropriate and effective intervention strategies.

b) There must be well-defined healthcare pathways for TBI patients. Such clear healthcare pathways must prioritise facilitating access to healthcare from a multidisciplinary team point (MDT) of view early on to increase the likelihood of maximal improvement.

c) All public healthcare facilities in the Republic of South Africa should have MDT members with a set of professional skills and expertise relevant to the healthcare needs of TBI patients.

d) TBI patients who lodged their claims against the RAF should not be subjected to waiting for the settlement of their claims before they are issued with the undertaking certificates by the RAF. Precedence must not be given to compensation over rehabilitation.

e) It is recommended that once there is a consensus as regards the validity of a claim against the RAF, TBI victims' access to healthcare must be facilitated. This would include the issuance of the undertaking certificate by the RAF, which would allow them to consult with the relevant experts and provide them with financial support for travel costs and other necessities, as most TBI victims tend to have trouble coping at work in the aftermath of TBI.

f) The experts that are involved in conducting assessments on the TBI victims to determine the severity of injuries and resultant impairments for their claims must be authorised to also provide any treatment they deem necessary and appropriate as part of facilitating rehabilitation and recovery.

7.7. Implications

The study has sought to contribute to addressing the TBI pandemic holistically by proposing a framework for designing strategies that include addressing the causes of TBI and

establishing interventions and a clear roadmap to recovery for facilitating reintegration into society. A regulatory framework from the state would result in the road traffic regulations being reviewed to tighten, clarify, and enforce rules and laws aimed at preventing road traffic accidents (RTAs), which have been identified as a major cause of traumatic brain injuries (TBIs).

As previously stated, this framework implies that supportive legislation and Western intervention approaches should become integral parts of TBI patients' healthcare. Within these techniques, particularly within the hierarchical structure of Western disciplines, it is critical to foster inter- and trans-disciplinary interventions. This framework suggests proactivity in the facilitation of accessing healthcare among TBI survivors to increase recovery chances.

7.8. Limitations of the Study and Recommendations for Further Research

This study followed the parameters of a case study design, wherein the issues of representativeness and generalisability do not apply to the epistemology, instead, understanding and laying the ground for further research is what was considered important. Therefore, the following were identified as limitations and recommended areas of consideration for future research:

a) This study did not include a larger sample with more materially deprived and less educated TBI survivors. Therefore, a study with more diverse cases of people living with TBI would shed more light on the nature of treatment and care as well as other related interventions.

b) The study did not directly investigate the efficacy of Afrocentric perspectives and Community Psychology intervention perspectives on TBI as feasible options to fill existing gaps, rather than simply complementing Western techniques. However, it is vital to emphasise that the thesis supports this viewpoint.

c) Multiple relationships: The participants had a prior relationship with the researcher, having conducted neuropsychological assessments on the participants. This pre-existing relationship could have affected their willingness to participate and/or their responses, potentially leading to social desirability bias or feeling obliged to consent

due to the power dynamics involved. Refer to the ethical considerations section under Chapter Four to see how the researcher addressed this ethical issue.

d) Participants' perception of obligation: Given their previous interactions with the researcher in an assessment and clinical setting, participants may have felt pressured to agree to participate, raising concerns about the voluntariness of their consent. Refer to the ethical considerations to understand how the researcher addressed this particular ethical consideration.

The above-mentioned areas of limitation are precisely the areas that need to be considered for further research on the topic.

7.9. Chapter Conclusion

This chapter presented the summaries of all the preceding chapters, conclusions on the key research findings, conclusion, limitations, recommendations, and the implications of the study.

TBI is now recognised as a chronic health disease with established long-term effects on health, functioning, and quality of life. Individuals with moderate-to-severe TBI are frequently left with significant long-term or even lifelong physical, neurocognitive, and psychosocial impairments, have ongoing injury sequelae across multiple body systems, and have a higher mortality risk years after injury than the general population. Long-term cognitive, behavioural, and emotional abnormalities have also been found up to six years following moderate TBI when compared with healthy controls and matched trauma populations (Konrad et al., 2011).

In spite of the above-mentioned phenomenon, there are not any established healthcare pathways for TBI survivors. How TBI cases are handled, particularly in KZN, South Africa, as part of the amorphous healthcare pathways, does not reflect a requisite appreciation of, and sensitivity to, the pervasive nature of TBI.

To this end, this study has sought to contribute towards addressing the TBI condition holistically – by providing a framework for designing strategies that include tackling the causes of TBI, providing interventions, and a clear roadmap to recovery and reintegration into society. Within each orientation, especially the disciplinary hierarchised Western paradigms, inter- and trans-disciplinary intervention strategies should be encouraged. The crux of this

framework is that the preoccupation should be towards maximal recovery and reintegration into society.

It is further recommended that a future study may specifically explore the efficacy of Afrocentric perspectives relating to TBI as an effective alternative to Western approaches, capable of filling current shortages rather than being a mere complementary perspective to the Western paradigm.

REFERENCES

Abdalla, M., Oliveira, L. G., Azevedo, C., & Gonzalez, R.K. (2018). Quality in qualitative organizational research: Types of validity, the process of validation, and guidelines for validity assessment. *RAUSP Management Journal, 53*(3), 389–402. https://doi.org/10.1108/RAUSP-07-2018-0100

Adegboyega, G., Zolo, Y., Sebopelo, L.A., Dalle, D.U., Dada, O.E., Mbangtang, C.B., Tetinou, F., Kanmounye, U.S., & Alalade, A.F. (2021). The burden of traumatic brain injury in sub-Saharan Africa: A scoping review. *World Neurosurgery, 156,* e192–e205.

Adeleye, A.O. (2017). Pattern of referrals of head injury to the University College Hospital, Ibadan. *Annals of Ibadan Postgraduate Medicine, 15*(1), 34–40.

Adeleye, A.O., & Olayemi, E. (2010). Pattern of traumatic head injury in Ibadan, Nigeria. *African Journal of Trauma, 9*(2), 70–74.

Adeolu, A.A., Abiona, T.C., Komolafe, E.O., Adeolu, J.O., & Adegbehingbe, O.O. (2013). Epidemiology of neurotrauma in Ife-Ijesha zone of Nigeria. *World Neurosurgery, 80*(3–4), 251–254. https://doi.org/10.1016/j.wneu.2012.11.063

Allen, B.C., Cummer, E., & Sarma, A.K. (2023). Traumatic brain injury in select low-and middle-income countries: a narrative review of the literature. *Journal of Neurotrauma*, *40*(7-8), 602-619.

Alpes, J. (2021). *Intersectionality and Global Health: Rethinking Vulnerability and Resilience*. London: Routledge.

Ameratunga, S., Hijar, M., & Norton, R. (2006). Road-traffic injuries: Confronting disparities to address a global health problem. *The Lancet, 367*(9521), 1533–1540. https://doi.org/10.1016/S0140-6736(06)68654-6

Angelique, H. L., & Culley, M. R. (2007). History and theory of community psychology: An international perspective of community psychology in the United States: Returning to political, critical, and ecological roots. In S. M. Reich, M. Riemer, I. Prilleltensky, & M. Montero (Eds.), *International community psychology: History and theories* (pp. 37–62). Springer. https://doi.org/10.1007/978-0-387-49500-2_3

Apurba, B., Ahana, C., & Rohit, B. (2016). Cognitive impairment and rehabilitation strategies after traumatic brain injury. *Indian Journal of Psychological Medicine, 38*(3), 172–181. https://doi.org/10.4103/0253-7176.183086

Arosio, M., Martina, M.L., & Figueiredo, R. (2020). The whole is greater than the sum of its parts: a holistic graph-based assessment approach for natural hazard risk of complex systems. *Natural Hazards and Earth System Sciences*, *20*(2), 521-547.

Asante, M. K. (1998). *Afrocentric idea revised*. Temple University Press. Retrieved November, 12, 2024, from https://www.jstor.org/stable/j.ctt1bw1kjr.

Ataro, G. (2020). Methods, methodological challenges and lessons learned from phenomenological study about OSCE experience: Overview of paradigm-driven qualitative approach in medical education. *Annals of Medicine and Surgery, 49*, 19–23.

Avramovic, P., Rietdijk, R., Attard, M., Kenny, B., Power, E., & Togher, L. (2022). Cognitive and Behavioral Digital Health Interventions for People with Traumatic Brain Injury and Their Caregivers: A Systematic Review. *Journal of Neurotrauma*, *40*(3–4), 159–194. https://doi.org/10.1089/neu.2021.0473

Bainbridge, J. (2015). Visual perceptual processing and occupational performance in South African adults with traumatic brain injury-a validity study of the Test of Visual Perceptual skill-3. Unpublished master's thesis. University of the Witwatersrand, Johannesburg, South Africa.

Bajwa, N. M., Kesavan, C., & Mohan, S. (2018). Long-term consequences of traumatic brain injury in bone metabolism. *Frontiers in Neurology*, *9*, 115. https://doi.org/10.3389/fneur.2018.00115

Barki, M.T., Filza, F., Khattak, A.F., Khalid, O.B., Qazi, M., Gilani, H., & Farooq, M. (2023). A survey of traumatic brain injuries from road traffic collisions in a lower middle-income country. *Cureus, 15*(3). https://doi.org/10.7759/cureus.35375.

Beckett, K., Deave, T., McBride, T., May, A.L., Gabbay, J., Kapoulas, U., Long, A., Warburton, G., Wogan, C., Cox, L., Thompson, J., Spencer, F., & Kendrick, D. (2022). Using forum theatre to mobilise knowledge and improve NHS care: The enhancing post-injury psychological intervention and care (EPPIC) study. *Evidence & Policy*, *18*(2), 236–264. https://doi.org/10.1332/174426421x16420902769508.

Bennett, C.C., Anderson, L.S., Cooper, S., Hassol, L., Klein, D.C., & Rosenblum, G. (1966). *Community psychology: A report of the Boston Conference on the Education of Psychologists for Community Mental Health.* Boston. Boston University Press.

Bhatia, R., & Priya, K. (2021). Intersectionality in public health research and practice: The role of gender, caste, and class. *Indian Journal of Public Health, 65*(3), 213–219. https://doi.org/10.4103/ijph.IJPH_595_20.

Birman, D., Trickett, E.J., & Buchanan, R.M. (2005). A tale of two cities: Replication of a study on the acculturation and adaptation of immigrant adolescents from the former Soviet Union in a different community context. *American Journal of Community Psychology, 35*(1–2), 83–101. https://doi.org/10.1007/s10464-005-1891-y

BMJ Best Practice. (2023). *Traumatic brain injury*. Retrieved March, 4, 2025, from: https://bestpractice.bmj.com/topics/en-us/515

Boake, C., Millis, S.R., High Jr, W.M., Delmonico, R.L., Kreutzer, J.S., Rosenthal, M., & Ivanhoe, C.B. (2001). Using early neuropsychological testing to predict long-term productivity outcome from traumatic brain injury. *Archives of Physical Medicine and Rehabilitation, 82*(6), 761–768.

Braitman, K.A., Kirley, B.B., McCartt, A.T., & Chaudhary, N.K. (2008). Crashes of novice teenage drivers: Characteristics and contributing factors. *J. Saf. Res*. 39 (1), 47–54.

Bramlett, H.M., & Dietrich, D.W. (2015). Long-term consequences of traumatic brain injury: Current status of potential mechanisms of injury and neurological outcomes. *Journal of Neurotrauma, 32*(23), 1834–1848. https://doi.org/10.1089/neu.2014.3352

Brazinova, A., Rehn, M., & Smatana, M. (2021). Traumatic brain injury prevalence and its impact on global health in low- and middle-income countries. *Journal of Neurotrauma*, *38*(4), 657-664. https://doi.org/10.1089/neu.2020.7364

Brooks, J.C., Strauss, D.J., Shavelle, R.M., Paculdo, D.R., Hammond, F.M., & Harrison-Felix, C.L. (2013). Long-term disability and survival in traumatic brain injury: Results from the National Institute on Disability and Rehabilitation Research Model Systems. *Archives of Physical Medicine and Rehabilitation, 94*(11), 2203–2209. https://doi.org/10.1016/j.apmr.2013.04.022

Calogridis, J.P. (2017). The Perceptions of Community Integration One Year Post Rehabilitation for Survivors of Traumatic Brain Injury and Their Significant Others: A South African Perspective. Unpublished doctoral dissertation, University of the Witwatersrand, Faculty of Humanities, School of Human and Community Development.

Cauce, A. (2007). Bringing community psychology home: The leadership, community and values initiative. *American Journal of Community Psychology, 39*(1), 1–11. https://doi.org/10.1007/s10464-007-9096-1

Centre for Disease Control and Prevention (CDC). (2020). *Saving Lives and Protecting People from Injuries and Violence* (PDF). Retrieved 8 March, 2020, from www.cdc.gov/injury/overview

Centre for Disease Control and Prevention (CDC). (2019). *Traumatic brain injury and concussion*. Retrieved from https://www.cdc.gov/traumaticbraininjury

Chatterjee, H.J., Camic, P.M., Lockyer, B., & Thomson, L.J. (2018). Non-clinical community interventions: A systematised review of social prescribing schemes. *Arts & Health, 10*(2), 97–123.

Cheng, P., Yin, P., Ning, P., Wang, L., Cheng, X., Liu, Y., et al. (2017). Trends in traumatic brain injury mortality in China, 2006–2013: A population-based longitudinal study. *PLOS Medicine, 14*(7), e1002332. https://doi.org/10.1371/journal.pmed.1002332

Clare, L., & Jones, R.S. (2008). Errorless learning in the rehabilitation of memory impairment: A critical review. *Neuropsychological Review, 18*(1), 1–23. https://doi.org/10.1007/s11065-008-9045-3

Clauss-Ehlers, C.S., Weist, M.D., & Sawaqdeh, A. (2019). Social and cultural dimensions of mental health: The role of intersectionality. *Psychiatric Services, 70*(5), 403–408. https://doi.org/10.1176/appi.ps.201800513

Cleveland Clinic. (2023). *Glasgow Coma Scale (GCS)*. Retrieved March, 4, 2025, from https://my.clevelandclinic.org/health/diagnostics/24848-glasgow-coma-scale-gcs

Cooper, A. (2022). *Intersectionality in Health: A Comprehensive Approach to Health Inequities*. London. Routledge.

Crambert, R. F. (2023). A Qualitative Phenomenological Study of the Relationship Between Authentic Leadership and Self-Efficacy with Traumatic Brain Injury Survivors. Unpublished doctoral dissertation, Lancaster Bible College.

Crawford, R., Brown, B., & Baker, P. (2017). Health Inequalities and Intersectionality: Towards an Integrated Framework. *Social Science & Medicine*, 190, 49–57.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches*. 4th ed. Thousand Oaks, California: SAGE Publications.

Cuevas-Østrem, M., Thorsen, K., Wisborg, T., Røise, O., Helseth, E., & Jeppesen, E. (2023). Care pathways and factors associated with interhospital transfer to neurotrauma centers for patients with isolated moderate-to-severe traumatic brain injury: A population-based study from the Norwegian trauma registry. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, *31*(1), 34.

Curry, A. E., Mirman, J. H., Kallan, M. J., Winston, F. K., & Durbin, D. R. (2012). Peer passengers: How do they affect teen crashes? *Journal of Adolescent Health, 50*(6), 588–594. https://doi.org/10.1016/j.jadohealth.2011.10.016Daniel, E. (2019). The role of methodology in research. *Research Methodology in Applied Economics* (pp. 45–60). Palgrave Macmillan.

Davies, L. (2024). Qualitative investigations into the experiences of family members affected by childhood acquired brain injury. Unpublished doctoral dissertation, University of East Anglia.

DeLisa, J.A., Gans, B.M., & Walsh, N.E. (2005). *Physical medicine and rehabilitation: Principles and practice* (4th ed.). Philadelphia: Lippincott Williams & Wilkins.

Deng, T., Ding, R., Wang, Y., Chen, Y., Sun, H., & Zheng, M. (2024). Mapping knowledge of the stem cell in traumatic brain injury: A bibliometric and visualized analysis. *Frontiers in Neurology*, *15*. https://doi.org/10.3389/fneur.2024.1301277

Denzin, N., & Lincoln, Y. (2020). The Sage handbook of qualitative research (5th ed.). Sage Publications.

Dewan, M.C., Rattani, A., Gupta, S., Baticulon, R.E., Hung, Y., Punchak, M., Agrawal, A., Adeleye, A.O., Shrime, M. G., Rubiano, A.M., Rosenfeld, J.V., & Park, K.B. (2018).

Estimating the global incidence of traumatic brain injury. *Journal of Neurosurgery*, *130*(4), 1080–1097. https://doi.org/10.3171/2017.10.jns17352

Dou, Z.L., Man, D.W., Ou, H.N., Zheng, J.L., & Tam, S.F. (2006). Computerized errorless learning-based memory rehabilitation for Chinese patients with brain injury: A preliminary quasi-experimental clinical design study. *Brain Injury, 20*(3), 219–225. https://doi.org/10.1080/02699050500468422

Downing, M. G., Hicks, A. J., Braaf, S., Myles, D. B., Gabbe, B. J., & Ponsford, J. (2022). It's been a long hard road: Challenges faced in the first three years following traumatic brain injury. *Disability and Rehabilitation, 44*(24), 7439–7448.Duncan, P. (2021). *Educational research methods: Principles, practices, and applications*. Oxford: Oxford University Press.

Dunne, J., Quiñones-Ossa, G.A., Still, E.G., Suarez, M.N., González-Soto, J.A., Vera, D.S., & Rubiano, A.M. (2020). The epidemiology of traumatic brain injury due to traffic accidents in Latin America: A narrative review. *Journal of Neurosciences in Rural Practice,* 11(2), 287–290. https://doi.org/10.1055/s-0040-1709987

Dupéré, V., & Perkins, D.D. (2007). Community types as buffers of neighborhood stressors on mental health. *American Journal of Community Psychology*, *39*(3–4), 211–219.

Dźwigol, H., & Dźwigoł-Barosz, M. (2020). Qualitative research in management sciences: Research quality and triangulation. *Journal of Interdisciplinary Research, 26*, 125–136.

Ehlhardt, L.A., Sohlberg, M. M., Glang, A., & Albin, R. (2005). TEACH-M: A pilot study evaluating an instructional sequence for persons with impaired memory and executive functions. *Brain Injury, 19*(7), 569–583. https://doi.org/10.1080/02699050400019135

Eisenberg, Z. (2023). Space and Sensation: The Role of Dance Movement Therapy Within a Traumatic Brain Injury Cognitive Rehabilitation Department. Unpublished master's thesis, Pratt Institute.

Flores, M. R. (2021). Impact of Ambiguous Loss on Couples with a Partner Affected by a Traumatic Brain Injury: A Critical Literature Analysis. Unpublished doctoral dissertation, Azusa Pacific University.

Fong, A. (2020). What you need to know about TBI symptoms and treatment. *Cognitive FX*. Retrieved from https://www.cognitivefx.com

Foster-Fishman, P.G., Pierce, S.J., & Van Egeren, L.A. (2007). Building an active citizenry: The role of neighborhood problems, readiness, and capacity for change. *American Journal of Community Psychology, 39*(1-2), 91–106.

Francescato, D., & Tomai, M. (2001). Community psychology: Should there be a European perspective? *Journal of Community & Applied Social Psychology, 11*(5), 371–380. https://doi.org/10.1002/casp.638

Frérot, M., Lefebvre, A., Aho, S., Callier, P., Astruc, K., & Aho Glélé, L.S. (2018). What is epidemiology? Changing definitions of epidemiology 1978–2017. *PLOS ONE, 13*(12), e0208442. https://doi.org/10.1371/journal.pone.0208442

Fujii, L. (2022). *Exploring Intersectionality in Qualitative Research: A Guide for Health and Social Scientists*. SAGE Publications.

Gallagher, L. (2022). *The Journey Back Home-Processes of Disjuncture and Recovery in Traumatic Brain Injury Rehabilitation*. England: The University of Manchester (United Kingdom).

Gallo, L.G., De Morais Oliveira, A.F., Abrahão, A.A., Sandoval, L. a. M., Martins, Y.R.A., Almirón, M., Santos, F.S.G.D., Araújo, W.N., De Oliveira, M.R.F., & Peixoto, H.M. (2020). Ten epidemiological parameters of COVID-19: Use of rapid literature review to inform predictive models during the pandemic. *Frontiers in Public Health, 8*. https://doi.org/10.3389/fpubh.2020.598547

Galvin, M., Chiwaye, L., & Moolla, A. (2023). Perceptions of causes and treatment of mental illness among traditional health practitioners in Johannesburg, South Africa. *South African Journal of Psychology, 53*(3), 403-415.

Giacino, J.T., Whyte, J., Bagiella, E., Kalmar, K., Childs, N., Khademi, A., et al. (2012). Placebo-controlled trial of amantadine for severe traumatic brain injury. *New England Journal of Medicine, 366*(9), 819–826. https://doi.org/10.1056/NEJMoa1100587

Gibson, W., & Brown, A. (2009). *Working with Qualitative Data*. SAGE Publications.

Gómez-De-Regil, L., Estrella-Castillo, D.F., & Vega-Cauich, J. (2019). Psychological intervention in traumatic brain injury patients. *Behavioural Neurology*, *2019*, 1–8. https://doi.org/10.1155/2019/6937832

Gonzales, M.M., Dickinson, L.M., DiGuiseppi, L.M., & Lowenstein, S.R. (2005). Student drivers: A study of fatal motor vehicle crashes involving 16-year-old drivers. *Annals of Emergency Medicine*, *45*(2), 140–146. https://doi.org/10.1016/j.annemergmed.2004.08.023

Gordon, T. (2019). *Research methods for social work: A balanced approach*. Pearson.

Gorgoraptis, N., Zaw-Linn, J., Feeney, C., Tenorio-Jimenez, C., Niemi, M., Malik, A., & Sharp, D. J. (2019). Cognitive impairment and health-related quality of life following traumatic brain injury. *NeuroRehabilitation*, *44*(3), 321-331.

Groshi, A.G.M., & Enicker, B. (2022). Factors influencing the outcomes of patients with severe traumatic brain injury following road traffic crashes. *South African Journal of Surgery*, *60*(4), 273–277. https://doi.org/10.17159/2078-5151/SAJS3792

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth Generation Evaluation*. SAGE Publications.

Gururaj, G. (2002). Epidemiology of traumatic brain injuries: Indian scenario. *Neurological Research*, *24*, 24–28.

Halalmeh, D.R., Salama, H.Z., LeUnes, E., Feitosa, D., Ansari, Y., Sachwani-Daswani, G.R., & Moisi, M.D. (2023). The role of neuropsychology in traumatic brain injury: Comprehensive literature review. *World Neurosurgery*, *183*, 128–143. https://doi.org/10.1016/j.wneu.2023.12.069

Hankivsky, O. (2022). *Intersectionality and the health sciences: A new theoretical perspective* (p. 2). Palgrave Macmillan.

Haque, A. (2024). Living with cognitive difficulties: Experiences of individuals with long COVID and couples navigating their relationship after traumatic brain injury. *Ethics*, *3162*(5086), 8248.

Hawe, P., Shiell, A., & Riley, T. (2009). Theorising interventions as events in systems. *American Journal of Community Psychology*, *43*(3-4), 267–276. https://doi.org/10.1007/s10464-009-9229-9

Haynes, A., Johnson, L., Ashpole, R., Mamo, A., Chagpar, S., Williams, G., & Hassett, L. (2025). The long road back to physical activity: The experience of people with moderate-to-severe traumatic brain injury. *Disability and Rehabilitation*, 1-12.

Heidegger, M. (1962). *Being and time* (J. Macquarrie & E. Robinson, Trans.). Harper & Row. (Original work published 1927).

Hellerstein, L. F., Scheiman, M., Fishman, B.I., & Whittaker, S.G. (2024). Visual rehabilitation for patients with brain injury. In Ed?. *Understanding and Managing Vision Deficits* (pp. 201-231). London: Routledge.

Helps, S. (2017). The ethics of researching one's own practice. *Journal of Family Therapy*, *39*(3), 348-365.

Hennink, M., & Kaiser, B.N. (2022). Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Social Science & Medicine, 292*, 114523. https://doi.org/10.1016/j.socscimed.2021.114523

Hess, U. (2005). The importance of context in emotion research. *Social Science Information, 44*(4).

Højgaard Nejst, C., & Glintborg, C. (2024). Hope as experienced by people with acquired brain injury in a rehabilitation—or recovery process: A qualitative systematic review and thematic synthesis. *Frontiers in Rehabilitation Sciences*, *5*, 1376895.

Horn, S.D., Corrigan, J.D., Bogner, J., Hammond, F.M., Seel, R.T., Smout, R.J., & Whiteneck, G. G. (2015). Traumatic brain injury – practice based evidence study: Design and patients, centers, treatments, and outcomes. *Archives of Physical Medicine and Rehabilitation*, *96*(8), S178-S196.

Hou, Y., Zhou, A., Brooks, L., Reid, D., Turkstra, L., & MacDonald, S. (2024). Rehabilitation access for individuals with cognitive-communication challenges after traumatic brain injury: A co-design study with persons with lived experience. *International Journal of Language & Communication Disorders*, *59*(2), 648-664.

Howlett, J.R., Nelson, L.D., & Stein, M.B. (2022). Mental health consequences of traumatic brain injury. *Biological Psychiatry*, 91(5), 413-420.

Howlett, J. R., Nelson, L. D., & Stein, M. B. (2022). Mental health consequences of traumatic brain injury. *Biological Psychiatry, 91*(5), 413–420.

Huang, X. F., Ma, S. F., Jiang, X. H., Song, R. J., Li, M., Zhang, J., Sun, T. J., Hu, Q., Wang, W. R., Yu, A. Y., & Li, H. (2024). Causes and global, regional, and national burdens of traumatic brain injury from 1990 to 2019. *Chinese Journal of Traumatology, 27*(6), 311–322. https://doi.org/10.1016/j.cjtee.2024.03.007

Huberman, A.M., & Miles, M.B. (1994). *Data management and analysis methods*. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 428–444). SAGE Publications.

Hyder, A.A., Wunderlich, C.A., Puvanachandra, P., Gururaj, G., & Kobusingye, O.C. (2007). The impact of traumatic brain injuries: A global perspective. *NeuroRehabilitation, 22*(5), 341–353.

Iaccarino, C., Carretta, A., Nicolosi, F., & Morselli, C. (2018). Epidemiology of severe traumatic brain injury. *Journal of Neurosurgical Sciences, 62*(5). https://doi.org/10.23736/s0390-5616.18.04532-0

Ibrahim, N. A., Ajani, A. W. O., Mustafa, I. A., Balogun, R. A., Oludara, M. A., Idowu, O. E., & Solagberu, B. A. (2017). Road traffic injury in Lagos, Nigeria: Assessing prehospital care. *Prehospital and Disaster Medicine, 32*(4), 424–430. https://doi.org/10.1017/S1049023X17006410

Ilaghi, M., Gharib, F., Pirani, A., Vahabie, A., Grafman, J., Shariat, S.V., Shariati, B., Jahanbakhshi, A., & Mirfazeli, F.S. (2024). The burden of traumatic brain injury on caregivers: Exploring the predictive factors in a multi-centric study. *BMC Psychology, 12*(1). https://doi.org/10.1186/s40359-024-01652-6

Irarrázaval, L. (2020). A phenomenological paradigm for empirical research in psychiatry and psychology: Open questions. *Frontiers in Psychology, 11*, 1399.

Jefferies, M., Peart, T., Perrier, L., Lauzon, A., & Munce, S. (2022). Psychological interventions for individuals with acquired brain injury, cerebral palsy, and spina bifida: A scoping review. *Frontiers in Pediatrics, 10.* https://doi.org/10.3389/fped.2022.782104

Johnson, B., & Christensen, L. (2008). *Educational research: Quantitative, qualitative, and mixed approaches* (3rd ed.). SAGE Publications.

Johnston, C.M., Wallis, M., Oprescu, F.I., & Gray, M. (2017). Methodological considerations related to nurse researchers using their own experience of a phenomenon within phenomenology. *Journal of Advanced Nursing*, *73*(3), 574-584.

Juma, J.O. (2011). African worldviews – their impact on psychopathology and psychological counselling. Unpublished master's dissertation. The University of South Africa.

Kallet, R. H. (2014). How to write the methods section of a research paper. *Respiratory Care*, 49(10), 1229–1232.

Kareem A. (2003). Review of global menace of road accidents with special reference to Malaysia – a social perspective. *Malays J Med Sci* (2003) 10(2):31–9

Kaurani, P., De Marchi Apolaro, A.V.M., Kunchala, K., Maini, S., Rges, H. a. F., Isaac, A., Lakkimsetti, M., Raake, M., & Nazir, Z. (2024). Advances in neurorehabilitation: Strategies and outcomes for traumatic brain injury recovery. *Cureus*. https://doi.org/10.7759/cureus.62242

Kekeya, J. (2021). *Researching Indigenous Education in Papua New Guinea*.University of Papua New Guinea Press.

Kelly, J.F. (2006). A 3-year study of addiction mutual-help group participation following intensive outpatient treatment. *Journal of Consulting and Clinical Psychology*, *74*(4), 567–574. https://doi.org/10.1111/j.1530-0277.2006.00165.x

Kelly, J. G. (1968). Toward an ecological conception of preventive interventions. In J. W. Carter Jr. (Ed.), *Research contributions from psychology to community mental health* (pp. 1–36). New York, NY: Behavioral Publications.

Kelly, S., Thorpe, L., & McBride, A. (2022). *Frameworks of intersectionality in community health*. Oxford, England: Oxford University Press.

Kersten, P., Cummins, C., Kayes, N., Babbage, D., Elder, H., Foster, A., Weatherall, M., Siegert, R.J., Smith, G., & McPherson, K. (2018). Making sense of recovery after traumatic brain injury through a peer mentoring intervention: A qualitative exploration. *BMJ Open*, *8*(10), e020672. https://doi.org/10.1136/bmjopen-2017-020672

Keshavarz, M. (2020). *Exploring contextual influences in education: From theory to practice*. Cham, Switzerland: Springer.Khan, A. (2018), Effects of brain injury. *Headway*. https://www.headway.org.uk/about-brain-injury/individuals/effects-of-brain-injury/

Kim, J., Whyte, J., Patel, S., Europa, E., Wang, J., & Coslett, H. B. (2012). Methylphenidate modulates sustained attention and cortical activation in survivors of traumatic brain injury: A perfusion functional magnetic resonance imaging study. *Psychopharmacology (Berl), 222*(1), 47–57. https://doi.org/10.1007/s00213-011-2575-7

Kim, Y.H., Ko, M.H., Na, S.Y., Park, S.H., & Kim, K.W. (2006). Effects of single-dose methylphenidate on cognitive performance in patients with traumatic brain injury: A double-blind placebo-controlled study. *Clinical Rehabilitation, 20*(1), 24–30. https://doi.org/10.1191/0269215506cr923oa

Knighton, A.J., Stephenson, B., & Savitz, L.A. (2018). Measuring the effect of social determinants on patient outcomes: A systematic literature review. *Journal of Health Care for the Poor and Underserved, 29*(1), 81-106.

Koehler, R., Wilhelm, E. E., & Shoulson, I. (2012). *Cognitive rehabilitation therapy for traumatic brain injury: Evaluating the evidence*. Washington, D.C.: National Academies Press.

Kommal, T.O. (2022). An ethico-legal study on delays of Road Accident Fund assessments in a practice in SA. Unpublished master's thesis, University of the Witwatersrand, Johannesburg, South Africa.

Konrad, C., Geburek, A.J., Rist, F., Blumenroth, H., Fischer, B., Husstedt, I., & Lohmann, H. (2011). Long-term cognitive and emotional consequences of mild traumatic brain injury. *Psychological Medicine, 41*(6), 1197-1211.

Kraus, M.F., & Maki, P.M. (1997). Effect of amantadine hydrochloride on symptoms of frontal lobe dysfunction in brain injury: Case studies and review. *Journal of Neuropsychiatry and Clinical Neurosciences, 9*, 222–230.

Kreutzer, J. S., Gordon, W. A., Rosenthal, M., & Marwitz, J. (1993). Neuropsychological characteristics of patients with brain injury: Preliminary findings from a multicenter investigation. *Journal of Head Trauma Rehabilitation, 8*, 47–59.

Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (4th ed.). Thousand Oaks, CA: SAGE Publications. https://doi.org/10.4135/9781071878781Kumar, R. (2005). *Research methodology: A step-by-step guide for beginners* (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Kumar, R.G., Gao, S., Juengst, S.B., Wagner, A.K., & Fabio, A. (2021). Trajectories of cognitive function after moderate-to-severe traumatic brain injury: A group-based modeling approach. *Frontiers in Neurology*, 12, 8559081. Retrieved March, 4, 2025 from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8559081/

Kumar, R. G., Gao, S., Juengst, S. B., Wagner, A. K., & Fabio, A. (2021). Trajectories of cognitive function after moderate-to-severe traumatic brain injury: A group-based modeling approach. *Frontiers in Neurology, 12*, 8559081. https://doi.org/10.3389/fneur.2021.8559081

Landis, J., Hanten, G., Levin, H.S., Li, X., Ewing-Cobbs, L., Duron, J., et al. (2006). Evaluation of the errorless learning technique in children with traumatic brain injury. *Archives of Physical Medicine and Rehabilitation, 87*(6), 799–805. https://doi.org/10.1016/j.apmr.2006.02.015

Langford, J., & Koppel, S. (2006). Epidemiology of older driver crashes – Identifying older driver risk factors and exposure patterns. *Transportation Research Part F: Traffic Psychology and Behaviour, 9*(5), 309–321.

Leopold, A., Lourie, A., Petras, H., & Elias, E. (2015). The use of assistive technology for cognition to support the performance of daily activities for individuals with cognitive disabilities due to traumatic brain injury: The current state of the research. *NeuroRehabilitation, 37*(3), 359-378.

Levin, H.S. (1991). Treatment of postconcussional symptoms with CDP-choline. *Journal of Neurological Sciences, 103*(Suppl), S39–S42. https://doi.org/10.1016/0022-510X(91)90011-Q

Levine, M., & Perkins, D.V. (1987). *Principles of community psychology: Perspectives and applications.* Oxford University Press.

Lipinska, G., & Thomas, K.G. (2017). Better sleep in a strange bed? Sleep quality in South African women with posttraumatic stress disorder. *Frontiers in Psychology, 8*, 1555.

Lynch, L., Long, M., & Moorhead, A. (2018). Young men, help-seeking, and mental health services: Exploring barriers and solutions. *American Journal of Men's Health*, *12*(1), 138-149.

Maas, A.I.R., Menon, D.K., Manley, G.T., Abrams, M., Åkerlund, C., Andelic, N., Aries, M., Bashford, T., Bell, M.J., Bodien, Y.G., Brett, B.L., Büki, A., Chesnut, R.M., Citerio, G., Clark, D., Clasby, B., Cooper, D.J., Czeiter, E., Czosnyka, M., Zemek, R. (2022). Traumatic brain injury: Progress and challenges in prevention, clinical care, and research. *The Lancet Neurology, 21*(11), 1004–1060. https://doi.org/10.1016/S1474-4422(22)00309-X

Maas, A. I., Menon, D. K., Manley, G. T., Abrams, M., Åkerlund, C., Andelic, N., ... & Zemek, R. (2022). Traumatic brain injury: progress and challenges in prevention, clinical care, and research. *The Lancet Neurology*, *21*(11), 1004-1060.

Maasdorp, S.D., Swanepoel, C., & Gunter, L. (2020). Outcomes of severe traumatic brain injury at time of discharge from tertiary academic hospital in Bloemfontein. *AJTCCM, 26*(2), 32–35.

MacKenzie, H.M., Flores-Sandoval, C., Bateman, E.A., McIntyre, A., Barua, U., Mehta, S., & Teasell, R. (2024). Evidence-based review of randomized controlled trials of interventions for the management of behavioral issues in individuals with moderate to severe traumatic brain injury. *The Journal of Head Trauma Rehabilitation*, *39*(5), 369-381.

Macqueen, R. (2016). Masculine identity after traumatic brain injury. Unpublished doctoral dissertation, University of East Anglia.

Majdan, M., Plancikova, D., Brazinova, A., Rusnak, M., Nieboer, D., Feigin, V., & Maas, A. (2016). Epidemiology of traumatic brain injuries in Europe: A cross-sectional analysis. *The Lancet Public Health, 1*(2), e76–e83. https://doi.org/10.1016/s2468-2667(16)30017-2

Marshall, C., & Rossman, G.B. (2006). *Designing qualitative Research* (4th ed.). SAGE Publications.

Masuku, M.M., Sithole, M.S., & Mthembu, Z. (2023, May). Executive functions in understanding certain disabilities within an African context. *Frontiers in Education*,

8, 1022453. Frontiers Media SA. [Electronic version]. https://doi.org/10.3389/feduc.2023.1022453

Matney, C., Bowman, K., Berwick, D., & National Academies of Sciences, Engineering, and Medicine. (2022). Understanding patients with traumatic brain injury. In *Traumatic brain injury: A roadmap for accelerating progress*. National Academies Press (US).

Maton, K.I., Perkins, D.D., & Saegert, S. (2006). Community psychology at the crossroads: Prospects for interdisciplinary research. *American Journal of Community Psychology, 38*(1-2), 9–21. https://doi.org/10.1007/s10464-006-9062-3

Mavroudis, I., Ciobica, A., Bejenariu, A.C., Dobrin, R.P., Apostu, M., Dobrin, I., & Balmus, I.M. (2024). Cognitive impairment following mild traumatic brain injury (mTBI): A review. *Medicina*, 60(3), 380.

McCrea, M.A., Giacino, J., Barber, J., Temkin, N., Nelson, L., Levin, H., & Dikmen, S. (2021). Functional outcomes over the first year after moderate to severe traumatic brain injury in the prospective, longitudinal TRACK-TBI study. *JAMA Neurology, 78*(8), 982–992.

McDonald, S., Rushby, J., Li, S., de Sousa, A., Dimoska, A., James, C., Tate, R., & Togher, L. (2011). The influence of attention and arousal on emotion perception in adults with severe traumatic brain injury. *International Journal of Psychophysiology, 82*(2), 124–131.

McGwin, G., & Brown, D.B. (1999). Characteristics of traffic crashes among young, middle-aged, and older drivers. *Accident Analysis and Prevention, 31*(3), 181–198. https://doi.org/10.1016/S0001-4575(98)00056-6

Miao, M., Rietdijk, R., Brunner, M., Debono, D., Togher, L., & Power, E. (2022). Implementation of web-based psychosocial interventions for adults with acquired brain injury and their caregivers: Systematic review. *Journal of Medical Internet research, 24*(7), e38100.

Mignolo, W. D., & Bussmann, L. (2023). *Decolonial intersectionality: Challenging Western epistemologies in health and social research*. Durham, NC: Duke University Press.Milner, B., & Petrides, M. (1984). Behavioral effects of frontal lesions in man. *Trends in Neurosciences, 7*(9), 403–407.

Minary, L., Hawe, P., & Francis, O. (2017). Intervention Complexity and Intersectionality in Health Programs: Addressing Social Determinants. *BMC Public Health*, 17(1), 1–12.

Misra, S., Jain, P., & Dutta, R. (2021). Social inequities in health and intersectionality: An integrative review. *Journal of Health Inequity*, 9(3), 102–118.

Moodley, M. (2021). *Myths and misconceptions of traumatic brain injuries among high school learners and university students in South Africa* (Master's thesis). University of Cape Town. Retrieved from https://open.uct.ac.za/handle/11427/33854

Moore, P.S., Brifcani, S., & Worthington, A. (Eds.). (2021). *Neuropsychological aspects of brain injury litigation: A medicolegal handbook for lawyers and clinicians*. London: Routledge.

Moore, P. S. (2021). *EMDR treatment for persistent post-concussion symptoms following mild traumatic brain injury: A case study*. Journal of EMDR Practice and Research, 15(3), 157–166. https://doi.org/10.1891/EMDR-D-21-00015

Morrison, M., Gregory, M., & Thorne, T. (2011). *Introduction to Research Methods in Education*. London: Routledge.

Muili, A.O., Kuol, P.P., Jobran, A.W., Lawal, R.A., Agamy, A.A., & Bankole, N.D A. (2024). Management of traumatic brain injury in Africa: Challenges and opportunities. *International Journal of Surgery*, *110*(6), 3760–3767. https://doi.org/10.1016/j.ijsu.2024.03.021

Muliira, J.K., Lazarus, E.R., Jacob, D., & Roslin, H. (2023). The needs of families caring for patients with traumatic brain injury: A scoping review. *Disability and Rehabilitation*, 1–9. https://doi.org/10.1080/09638288.2023.2278178

Mullally, W. J., & Hall, K. E. (Eds.). (2024). *Practical approach to the neurological patient: A clinician's guide* (1st ed.). Elsevier. Retrieved February 23, 2025

Muthama, E., & McKenna, S. (2024). The whole is greater than the sum of its parts: A case study of the nexuses between teaching, research and service. *Higher Education Research & Development*, *43*(1), 211-226.

Naglieri, J. A., & Goldstein, S. (2013). *Comprehensive executive function inventory: Technical manual*. Multi-Health Systems.

Naidoo, D. (2013). Traumatic brain injury: The South African landscape. *South African Medical Journal*, 103(9), 613-614.

National Academies of Sciences, Engineering, and Medicine. (2022). *Traumatic brain injury: A roadmap for accelerating progress.* National Academies Press. Retrieved March, 4, 2025, from : https://www.ncbi.nlm.nih.gov/books/NBK580077/

National Academies of Sciences, Engineering, and Medicine. 2022. *Traumatic Brain Injury: A Roadmap for Accelerating Progress*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25394.

Ncube, P.Z., Cheteni, P., & Sindiyandiya, K.P. (2016). Road accident fatalities trends and safety management in South Africa. *Problems and Perspectives in Management, 14*(3), 473–479.

Nelson, L.D., Temkin, N.R., Dikmen, S., Barber, J., Giacino, J.T., Yuh, E., Levin, H.S., et al. (2019). Recovery after mild traumatic brain injury in patients presenting to US level I trauma centers: A transforming research and clinical knowledge in traumatic brain injury (TRACK-TBI) study. *JAMA Neurology*, *76*(9), 1049–1059.

Neumann, D., Zupan, B., Babbage, B.R., Radnovich, A.J., Tomita, M., Hammond, F., & Willer, B. (2012). Affect recognition, empathy, and dysosmia after traumatic brain injury. *Archives of Physical Medicine and Rehabilitation, 93*, 1414–1420. https://doi.org/10.1016/j.apmr.2012.02.010

Nielsen, T.R., & Staios, M. (2023). Clinical utility of WAIS-IV matrix reasoning among adult low educated recent immigrants: A note of caution. *Archives of Clinical Neuropsychology, 38*(6), 976-982.

Nkosi, B.M. (2012). Understanding and exploring illness and disease in South Africa: A medical anthropology context. *International Journal of Humanities and Social Science, 2*(24), 84–94.

Nwoye, A. (2015). African psychology and the Afrocentric paradigm to clinical diagnosis and treatment. *South African Journal of Psychology, 45*(3), 305–317.

O'Leary, C.A. (2000). Reducing aggression in adults with brain injuries. *Behavioral Interventions, 15*, 205–216. https://doi.org/10.1002/bin.111

Oosthuizen, G. (2015). An audit of traumatic brain injury in a busy developing-world trauma service exposes significant deficits. *South African Medical Journal*, 105(11), 939-944.

Owolabi, E. O., Nyamathe, S., Joseph, C., Khuabi, L. J., English, R. G., Vlok, A., Erasmus, E., Geduld, H. I., Lategan, H. J., & Chu, K. M. (2022). Mapping access to care and identification of barriers for traumatic brain injury in a South African township. *Journal of Evaluation in Clinical Practice*, *29*(2), 380–391. https://doi.org/10.1111/jep.13793

Owsley, C., Ball, K., Sloane, M.E., Roenker, D.L., & Bruni, J.R. (1991). Visual/cognitive correlates of vehicle accidents in older drivers. *Psychology and Aging*, *6*(3), 403–415. https://doi.org/10.1037/0882-7974.6.3.403

Oyesanya, T.O., Loflin, C., Harris, G., & Bettger, J.P. (2021). "Just tell me in a simple way": A qualitative study on opportunities to improve the transition from acute hospital care to home from the perspectives of patients with traumatic brain injury, families, and providers. *Clinical Rehabilitation*, *35*(7), 1056-1072.

Parashar, A., Singh, T., & Kumar, R. (2023). Social Determinants and Intersectionality in Health: Challenges and Future Directions. *Global Health Journal*, 28(2), 45–63.

Parker, A., Parkin, A., & Dagnall, N. (2021). Effects of survival processing on list method directed forgetting. *Memory*, *29*(5), 645-661.

Parkinson, F., Kent, S.J., Aldous, C., Oosthuizen, G., & Clarke, D. (2014). The hospital cost of road traffic accidents at a South African regional trauma centre: A micro-costing study. *Injury*, *45*(1), 342–345.

Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods* (3rd ed.). SAGE Publications.

Persons, J. B. (2023). How to conduct research in your private practice? *Cognitive and Behavioral Practice*, *30*(2), 195-207. https://doi.org/10.1016/j.cbpra.2022.07.005

Petersen, J. L., Ritter, S. N., Palmquist, C. M., & Bergquist, T. F. (2025). Natalie wants to drive her car and has a traumatic brain injury: Neuroscience facilitates our understanding of driving a car. In *The neuroscience of everyday life* (pp. 304-316). Routledge.

Petrie, M., & Zatzick, D. (2010). Collaborative care interventions in general trauma patients. *Oral and Maxillofacial Surgery Clinics*, 22(2), 261-267.

Pieper, M., & Thomson, S. (2020). *Qualitative methods in social research: A practical guide for students*. SAGE Publications.

Polit, D.F., & Beck, C.T. (2004). *Nursing research: Principles and methods*.Lippincott Williams & Wilkins.

Pretorius, C., & Broodryk, M. (2013). Misconceptions about traumatic brain injuries among South African university students. *South African Journal of Psychiatry*, 19(3), 75-80.

Pretorius, C., Chambers, D., & Coyle, D. (2019). Young people's online help-seeking and mental health difficulties: Systematic narrative review. *Journal of Medical Internet Research*, *21*(11), e13873.

Prilleltensky, I., & Prilleltensky, O. (2006). *Promoting wellbeing: Linking personal, organizational, and community change.* John Wiley & Sons.

Ramirez, M. (2017). *Psychology of the Americas: Mestizo perspectives on personality and mental health* (Vol. 126). Elsevier.

Rapp, P.E., & Curley, K.C. (2012). Is a diagnosis of "mild traumatic brain injury" a category mistake? *Journal of Trauma and Acute Care Surgery*, *73*, S13–S23. https://doi.org/10.1097/TA.0b013e3182627c69

Rappaport, J. (2005). Community psychology is (thank God) more than science. *American Journal of Community Psychology, 35*(1–2), 231–239.

Ratcliff, J.J., Adeoye, O., Lindsell, C.J., Hart, K.W., Pancioli, A., McMullan, J.T., & Yue, J.K. (2014). ED disposition of the Glasgow Coma Scale 13 to 15 traumatic brain injury patient: Analysis of the transforming research and clinical knowledge in TBI study. *American Journal of Emergency Medicine, 32*(8), 844–850.

Reich, S.M., Riemer, M., Prilleltensky, I., & Montero, M. (2007). International community psychology: History and theories. In S.M. Reich, M. Riemer, I. Prilleltensky, & M. Montero (Eds.), *International community psychology: History and theories* (pp. 3–20). Springer. https://doi.org/10.1007/978-0-387-49500-2_1

Reppucci, N.D., Woolard, J.L., & Fried, C.S. (1999). Social, community, and preventive interventions. In D. T. Campbell & D.W. Fiske (Eds.), *Social, community, and*

preventive interventions (pp. 389–414). Springer. https://doi.org/10.1007/978-1-4615-4193-6_36

Roldán Restrepo, M. (2022). Non-invasive multimodal monitoring in traumatic brain injury. Unpublished doctoral dissertation, City, University of London.

Rolison, J.J., Regeva, S., Moutarib, S., & Feeney, A. (2018). What are the factors that contribute to road accidents? An assessment of law enforcement views, ordinary drivers' opinions, and road accident records. *Accident Analysis and Prevention, 115*, 11–24. https://doi.org/10.1016/j.aap.2018.03.006

Roos, V., & Vorster, C. (2009). *An Introduction to forensic psychology* (2nd edn.). Potchefstroom: Platinum Press.

Ruane, J.M. (2005). *Essentials of research methods: A guide to social science research*. Blackwell Publishing.

Ryan, F. (2018). *Research approaches and methods in education*. London: Routledge.

Sansonetti, D., Fleming, J., Patterson, F., & Lannin, N.A. (2024). Profiling self-awareness in brain injury rehabilitation: A mixed methods study. *Neuropsychological Rehabilitation, 34*(8), 1186-1211.

Sapiro, V., & Matthews, S. (2020). *Political psychology: Situations, individuals, and cases* (2nd ed.). London: Routledge.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity, 52*(4), 1893–1907.

Schretlen, D.J., & Shapiro, A.M. (2003). A quantitative review of the effects of traumatic brain injury on cognitive functioning. *International Review of Psychiatry, 15*, 341–349.

Schwandt, T.A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructionism. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 189–213). Sage Publications.

Shange, S., & Ross, E. (2022). "The question is not how but why things happen": South African traditional healers' explanatory model of mental illness, its diagnosis, and

treatment. *Journal of Cross-Cultural Psychology, 53*(5), 503–521. https://doi.org/10.1177/00220221221077361

Sharbafshaaer, M., Hashemzahi, Z., Thomas, P., & Keshtegar, S. (2020). Traumatic brain injury (TBI): Exploring degrees and causes of TBI in mental health impairment by comprising gender differences. *Jornal Brasileiro De Psiquiatria*, *69*(4), 263–268. https://doi.org/10.1590/0047-2085000000292

Sheehan, M. (2022). *Critical perspectives on intersectionality and health disparities*. Oxford University Press.

Shinn, M., & Toohey, M. (2003). Community contexts of human welfare. *Annual Review of Psychology, 54*, 427–459. https://doi.org/10.1146/annurev.psych.54.101601.145052

Shinn, M., & Yoshikawa, H. (Eds.). (2008). *Toward positive youth development: Transforming schools and community programs.* Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195327892.001.0001

Silver, J.M., McAllister, T.W., & Arciniegas, D.B. (2009). Depression and cognitive complaints following mild traumatic brain injury. *American Journal of Psychiatry, 166*, 653–661. https://doi.org/10.1176/appi.ajp.2009.09020217

Simango, J., & Segalo, P. (2020). Re-imagining Psychology: An Africanist Perspective. *Alternation*, *27*(1).

Simpson, G., Mohr, R. & Redman, A. (2000). Cultural variations in the understanding of traumatic brain injury and brain injury rehabilitation. *Brain Injury,* 14 (2), 125-140.

Singleton, R.A., & Straits, B.C. (2010). *Approaches to Social Research* (5th ed.). Oxford University Press.

Skandsen, T., Finnanger, T.G., Andersson, S., Lydersen, S., Brunner, J.F., & Vik, A. (2010). Cognitive impairment 3 months after moderate and severe traumatic brain injury: A prospective follow-up study. *Archives of Physical Medicine and Rehabilitation, 91*, 1904–1913.

Smith, B.G., Whiffin, C.J., Esene, I.N., Karekezi, C., Bashford, T., Mukhtar Khan, M., & Rubiano, A.M. (2022). Neurotrauma clinicians' perspectives on the contextual challenges associated with traumatic brain injury follow up in low-income and middle-income countries: A reflexive thematic analysis. *PloS one, 17*(9), e0274922.

Smith, J., & Luke, A. (2021). *Educational research: Contemporary issues and practical approaches* (2nd ed.). SAGE Publications.

Snow, D.L., Grady, K., & Goyette-Ewing, M. (2000). A perspective on ethical issues in community psychology. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 897–917). Springer. https://doi.org/10.1007/978-1-4615-4193-6_36

Sodi, T., Bopape, D., & Makgahlela, M. (2021). Botho as an essential ingredient of African psychology: An insider perspective. *South African Journal of Psychology, 51*(3), 441-452.

Stangor, C., & McMillan, D., (1992). Memory for expectancy-congruent and expectancy-incongruent information: A review of the social and social developmental literatures. *Psychological Bulletin, 111(1), 42–61.*

Stevenson, V., Ajina, S., Christofi, G., Farrell, R., Greenwood, R., Julien, C., & Ward, N. (2024). Restorative neurology, rehabilitation and brain injury. *Neurology: A Queen Square Textbook*, 855-901.

Steyerberg, E.W., Wiegers, E., Sewalt, C., Buki, A., Citerio, G., De Keyser, V., & Otesile, O. (2019). Case-mix, care pathways, and outcomes in patients with traumatic brain injury in CENTER-TBI: A European prospective, multicentre, longitudinal, cohort study. *The Lancet Neurology*, *18*(10), 923-934.

Sun, H., Luo, C., Chen, X., & Tao, L. (2017). Assessment of cognitive dysfunction in traumatic brain injury patients: A review. *Forensic Sciences Research*, *2*(4), 174–179. https://doi.org/10.1080/20961790.2017.1380424

Supaquick. (2019, April 19). How speed influences car accidents. *Safety*. Retrieved from https://www.supaquick.com/blog/how-speed-influences-car-accidents

Sveen, U., Guldager, R., Soberg, H.L., Andreassen, T.A., Egerod, I., & Poulsen, I. (2022). Rehabilitation interventions after traumatic brain injury: A scoping review. *Disability and Rehabilitation*, *44*(4), 653-660.

Tellmann, S.M. (2022). The societal territory of academic disciplines: How disciplines matter to society. *Minerva*, *60*(2), 159-179.

Tenovuo, O., Diaz-Arrastia, R., Goldstein, L.E., Sharp, D.J., Van Der Naalt, J., & Zasler, N.D. (2021). Assessing the severity of traumatic brain injury – time for a change? *Journal of Clinical Medicine, 10*(1), 148. https://doi.org/10.3390/jcm10010148

Thomas, R. (2020). Embracing emotions: Phenomenological inquiry and trauma. *Journal of Humanistic Psychology, 60*(3), 1–24.

Torregrossa, W., Raciti, L., Rifici, C., Rizzo, G., Raciti, G., Casella, C., & Calabrò, R. S. (2023). Behavioral and psychiatric symptoms in patients with severe traumatic brain injury: A comprehensive overview. *Biomedicines*, *11*(5), 1449.

Toubkin, M. (2016). Distracted driving: A leading cause of motor vehicle accidents in South Africa. *Journal of South African Road Safety, 12*(3), 45-58. https://doi.org/10.1016/j.jsars.2016.01.005

Trickett, E.J. (2009). Multilevel community-based culturally situated interventions and community impact: An ecological perspective. *American Journal of Community Psychology, 43*(3-4), 257-266. https://doi.org/10.1007/s10464-009-9227-y

Tsaousides, T., & Gordon, W.A. (2009). Cognitive rehabilitation following traumatic brain injury: Assessment to treatment. *Mount Sinai Journal of Medicine, 76*(2), 173–181. https://doi.org/10.1002/msj.20113

Uttal, L. (2006). Organizational cultural competency: Shifting programs for Latino immigrants from a client-centered to a community-based orientation. *American Journal of Community Psychology, 38*(3-4), 251-262.

Uys, L.R. (1991). A theoretical framework for psychiatric rehabilitation. *Curationis*, 14(3), 1-5.

Uzan, M. (2022). *Rethinking Social Theory through Intersectionality* (p. viii). Cambridge University Press.

Van den Broek, B., Rijnen, S., Stiekema, A., Van Heugten, C., & Bus, B. (2022). Factors related to the quality and stability of partner relationships after traumatic brain injury: A systematic literature review. *Archives of Physical Medicine and Rehabilitation, 103*(11), 2219-2231.

Varkevisser, M., Pathmanathan, I., & Brownlee, A. (2003). *Applied health research manual: Anthropology of health and health care*. Mahidol University, De La Salle University, the Royal Tropical Institute, & University of Amsterdam.

Varkey, J. (2020). Financial literacy in the FinTech era: A study of scheduled tribes in Kerala. *International Journal of Advanced Science and Technology*, *29*(5), 2904-2915.

Verster, T., & Fourie, E. (2018). The good, the bad and the ugly of South African fatal road accidents. *South African Journal of Science, 114*(7–8), 63–69. https://doi.org/10.17159/sajs.2018/20170427

Von Maur, C. (2021). *Intersectionality and social theory: New directions in social science research*. Springer.

Wassenaar, D.R. (2006). *Ethical issues in social science research*. In M. Terre Blanche, K. Durrheim, & D. Painter (Eds.), *Research in Practice: Applied Methods for the Social Sciences* (pp. 61–79). Cape Town, South Africa: University of Cape Town Press.

Watts, R. J., & Flanagan, C. (2007). Pushing the envelope on youth civic engagement: A developmental and liberation psychology perspective. *Journal of Community Psychology, 35*(6), 779–792. https://doi.org/10.1002/jcop.20178

Whitebread, D., Pyle, T., & Saini, M. (2022). *Child Development and Intersectionality in Early Education* (p. 117). Cambridge University Press.

Whiting, D., Deane, F., McLeod, H., Ciarrochi, J., & Simpson, G. (2019). Can acceptance and commitment therapy facilitate psychological adjustment after a severe traumatic brain injury? A pilot randomized controlled trial. *Neuropsychological Rehabilitation, 30*(7), 1348–1371. https://doi.org/10.1080/09602011.2019.1583582

Wilkins, S., & Forester, A. (2019). Research ethics in educational settings: The role of principals and ethical committees. *Journal of Educational Policy, 34*(1), 72–90.

Wilkinson, T., Wade, W., & White, M. (2009). A blueprint to assess professionalism: Results of a systematic review. *Medical Teacher, 31*(5), 448–458. https://doi.org/10.1080/01421590902889782

Willacy, H. (2017). Mini Mental State Examination. *Lancaster University, Lancaster Medical School*. Retrieved from https://patient.info/doctor/mini-mental-state-examination-mmse Adeolu

World Health Organization. (2006). *Neurotrauma: The global burden*.

World Health Organization. (2013). *WHO global status report on road safety 2013: Supporting a decade of action*. World Health Organization. https://iris.who.int/handle/10665/78256

World Health Organization. (2014). *Global health estimates, 2014*. http://www.who.int/healthinfo/global_burden_disease/en/

World Health Organization. (2015). *Global status report on road safety 2015*. World Health Organization. https://iris.who.int/handle/10665/189242.

Wymer, W., Martin, C., & Van Slyke, C. (2023). *Intersectionality in social science research: Applications in health and society*. SAGE Publications.

Yaussy, C. (2021). *Frameworks of intersectionality in modern health studies*. Oxford University Press.

Yin, R.K., 2003. Designing case studies. *Qualitative Research Methods, 5*(14), pp.359-386.

Yin, R.K. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, California: Sage Publications.

Yue, J.K., Yuh, E.L., Korley, F.K., Winkler, E.A., Sun, X., Puffer, R.C., & Deng, H. (2019). Association between plasma GFAP concentrations and MRI abnormalities in patients with CT-negative traumatic brain injury in the TRACK-TBI cohort: A prospective multicentre study. *Lancet Neurology, 18*(10), 953–961.

Yuval-Davis, N. (2017). *Gender and Nation: Revisiting the Intersectional Approach*. SAGE Publications.

Zafonte, R.D., Bagiella, E., Ansel, B.M., Novack, T.A., Friedewald, W.T., & Hesdorffer, D.C. (2012). Effect of citicoline on functional and cognitive status among patients with traumatic brain injury: Citicoline brain injury treatment trial (COBRIT) JAMA. 2012;308:1993–2000

Zakopoulou, V., Magou, L., Christodoulides, P., Anagnostou, I. P., Tzallas, A., Kostadima, V., & Ploumis, A. (2024). Cognitive patterns and neural correlates in acquired phonological dyslexia. A pilot study in Greek patients after traumatic and non-traumatic brain disorders. *Applied Neuropsychology: Adult*, 1-12.

Zaman, R., Rifat, M.N.I., Maliha, F., Hossain, M.N.B., Akhtaruzzaman, R., & Adnan, A. (2024). Multiscale structure of brain and challenges in traumatic brain injury risk prediction. *Multiscale Science and Engineering*, *6*(2), 124-146.

Mokhosi, M., & Grieve, K. (2004). African families' perceptions of traumatic brain injury. *South African Journal of Psychology*, *34*(2), 301-317.

Stocchetti, N., & Zanier, E. R. (2016). Chronic impact of traumatic brain injury on outcome and quality of life: a narrative review. *Critical Care*, 20, 1-10.

Galgano, M., Toshkezi, G., Qiu, X., Russell, T., Chin, L., & Zhao, L. R. (2017). Traumatic brain injury: current treatment strategies and future endeavors. *Cell transplantation*, 26(7), 1118-1130.

Mehmood, A., Rowther, A. A., Kobusingye, O., Ssenyonjo, H., Zia, N., & Hyder, A. A. (2021). Delays in emergency department intervention for patients with traumatic brain injury in Uganda. *Trauma Surgery & Acute Care Open*, 6(1), e000674. https://doi.org/10.1136/tsaco-2021-000674.

APPENDICES

APPENDIX 1: TRANSCRIPTS FROM INTERVIEWS

What are the experiences of TBI patients when medical handoffs (transfer from one health care provider to another) are executed as part of psychological interventions?

How many experts have you been to or seen so far?

Participant 1: I have been to four so far; I think you are the 4th one. I have been told that I still need to see 3 more.

Participant 2: I think I was seen by a total of 10 doctors before my claim was settled.

Participant 3: I was seen by a total of 5 experts.

Participant 4: I have been to five so far.

Participant 5: I was seen by 6 experts in total.

Do you know the specializations of the experts you have seen so far and for what purpose?

Participant 1: Yes, I think it was an Orthopedic Surgeon, an Occupational Therapist, a Neurosurgeon, and you as a Clinical Psychologist. They only saw me once for assessments for the purposes of my claim.

Participant 2: I think I was seen by a total of 10 doctors before my claim was settled. All of them only carried out evaluations rather than any treatments.

I was advised that after the doctors appointed by my attorneys had submitted their reports, the decision for the Road Accident Fund to appoint their own doctors was taken so that they could compare the findings made by the initial doctors. I know I saw two Neurosurgeons, Psychologists, Orthopedic Surgeons, and others whose areas of specialization cannot recall.

Participant 3: I was seen by a Neurosurgeon, Clinical Psychologist, Occupational Therapist, Industrial Psychologist, and ENT Specialist. They were all about evaluation and examination. When I asked for the treatment they told me that they were instructed to evaluate and report on their findings.

Participant 4: Yes, I think it was an Occupational Therapist, a Neurosurgeon, an Industrial Psychological, an Orthopedic Surgeon, and Clinical Psychological. I saw them for examinations only, and I only saw them once.

Participant 5: It was an Occupational Therapist, a Neurosurgeon, an ENT Specialist, an Industrial Psychological, an Orthopedic Surgeon, and Clinical Psychological. I was seen by them for assessment purposes only.

How long after the injuries did you see the first expert? And were you informed of why you had to wait?

Participant 1: I think I waited for almost 2 years. I was increasingly getting frustrated as I was experiencing more complications, and I could not afford to pay private doctors since I stopped working after the accident due to failing to cope with my work demands. My attorneys informed me that they would tell me when it was time for seeing the doctors.

Participant 2: it took a good two years before I started attending the assessment sessions. It was draining and disappointing to say the least. At some point I thought it was never going to be finalized. My attorneys informed me that they would tell me when it was time for seeing the doctors.

Participant 3: I think I waited for 18 months before my first assessment. I was told that it was a procedure that you wait for a certain period before you can undergo evaluations.

Participant t 4: I think I waited for 2 years. I was told that there the processes stipulated that I had to wait for a certain period before I could start attending the appointments with different doctors.

Participant 5: I think I waited for almost 2 years. I was told that, that is how it was done.

How was the process of waiting for the initial assessment, and what was your experience being seen by various experts for subsequent evaluations?

Participant 1: I was increasingly getting frustrated as I was experiencing more complications, and I could not afford to pay private doctors since I stopped working after the accident due to failing to cope with my work demands.

Participant 2: It was draining and disappointing to say the least. At some point I thought it was never going to be finalized.

Participant 3: I felt hard done and let down because I had gone for more than 3 years without any treatments for headaches, nosebleeds, dizziness, personality changes, and depression.

Participant 4: I think I was frustrated by the process. I did not understand why I had to wait for such a long time before I started visiting all the doctors. Also, when I started seeing these doctors I did not receive any treatments.

Participant 5: I was becoming increasingly impatient and disheartened.

Participant 2: After the finalization of the claim I was allowed to also see a psychologist. I have been seeing one for almost a year now. We see each other after every two weeks for psychotherapy.

Participant 4: I have never received any treatment from any of them.

Participant 5: Yes, I have been seeing a psychologist and psychiatrist to whom I was referred by the psychologist. It was after the settlement of my claim that I was told that I could see the professionals they told me of. They said those doctors would have to make direct claims after providing services to me.

How do TBI patients perceive their encounters with various psychological intervention strategies?

Since the occurrence of the accident in which you sustained a head injury, have you noticed any psychological problems you are experiencing? And what are these?

Participant 1: I have seen a lot, and I am afraid because I think I have become mentally disturbed. I sometimes hear voices that are not heard by anyone else, I have become increasingly short-tempered and quick to anger, I think I have a low self-esteem, I have become socially withdrawn and avoidant, I have become forgetful, my concentration levels have decreased, I am suicidal, and I often experience accident-related nightmares and flashbacks and travel anxiety. I think I will never be okay again. I have become useless.

Participant 2: I was mostly worried by depression, anxiety, mood problems, and memory loss.

Participant 3: Yes, I grappling with mood swings, personality changes, depression, anxiety, and concentration and memory problems.

Participant 4: Yes, I have seen them and they are persistent. I have mood swings, I am shy, I have a low self-esteem, I get easily irritated, I forget a lot, and my concentration span is reduced.

Participant 5: Yes, I have psychological problems that started after the accident. I have anxiety, poor memory, concentration problems, reduced thinking ability, emotional and mood problems, adjustment difficulties, and social withdrawal.

Have you seen any psychologist for psychotherapy? And did you see the need to see a Psychologist?

Participant 1: Long time ago, I would have sought psychological treatment. I want to feel myself again. I want to live a normal life again. However, I cannot afford to pay the fees.

Participant 2: No, in fact the private doctor I had seen a few months after the accident advised me to seek psychological help from a private psychologist who would see me over a long period. However, the problem is the same issue of affordability. Yes, I did see the need, and even my family sees the need as we often talk about it, but we cannot afford the services.

Participant 3: Yes, I only saw a psychologist for assessment purposes. I think the interventions would be impactful.

Participant 4: No, I have not seen any psychologist for treatment apart from being assessed by them once. I was advised that you need to see a psychologist for a long time and you would need a lot of money. I could not afford such services. Yes, I need treatment.

Participant 5: Yes, like I said I started seeing a psychologist after the settlement of my claim because I always wanted to, but I could not afford.

Are the psychological interventions (whether its assessment or psychotherapy) received impactful?

Participant 1: I think the assessment will benefit a lot because the assessment results will confirm if indeed the problems I have stated are present, and if they are, the extent to which they are compromising my functioning. Also, the assessment results will help me know if there are other psychological problems I have that I probably did not notice or could not describe. Then, I think they will be suggested treatments that I would then seek after the settlement.

Participant 2: Like I said, I have benefited a lot from psychotherapy. I just wish I had this access early on.

Participant 3: Yes, the assessment is beneficial because it helped the expert ascertain the problems I have.

Participant 4: I am happy that the assessment will be handy in finalizing my claim. However, I wished the psychologist could also help me deal with all my problems.

Participant 5: First, I think the assessment was helpful in identifying all the psychological problems I had. The therapy sessions are what I needed all along.

In what ways did TBI patients find psychological intervention strategies (a) helpful to their condition? (b) Not helpful to their conditions

Did the psychological interventions (the assessment and/or therapy) help you at all?

Participant 5: Yes, like I said the assessment helped me have insight into my psychological problems. It also helped in the finalization of my claim. The therapy sessions have been helpful as I now feel much better; I have improved moods, less anxiety, better relationships with my family, and my concentration has improved.

Participant 4: I think the assessment results will help me understand myself better. Also, I think it will help in finalizing my claim.

Participant 3: I think It will benefit me a lot because my relationship with my family has deteriorated, and my mood is always depressed.

Participant 2: Greatly, my situation was deteriorating prior to the psychological services. My relationship with my kids was becoming toxic because of me. Now I am much better. I am also grateful to my kids who were also engaged by my psychologist on how to support and care for me.

Participant 1: I think the assessment will benefit a lot because the assessment results will confirm if indeed the problems are I have stated are present, and if they are, the extent to which they are compromising my functioning. Also, the assessment results will help me know if there are other psychological problems I have that I probably did not notice or could not

describe. Then, I think they will be suggested treatments that I would then seek after the settlement.

What challenges did TBI patients face in accessing health care?

What are these challenges that you have faced in accessing healthcare?

Participant 1: The biggest challenge is that all the experts' services are too expensive. The issue is that once you have started pursuing the claim so that you may get the compensation you deserve on the basis of the injuries sustained, you cannot seek any significant treatment or surgery because the ones who would examine you for the claim purposes have to identify and quantify the problem so that the compensation is congruent with the degree of the injuries. The problem with all of that is that you have to endure all these difficulties while waiting for the right time to start seeing the doctors for the examinations.

Participant 2: The public hospitals don't have enough capacity as I could not get the help I had sought. The psychologist was alone and lots and lots of people to see. Another issue was the lack of money since most psychological services are expensive. I had to wait for more than 5 years before I could get help.

Participant 3: It was the issue of affordability as I was waiting for my claim to be processed and finalized.

Participant 4: It's the fact that most services are expensive. Also, it's the fact that you have to wait for a long time before you could get compensated so that you can access the services of the doctors

Participant 5: It's affordability problems and the fact that we don't have all the experts in our rural communities.

What implications do psychological intervention strategies present for public policy and healthcare in South Africa?

Regarding psychological interventions, what do you think needs to be done?

Participant 5: These interventions need to be made available in the rural communities. Also, we must not be subjected to such prolonged wait before we could be given an undertaking certificate to access healthcare.

Participant 4: These interventions need to be made available in all the communities, including the rural areas.

Participant 3: There must be psychologists stationed at local clinics.

Participant 2: I think the government needs to employ more psychologists as there is a huge need for them. Also, if the Road Accident Fund could help us as the victims to access healthcare services as early as possible.

Participant 1: I think there must not be delays. These interventions need to be made available almost instantly because I believe there is no one who can choose to experience these problems over trying to address them early enough.

APPENDIX 2: INFORMED CONSENT DECLARATION

(Participant)

Project Title: **Impact of Intervention Strategies on Motor Vehicle Accident-Induced Head Injury Survivors in KwaZulu Natal Province, South Africa.**

I, Nhlakanipho Nkwanyana from the Department of Psychology, University of Zululand have requested my permission to participate in the research mentioned above project.

The nature and the purpose of the research project and this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The University of Zululand has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.

2. By participating in this research project I will be contributing towards *the exploration of access to healthcare for motor vehicle accident – induced traumatic brain injury survivors.*

3. I will participate in the project by responding to the in-depth interview questions.

4. My participation is entirely voluntary and should I, at any stage, wish to withdraw from participating further, I may do so without any negative consequences.

5. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.

6. There may be risks associated with my participation in the project. I, however, am aware that

   a. The researcher does not envisage any possible risks associated with my participation
   b. If any risk arises, there are steps itemised to be taken to prevent the risks
   c. there is a .....0.1% chance of the risk materialising

7. The researcher intends to publish the research results through research papers and conference proceedings. However, confidentiality and anonymity of records will be maintained, and my name and identity will not be revealed to anyone who has not been involved in conducting the research.
8. I will not receive feedback/will receive feedback in the form of a workshop regarding the results obtained during the study.

9. Any further questions that I might have concerning the research or my participation will be answered by Prof. J.D. Thwala whose email address is drjdthwala@gmail.com

10. I am not waiving any legal claims, rights, or remedies by signing this informed consent declaration.

11. A copy of this informed consent declaration will be given to me, and the original will be kept on record.

I, _____ have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all the questions I wished to ask, which were answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressured in any way and voluntarily agree to participate in the above-mentioned project.

....

Participant's Signature **Date**

The University of Zululand, Research Ethics Committee (UZREC)

Research & Innovation Office

t: +27 (0) 35 902 6324 or t: +27 (0) 35 902 6056

House 22, Next to Old VC House, 1 Main Road, KwaDlangezwa, 3886

APPENDIX 3: PERSONAL INFORMATION CONSENT FORM

(Participant)

Project Title: **Impact of Intervention Strategies on Motor Vehicle Accident-Induced Head Injury Survivors in KwaZulu Natal Province, South Africa.**

I, Nhlakanipho Nkwanyana from the Department of Psychology, University of Zululand have requested my permission to participate in the research mentioned above project.

The nature and the purpose of the research project and this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The University of Zululand has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.

2. By participating in this research project I will be contributing towards *the exploration of access to healthcare for motor vehicle accident – induced traumatic brain injury survivors.*

3. I will participate in the project by responding to the in-depth interview questions.

4. My participation is entirely voluntary and should I, at any stage, wish to withdraw from participating further, I may do so without any negative consequences. **My involvement has no influence on the researcher's judgment of me as a psychologist, nor does it affect any claim processes relating to my injury.**

5. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.

6. There may be risks associated with my participation in the project. I, however, am aware that

   a. The researcher does not envisage any possible risks associated with my participation
   b. If any risk arises, there are steps outlined to be taken to prevent the risks
   c. there is a .....0.1% chance of the risk materialising

7. The researcher intends to publish the research results through research papers and conference proceedings. However, confidentiality and anonymity of records will be maintained, and my name and identity will not be revealed to anyone who has not been involved in conducting the research.
8. I will not receive feedback/will receive feedback in the form of a workshop regarding the results obtained during the study.

9. Any further questions that I might have concerning the research or my participation will be answered by Prof. J.D. Thwala whose email address is drjdthwala@gmail.com

10. I am not waiving any legal claims, rights, or remedies by signing this informed consent declaration.

11. A copy of this informed consent declaration will be given to me, and the original will be kept on record.
12. **I acknowledge that the researcher, as my healthcare practitioner who had assessed me, had access to my medical records. However, I understand that this information would not be used in the study.**
13. **I received an information sheet outlining the nature of the research and its process. Everything entailed in the information sheet was explained in detail right at the beginning of the interview. This sheet described my rights, including the ability to decline or withdraw at any time, the confidentiality with which my information will be kept, and the researcher's intention to use the study to improve healthcare systems.**
14. **In accordance with the Protection of Personal Information Act (POPIA), I accept that the researcher obtained my personal and medical records in his role**

as my healthcare practitioner. However, no personal information was collected for research purposes until I gave my clear informed consent. My data will be securely held and used only for the purposes specified in this study, guaranteeing confidentiality and adherence to ethical and legal norms.

I declare that I have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all the questions I wished to ask, which were answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressured in any way and voluntarily agree to participate in the above-mentioned project.

....

Participant's Signature **Date**

The University of Zululand, Research Ethics Committee (UZREC)
Research & Innovation Office
t: +27 (0) 35 902 6324 or t: +27 (0) 35 902 6056
House 22, Next to Old VC House, 1 Main Road, KwaDlangezwa, 3886

APPENDIX 4: PERMISSION LETTER

University of Zululand
Psychology Department
Private Bag X1001
KwaDlangezwa, 3886
1st February 2021.

The Director
Brian Ngcobo Inc. Attorneys
Durban
South Africa

Dear Sir/Madam,

Permission to Conduct Research

I, Nhlakanipho Nkwanyana wish to seek your permission for working with your head injured clients you have referred to me for evaluation purposes. I am a postgraduate student under the Department of Psychology at the University of Zululand. I intend to conduct in-depth interviews with a view to exploring the head injury victims' experiences with regard to access to healthcare pathways.

The victims will also be allowed to give informed consent relating to their participation in the study.

The title of the research is: **The impact of intervention strategies on motor vehicle accident-induced head injury survivors in KwaZulu Natal Province, South Africa.**

I humbly request your permission to approach the selected individuals to seek their consent to participate in my research project.

I undertake to provide the academic institutions with a copy of the research work. If you require any further information, please do not hesitate to contact me.

Your co-operation in this study will be highly appreciated.

Yours sincerely,

Nhlakanipho Lawrence Nkwanyana
nlmyikwe@gmail.com

APPENDIX 5: ACCESS LETTER

BRIAN NGCOBO
INCORPORATED ATTORNEYS

Office: 031 301 0770 | **Mobile:** 061 460 6205
Email:sbngcobo@nmlegal.co.za **Website:** www.nmlegal.co.za
Address: Corporate Place, 9 Dorothy Nyembe Street,
5th Floor, Suite 504A, Durban, 4000
Registration No.: 2017/247495/21

04 FEBRUARY 2021

"BY E-MAIL"

Dear Nhlakanipho L Nkwanyana

RE: PERMISSION TO CONDUCT STUDY

I hereby acknowledge receipt of your request to conduct your research, working with our head injured clients you have seen for assessment purposes.

In this regard I reply as follows:

1. You are granted permission to work with our clients, provided an informed consent is obtained from each client.

2. We would like to have sight of your final thesis as we are eager to gain new insights into the subjective experiences of clients, particularly the head injured ones.

3. We wish you everything of the best.

Yours faithfully

DIRECTOR: SB NGCOBO
BRIAN NGCOBO INC. ATTORNEYS

DIRECTOR: SB NGCOBO (LLB - UNIVERSITY OF ZULULAND) PROFFESSIONAL ASSISTANT: TP SIBIYA (LLB – UNIVERSITY OF KWAZULU NATAL) CANDIDATE ATTORNEY: MS ZIQUBU (LLB – UIVERSITY OF ZULULAND

APPENDIX 6: RESEARCH INSTRUMENT

Project Title:

The impact of the intervention strategies on the motor vehicle accident-induced head injury survivors in KwaZulu Natal Province, South Africa.

SECTION A – BIOGRAPHICAL INFORMATION

1.1 Participants' Details **Age of the respondent**

18 – 24	25 - 29	30 – 34	35 - 39	40 - 44	45 - 49	50 – 60

Gender or respondent:

Male	Female

Race of household head

African	Indian/Asian	Coloured	White

What is your level of education?

None	Some Pry school	Completed Pry school
Completed High school	Post school Certificate/Diploma/Degree	Postgraduate

What is your employment position?

Full time employed	Part-time employed	Self employed	Unemployed

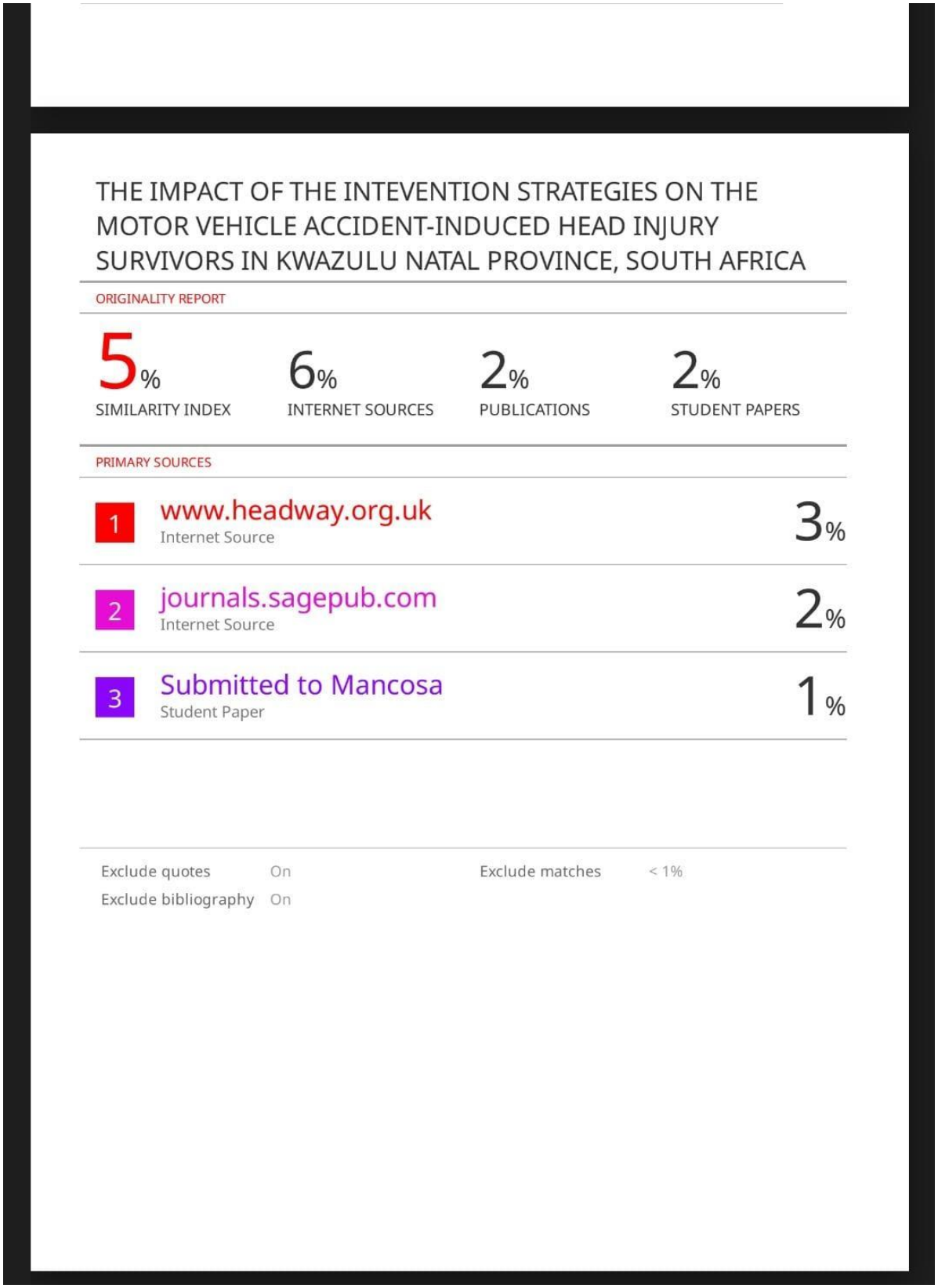
SECTION – B: INTERVIEW SCHEDULE

Interview Guide – Participants

- How do psychological intervention strategies facilitate access to appropriate care pathways for TBI patients towards specific outcomes?
- What are the experiences of TBI patients when medical handoffs (transfer from one healthcare provider to another) are executed as part of psychological interventions?
- How do TBI patients perceive their encounters with various psychological intervention strategies?
- In what ways did TBI patients find psychological intervention strategies (a) helpful to their condition? (b) Not helpful to their conditions
- What challenges did TBI patients face in accessing health care?
- What implications do psychological intervention strategies present for public policy and healthcare in South Africa?
- What are the experiences of TBI patients when medical handoffs (transfer from one health care provider to another) are executed as part of psychological interventions?
- Ever since you sustained a head injury, which experts have you been to, and what were their interventions?
- Do you know the specializations of the experts you have seen so far? And why did you see them?
- How long after the injuries did you see the first expert?
- Were you advised of the reason why there was such a prolonged delay?
- Now that you have started seeing these experts, are you relieved?
- So all these experts, including myself as I am only instructed to examine you, have never treated you?
- How far apart are these appointments with the experts?
- Do these experts explain why do they see you at the beginning of their consultations?

- How do TBI patients perceive their encounters with various psychological intervention strategies?
- Since the occurrence of the accident in which you sustained a head injury, have you noticed any psychological problems you are experiencing?
- What are these problems, if you can mention those you can recall?
- Have you seen any psychologist for psychotherapy?
- Did you see the need to see a psychologist before your doctor's advice?
- Since you are seen by a psychologist, but only for the assessment, how do you feel?
- In what ways did TBI patients find psychological intervention strategies (a) helpful to their condition? (b) Not helpful to their conditions
- What challenges did TBI patients face in accessing health care?
- What implications do psychological intervention strategies present for public policy and healthcare in South Africa?
- Regarding psychological interventions, what do you think needs to be done?

APPENDIX 7: TURNITIN REPORT



THE IMPACT OF THE INTEVENTION STRATEGIES ON THE MOTOR VEHICLE ACCIDENT-INDUCED HEAD INJURY SURVIVORS IN KWAZULU NATAL PROVINCE, SOUTH AFRICA

ORIGINALITY REPORT

5%	6%	2%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.headway.org.uk Internet Source	3%
2	journals.sagepub.com Internet Source	2%
3	Submitted to Mancosa Student Paper	1%

Exclude quotes	On	Exclude matches	< 1%
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APPENDIX 8: ETHICAL CLEARANCE CERTIFICATE

UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE
(Reg No: UZREC 171110-030)

RESEARCH & INNOVATION
Website: http://www.unizulu.ac.za
Private Bag X1001
KwaDlangezwa 3886
Tel: 035 902 6731
Fax: 035 902 6222
Email: LundallN@unizulu.ac.za

ETHICAL CLEARANCE CERTIFICATE

Certificate Number	**UZREC 171110-030 PGD 2020/35**							
Project Title	**The impact of the intervention strategies on the motor vehicle-induced head injury survivors in KwaZulu Natal Province, South Africa**							
Principal Researcher/ Investigator	L Nkwanyana							
Supervisor and Co-supervisor	Prof J.D Thwala							
Department	Psychology							
Faculty	Arts							
Type of Risk	Medium Risk – Data collection from people							
Nature of Project	Honours/4th Year		Master's		**Doctoral**	x	Departmental	

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project. The Researcher may therefore commence with data collection as from the date of this Certificate, using the certificate number indicated above.

Special conditions:

(1) This certificate is valid for 1 year from the date of issue.
(2) Principal researcher must provide an annual report to the UZREC in the prescribed format [due date-06 October 2021]
(3) Principal researcher must submit a report at the end of project in respect of ethical compliance.
(4) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.

The UZREC wishes the researcher well in conducting research.

Professor Mashupye R. Kgaphola
University Research Ethics Committee
Deputy Vice-Chancellor: Research & Innovation

06 October 2020

CHAIRPERSON
UNIVERSITY OF ZULULAND RESEARCH ETHICS COMMITTEE (UZREC)
REG NO: UZREC 171110-30
06 -10- 2020
RESEARCH & INNOVATION OFFICE

APPENDIX 9: EDITOR'S DECLARATION

Editing Certificate

This serves to certify that I, Taryn Laing Cox, a registered editor with the University of Zululand, have edited the thesis submitted by Nhlakanipho Lawrence Nkwanyana, student number 200813462, for examination for doctoral studies in the Department of Psychology, University of Zululand.

Title of Thesis: Impact of Intervention Strategies of Motor Vehicle Accident-Induced Head Injury Survivors in KwaZulu Natal Province, South Africa.