

A critical analysis of neuropsychological evaluations in motor vehicle accident claims in South Africa

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DECLARATION FROM STUDENT

I, Henk Johan Swanepoel, declare that this thesis hereby submitted by me for the degree Doctor of Philosophy in Psychology at the North-West University is my own individual work, although I give credit to the contributions my supervisor bestowed. Best efforts were made to acknowledge and cite the various materials and opinions from the academia used in its preparation and to paraphrase these materials. Furthermore, I declare that this thesis has not previously been submitted for assessment at any other institution.

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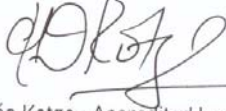
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STATEMENT

- This dissertation is in article format, complying with the requirements of rules A.5.4.2.7 as determined by the North-West University.
- The essence of the thesis comprises of three sections. Section 1 deals with the contextualisation and motivation regarding the research topic as well as a literature study. In Section 2 the guidelines used by the author, as required by the abovementioned journals, are outlined and then four articles are presented according to these guidelines. Section 3 presents critical reflections by the researcher as well as the strengths and limitations of the current study.
- The student is the first author for each article, while the supervisor is the second author.
- The articles have been submitted to the following journals:
 - Article 1: *Professional Psychology: Research and Practice*¹
 - Article 2: *Journal of Psychology in Africa*
 - Article 3: *Psychiatry and Clinical Neurosciences*
 - Article 4: *South African Journal of Psychology*
- A copy of the guidelines for authors of the relevant journals has been inserted before each article in Section 2.
- Prof. E van Rensburg (supervisor) assisted with the analysis and interpretation of results and was involved in the peer review of the articles. She is deemed as co-author of the articles comprising this thesis.
- The co-author has granted her permission that the student may submit the articles for purposes of examination.

¹ The article was published in 2020

- The page numbering is consecutive, starting from the introduction and proceeding to the references.
- The referencing style of this dissertation is consistent with the guidelines as stipulated in the Publication Manual of the American Psychological Association (APA) (7th edition). The articles will be constructed according to the guidelines of the journals.
- The thesis was submitted to Turnitin and it was reported that the dissertation is considered as to be satisfactory.

ABSTRACT

This study focused on the local dilemmas of forensic neuropsychological evaluations in South Africa within the context of motor vehicle accident claims based on three separate studies. Study 1 explored the expectations of 20 experienced legal representatives with regards to neuropsychological evaluations in motor vehicle accident claims, where it was found that the legal profession requires psychologists to provide more user-friendly reports and receive more training of legal constructs. The second study explored the shortfalls in neuropsychological evaluations and reports as viewed by 20 experienced South African psychologists who work in the context of a motor vehicle accident claims. The results generally identified a significant need for a registration body for forensic neuropsychology, but also that the South African forensic neuropsychologist has limited training which must be addressed. Study 3 analysed 50 recent neuropsychological reports aiming to explore the current neuropsychological evaluation methods applied in South Africa regarding motor vehicle accident claims. The results indicate that no generic evaluation model for neuropsychological evaluations exists, which results in sub-standard report formats, unethical documents, as well as weak conclusions. Article 4 integrates the three studies and concludes with proposed guidelines for neuropsychological evaluations for South African psychologists.

Keywords: forensic neuropsychological evaluations; neuropsychologist, motor vehicle accident claims, continuous professional development

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SECTION 1: CONTEXTUALISATION OF THE PROBLEM AND LITERATURE STUDY

1. Introduction

The involvement of psychologists in legal matters has increased over the past century when psychologists were first requested to assist the courts in matters that required the integration between the law and psychology (Gould & Martindale, 2009; Roos, Scholtz, & Wessels, 2016; Roos & Vorster, 2009). For over approximately 2000 years legal professionals have been actively involved in ruling and shaping human behaviour through creating and applying legislation in criminal and civil cases (Ackerman, 2010; Roos & Vorster, 2003; Tredoux, Foster, Allan, Cohen & Wassenaar, 2005). These legal professionals attempted to understand human nature and to legislate accordingly (Brodsky, Caputo & Domino, 2002; Gudjonsson & Haward, 1998; Tredoux et al., 2005). Since the 1970s, there has been an increasing tendency in South Africa for legal representatives to employ psychologists in legal matters and it is currently very common to rely on the expert knowledge of the psychologist to guide the courts (Louw & Allan, 1998; Roos & Vorster, 2009; Swanepoel, 2013). This type of work is done within the context of forensic psychology, which will be discussed next.

2. Forensic psychology

Three concepts are relevant in this study, namely *forensic psychology*, *neuropsychology* and *forensic neuropsychology*². The term *forensic psychology* can be defined as the application of psychological concepts to the legal field (Hess & Weiner, 1999; Kaliski, 2006). In practice,

² *Forensic neuropsychology is not a registration category in South Africa, however the international literature recognise the term. In this thesis, this terminology will used.*

thus, a psychologist assists legal representatives in the understanding of psychological functioning to facilitate a legal outcome (Gudjonsson & Haward, 1998). Forensic psychology is the interaction between the justice system and psychology. An important ability of the forensic psychologist is to testify in open court as an expert witness by formulating psychological concepts into the legal language; thereby, providing clinical conclusions to legal professionals in a way that can be understood (Nietzel, 1986). In general, a forensic psychologist is appointed as an expert in a specific field of study to assist the court in a civil or a criminal matter. The number of areas of expertise in which a forensic psychologist qualifies, primarily involves, in the South African context, evaluations for bail applications, criminal matters, competency to stand trial, child custody and visitation (In South Africa primary care and contact are used instead of child custody and visitation, but in line with international trends this study will keep to child custody and visitation), personal injury which mostly includes neuropsychological analysis, or workplace disputes (Kaliski, 2006; Roos & Vorster, 2009).

3. Neuropsychology

Neuropsychology is a branch of psychology that aims to explain how cognition and behaviour are influenced by brain reactions and is concerned with the diagnosis and treatment of cognitive and behavioural effects of neurological deficits (Sweet, Moberg, & Suchy, 2000; Sweet, Peck, Abramowitz, & Etzweiler, 2003). Neuropsychology seeks to understand how the brain overlaps with the mind. In practice, Sweet et al. (2000) notes that neuropsychologists primarily work in research and academic settings (research institutions or laboratories), clinical contexts (assessing or treating individuals with neuropsychological distortions), or industry (in product design or in the coordination of pharmaceutical trial research for neurocognitive agents that might have an effect on central nervous system functioning) or forensic settings, which is also the focus of this study and will be discussed next.

4. Forensic neuropsychology

Forensic neuropsychologists are usually instructed to appear as expert witnesses in court to explain brain-related matters. They are also often requested to address issues of whether an individual is legally competent to stand trial on a neuropsychological basis (Kaliski, 2006). Hom (2003) noted that forensic neuropsychology is a relatively new and rapidly evolving subspecialty of clinical neuropsychology that applies neuropsychological concepts to matters that involve legal opinion and legal decision-making. Roos et al. (2016) suggests that forensic neuropsychologists provide the legal professional with specialised knowledge regarding brain and behaviour interactions. A key responsibility of the forensic neuropsychologist is to provide specialised information based on validated neuropsychological concepts and methodology that is directly related to the “forensic question” at hand, which is not just whether the person has neuropsychological deficits, but whether these deficits originated from the event or injury under consideration (Roos et al., 2016; Sweet et al., 2003; Walsh, 1991).

The primary roles for the forensic neuropsychologist in South Africa include evaluating the extent of potential brain dysfunction in personal injury matters, providing opinion about a defendant's ability to understand the legal process where organic brain pathology is suspected, or assisting with possible mitigating circumstances (Kaliski, 2006; Roos et al., 2016). This study forms part of the personal injury litigation context with the specific focus on motor vehicle accidents. Due to its extensive growth over the past few decades (Hom, 2003; LaDuke, DeMatteo, Heilbrun, & Swirsky-Sacchetti, 2012; Sweet et al., 2000; Young, Kopelman, & Gudjonsson, 2009), some of the field's prominent experts have termed forensic neuropsychology the most rapidly developing subspecialty within psychology as a whole. It is also reported that its growing prevalence in legal decision-making may even be outpacing the more established subspecialties of forensic psychology (Kaliski, 2006; Sweet et al., 2003).

This rapid growth has not been constant across South African civil and criminal contexts, because forensic neuropsychology experts working in civil motor vehicle accident (MVA) claim proceedings have increased rapidly throughout the last few decades, whereas their involvement in criminal proceedings appears to have experienced comparable growth only within the last ten (10) years (Kaliski, 2006; Roos et al., 2016; Roos & Vorster, 2003). This preference is reflected in practitioners' clinical experience (Sweet et al., 2000) and academic endeavours (Sweet et al., 2003). As a result evaluations done by forensic neuropsychologists have focused predominantly on the civil forensic arena, and in South Africa, the MVA claim context (Allan & Louw, 2001; Kaliski, 2006; Roos et al., 2016). Despite the subspecialty's significant growth over the past few decades, additional work must be done to develop the practice of forensic neuropsychology into a more established specialisation (Hom, 2003; LaDuke et al., 2012; Young et al., 2009). Specifically, whereas the growth of forensic neuropsychology can readily be seen in the clinical and academic interests of neuropsychologists, both Heilbronner (2004) and Hom (2003), noted that the subspecialty is currently limited by its lack of dedicated professional organisations, practice standards (or less formal practice guidelines), and specialised certification and credentialing procedures.

Questions remain about forensic neuropsychologists who apply their knowledge to MVA claim matters due to limited formal education. Presently it is not known exactly what is accepted practice among forensic neuropsychologists working within the MVA claim context or what training they have received in forensic neuropsychology (Young et al., 2009). Education and training have a significant impact on whether these forensic practitioners will be allowed as experts in legal matters, yet it is still uncertain as to what extent their evaluations and written reports are challenged in open court (LaDuke et al., 2012; Sweet et al., 2000). It is, therefore, imperative that the forensic neuropsychologist uses a methodology that has been standardised on brain injured individuals and can differentiate brain conditions from each other as well as

from normal populations. Sweet et al. (2000) also notes that the methodology must be able to identify whether any neuropsychological distortion found is the result of a neurological reason as opposed to non-neurological and psychological pathology. This study sets out to provide a critical analysis of neuropsychological evaluations in motor vehicle accident claims as perceived by legal practitioners and psychologists in South Africa. There to, the research questions were the following:

- What are the current expectations of the Court as viewed by attorneys and advocates about neuropsychological evaluations in motor vehicle accident claims?
- What shortfalls, as seen by psychologists, are present in psychological reports of neuropsychological evaluations in motor vehicle accident claims?
- Which South African methods of neuropsychological evaluations are employed by South African psychologists in motor vehicle accident claims?
- Can guidelines for the evaluation of forensic neuropsychological evaluations in motor vehicle accident claims be developed for South Africa?

The context of the four above-stated questions is discussed below.

5. Training for forensic neuropsychologists in South Africa

South Africa has thousands of motor vehicle accidents annually resulting in Road Accident Fund (RAF) claims worth millions of Rands. Accident crash statistics from Road Traffic Management Corporation (2011) indicate that nationally in the previous year, an approximate 1000 fatal accidents were documented monthly. Neuropsychologists play an all-important role in these claims on two levels, namely, to either determine the extent of the neuropsychological injury or to identify possible malingering of symptoms. There is no consensus between forensic neuropsychologists as to what the courts expect from an expert or what specific format such

an evaluation should take, as no formal training for forensic neuropsychologists is available in South Africa (Allan & Louw, 2001; Kaliski, 2006; Roos et al., 2016). From this point of view, Allan and Louw (2001) reasoned that unnecessary criticism is made about forensic neuropsychological evaluations due to the lack of a set structure or format for these evaluations.

These evaluations are predominantly done in the context of forensic neuropsychology, whereas neuropsychology was, until recently, not a formal registration category for clinicians in South Africa (Health Professions Act 1974, Act 56 of 1974). Neuropsychological evaluations were traditionally carried out by clinical, counselling, and educational psychologists to assess the severity of impairment with the aim to identify the area of the brain which may have been involved and damaged after an injury or due to neurological illness (Roos et al., 2016). In South Africa, deciding on the evaluation format (i.e., deciding on the style of interviewing); the choice of a neuropsychological psychometric tests; and the type of collateral follow-up is made by the psychologist based on their level of experience or individual training and not on statutory training as prescribed by universities (Kaliski, 2006; Roos et al., 2016).

Until recently, there has not yet been formalised training available for South African neuropsychologists involved in forensic neuropsychological evaluations; be it legal expectations, format, or methods used in the analysis. Up to now, the only option for psychologists to determine the court's expectations of a forensic neuropsychological evaluation was to devise it themselves. The only way to acquaint themselves with a prescribed assessment structure of a neuropsychological evaluation was to attend continued professional development (CPD) courses and to keep up with existing literature to ensure they use the best assessment methods possible (Roos et al., 2016). Following international and local trends emerging from the literature and accessing the most current and appropriate neuropsychological materials available aided prac-

tioners in evaluating their clients, the frame of reference was closer to home: personal preference and falling back on the assessment methods learnt in graduate school (university / post-graduate training) (Hom, 2003, Vanderploeg, Curtiss, & Belanger, 2005; Young et al., 2009).

The literature about psychometric assessment dictates that a central part of neuropsychological evaluations is the application of neuropsychological tests for determining cognitive functioning (Lezak, Howieson, Bigler, & Tranel, 2012; Roos et al., 2016; Young et al., 2009). Aspects of cognitive functioning that are evaluated usually include intelligence, orientation, language, memory abilities, visio-perception abilities, and executive functioning (Lezak et al., 2012). The forensic neuropsychological evaluation is more than this because the focus is also on an individual's wider circumstances such as interpersonal relationships and personality (Roos et al., 2016). Again, no formal guidelines are available in the South African training context, and clinicians rely on their own preference of neuropsychological test-media and understanding as to what the courts expect (Roos et al., 2016). Kaliski (2006) comments furthermore that neuropsychological evaluations in MVA claims are common in South Africa, but it is unclear as to what the legal expectations are from such evaluations and reports. Another point of contention is raised by Tredoux et al. (2005) and Roos and Vorster (2003), where they highlight that the lack of structure in forensic neuropsychological evaluations in motor vehicle accident claims is because each clinician seems to use what they deem relevant. The primary reason for this is because there is no formal training curricula (Hom, 2003; LaDuke, 2009, Young et al., 2009), which also seems to be the case in South Africa. Presently, only one national university, namely the University of Cape Town, runs a masters degree program in neuropsychology (University of Cape Town, 2020). In this regard, the Health Professions Council of South Africa (HPCSA) was granted permission to train professionals in neuropsychology and forensic psychology, and scopes of practice were prepared by the HPCSA (South Africa. Department of Health, 2011), but the curriculum for forensic psychology is unclear due to the infancy of this

category. Also, no training is provided for forensic neuropsychologists. It is highlighted by Hom (2003) and LaDuke (2009) that this lack of training and unclear curricula leads to several shortfalls in forensic neuropsychological evaluations and report production, which can be assumed is also the status in South African MVA claims. The relevance of this study is thus to assist the courts as well as the South African forensic neuropsychologist to identify what the courts expect; and to identify the most viable neuropsychological evaluation format to assist the claimants as well as the South African Road Accident Fund (RAF) in saving and/or allocating compensations optimally.

The primary contribution of this study is three-fold, firstly, to identify what the specific expectations of the Court is with regards to neuropsychological evaluations as perceived by attorneys and advocates in motor vehicle accident claims. Secondly, to identify the current South African methods of neuropsychological evaluations in motor vehicle accident claims, but also investigate and identify the shortfalls present in reports of neuropsychological evaluations in motor vehicle accident claims. Thirdly, as the field of forensic neuropsychology is a growing and dynamic field in South Africa, this study will guide future students and training institutions in the application of this discipline.

6. Scope of practice

Allan and Louw (2001) and Kaliski (2006) indicate that legal pressure may be applied to the psychologist to express an opinion that goes beyond their scope of practice. This may include offering a psychological opinion or conclusion about a specific aspect that was not directly assessed. Roos and Vorster (2003) strongly recommend that experts confine themselves to the areas dealt with in their report and never go outside of their scope of practice. Allan and Louw (2001) as well as Kaliski (2006) note that it is common for the forensic expert to rely on the

“logical” obvious, such as, paraplegia, and provide an outcome that a person will “never” walk again that is undoubtedly not in their scope of practice. They advise the psychologist to guard against this. Currently, the active and practising registration categories for psychologists in South Africa are educational psychologists, clinical psychologists, counselling psychologists, neuropsychologists, research psychologists, and industrial psychologists. Most categories conduct forensic neuropsychological evaluations as neuropsychology is indicated in their respective scopes of practice (South Africa. Department of Health, 2011). It would suggest that clinical, counselling, neuropsychological and educational psychologists can do the same type of work in this context leading to a dispute amongst South African psychologists where one group strives towards a clear differentiation between the scopes of practices, and the other stands for a generalist category where the scope of practices fall away. Legal action was instituted by a group called ReLPAG (Recognition of Life Long Learning in Psychology Action Group) to declare Regulation 704 of 2011 Scope of Practice invalid by the Western Cape High Court, held in Cape Town. Regulation 704 of 2011 defines the Scope of the Profession of Psychology (South Africa. Department of Health, 2011). Its purpose is to provide clarity for practitioners in response to possible vagueness of the regulations and to guide members of the profession to practice professionally and ethically within their scope. It was gazetted on 13 September 2019 by the Minister of Health, Dr Zweli Mkhize, who gave notice that after considering public comments, the 2008 Scope of Profession, which only refers to the scope of the profession of psychology and not a specific category or a scope of practice, stands (South Africa. Department of Health, 2019). Therefore, presently in South Africa scope of practices for the various psychology categories does not exist, implying that psychologists work as generalists, not limited by a specified scope. There is thus no clear indication of which category may conduct forensic neuropsychological evaluations.

South African psychologists receive additional training in the forensic neuropsychological field from bodies such as the South African Medico-Legal Association (SAMLA), the South African Clinical Neuropsychological Association (SACNA), and Neuropsychology SA that tries to set a standard in terms of neuropsychological assessment. However, membership of these organisations is voluntary and not statutory regulated. Despite the need for an active registration category for forensic neuropsychology, South Africa still had a few challenges to meet, as indicated on the UCT application website pertaining to a Master's degree in neuropsychology (University of Cape Town, 2020). The website indicated that they had lodged repeated applications to the HPCSA for the registration of neuropsychologists. However, at that stage, the HPCSA had not registered any graduate or any other neuropsychologist. However, the registration of neuropsychologists was promulgated on 15 November 2019 in terms of the Health Professions Act 1974, Act 56 of 1974. Therefore, registration for neuropsychologists is in progress in terms of a grandfather clause or for newly qualified graduates (Health Professions Council of South Africa, Professional Board for Psychology, Form 176 PSB). This form should be completed by individuals who have worked in the field of neuropsychology for a minimum period of five (5) years before the date of the promulgation of the regulations for the registration of neuropsychologists, on 15 November 2019. However, the registration of forensic psychologists has not been promulgated in South Africa. It is noteworthy that a forensic psychologist can do forensic work without any encounters with neuropsychology, and in turn the neuropsychologist can work in the neuropsychology field without any forensic psychology exposure, which emphasises the need for a forensic neuropsychology subspecialty.

7. The psychologist as part of legal proceedings

As noted above, the field of neuropsychology studies the function and structure of the brain as well as the central nervous system in relation to a person's psychology and behaviour. This

field of psychology aims to explain how the brain influences behaviour and to subsequently diagnose and treat the cognitive and behavioural effects of neurological disorders (Lezak et al., 2012). Whereas classical neurology focuses on nervous system physiology, and classical psychology avoids getting involved with it, neuropsychology aims to discover how the brain connects with the mind. In practice, neuropsychologists generally work in treatment contexts, research contexts, the labor industry, or forensic contexts, which is also the focus of this study (Finlayson, Johnson & Reitan, 1977; Lezak et al., 2012; Walsh, 1991).

Forensic neuropsychologists are instructed to appear as experts in court to testify in matters that specifically involve aspects relating to brain damage and brain pathology. They may also deal with aspects like whether an individual is able to understand the legal process and stand trial (Hom, 2003). The duty of the forensic neuropsychologists is to provide the legal representative with specific information regarding the interplay between the brain and behaviour. It is thus the duty of the forensic neuropsychologist to explain principle based on validated neuropsychological concepts that is pertinent to a case, which is not just whether the client has a neuropsychological deficit but whether this deficit originates from the incident under discussion (Kaliski, 2006; Roos et al., 2016). Furthermore, it is typical for the forensic neuropsychologists to be called into legal proceedings as the expert witnesses. In this regard they assist the court based on their specialised neuropsychological knowledge that will assist the legal professional in determining a fact in issue (Young et al., 2009).

Brodsky and Gutheil (2016) indicate that the forensic neuropsychologist, as an expert witness, is often asked to provide an opinion about a client's brain functioning as it relates to the claim in question. As part of this specialised input, the forensic neuropsychologist is also often requested to opine on the extent of any injury, as well as the possible implications of these impairments on, for instance, the client's activities of daily functioning and employment. It is also common for the forensic neuropsychologist to be requested to provide opinion on the prognosis

of these dysfunctions as well as the potential for improvement should treatment be provided (Young et al., 2009). The primary role for the forensic neuropsychologist in South Africa includes evaluating the extent of possible brain damage in personal injury matters, providing opinion about a person's ability to participate in legal proceedings where organic brain dysfunction is suspected; or doing an evaluation for mitigating circumstances (Kaliski, 2006; Roos et al., 2016). In addition to Hom (2003) and, Young et al., (2009) reported that additional work must be done to develop the field of forensic neuropsychology into a more concrete and established specialisation despite the significant growth of the subspecialty over the past few decades. Specifically, whereas the growth of forensic neuropsychology can be readily seen in the clinical and academic interests of neuropsychologists, Heilbronner (2004) noted that the subspecialty is limited by its lack of dedicated professional organisations, practice standards, and credentialing procedures. However, currently in South Africa, several self-taught professionals are working in the field as forensic neuropsychologists (Roos et al., 2016). Therefore, the question arises if the forensic neuropsychologist knows or understands the necessary legal expectations concerning forensic neuropsychological evaluations.

As indicated above, forensic neuropsychologists may be requested to provide expert input at any stage during the legal process (Brodsky & Gutheil, 2016). Gudjonsson and Haward (1998) provide various examples of some of the questions a psychologist may be requested to answer from an expert point of view. These can include questions about neuropsychological functioning, personality, mental state, witness reliability, interrogative suggestibility, competency to stand trial, post-traumatic stress disorder, malingering, sexual problems, and deception. The duty of a forensic neuropsychological evaluator and expert witness can be outlined as formulating a scientific explanation that will assist the legal representative in providing a final decision (Brodsky & Gutheil, 2016; LaDuke et al., 2012). The application of psychological evidence in court can significantly impact the ruling or judgement of a legal matter and affect

directly or indirectly the larger society. Psychological testimony can also steer case law and determine the types of psychological points of view that is allowed in court. In this regard, the psychologist's expert opinion takes on a significant moral dimension and can be seen as value-laden (Brodsky & Gutheil, 2016).

Moreover, Allan and Louw (2001) emphasised that the substandard quality of psychological reports reflected poorly on psychology as a profession and recommended that a monitoring system of psychological reports written for court purposes be implemented, with the Psychological Society of South Africa (PsySSA) taking a more active role in this process. The relevance of this challenge to legal representatives and the law underpins the providing of expert psychological knowledge in cases, therefore legal professionals and psychologists ought to be familiar with the underlying principles of psychological evaluations and the limitations and strengths of what a psychologist can offer the court (Vanderploeg et al., 2005). Brodsky and Gutheil (2016) highlights that legal representatives and psychologists must be aware of the ethical pressure that is placed on psychologists who provide expert witness opinions. This understanding will assist the legal representative in evaluating the limitations and strengths of psychological conclusions provided in court and will aid psychologists in remaining within their scope of practice and guide the court professionally (Kaliski, 2006; Tredoux et al., 2005).

8. Legal practitioners' expectations of psychologists

Historically, according to Lambiase and Cumes (1987), South African legal representatives rated the value of psychologists' input to court proceedings as moderate. Despite these moderate expectations, legal professionals still held the view that psychologists did not satisfy their legal needs. There were several possible reasons for these findings, because on the one hand psychologists believed that they did not have the necessary forensic knowledge to assist with

the matter in question (Louw & Allan, 1998). Conversely, on the other hand, the legal expectations can be unrealistic pertaining to what psychology can offer. Thus, there is no doubting the limits as to what the field of psychology can contribute to the legal context globally (Grisso, 2010); especially in a multiracial / multicultural country like South Africa where different cultures compound the issue of the validity of an evaluation (Laher & Cockcroft, 2013).

Historically speaking, Lambiase and Cumes (1987) found that the formulation accuracy of referral questions by legal representatives may pose a problem. As well as finding the pre-trial consultations uninformative, they believed that the problems might be in the nature and extent of the information provided to psychologists prior to an evaluation. It was also indicated that psychological evaluations are strongly influenced by the information provided by the instructing legal representatives. It is also very possible that the psychological evaluation may appear substandard, because psychologists base their conclusions on an incomplete clinical picture of a matter (Kaliski, 2006; Tredoux et al., 2005). Lambiase and Cumes (1987) holds the view that it is not fair to blame only the legal representatives because psychologists must make sure that they understand the matter and gather case-relevant facts. Due to a misunderstanding of legal expectations, it is not always the case. Grøndahl, Stridbeck, and Grønnerod (2013) indicated that a judge, who described his interactions with psychologists as amiable, reported that their most common shortcomings were inadequate information reporting and biases. Equally, a senior lawyer referred to the limited descriptiveness of psychologists' evaluations. In their view, Brodsky and Gutheil (2016) indicated that this could easily be overcome as the psychologist can verify the facts presented before testifying, which will maximise the value of their expertise. Grøndahl et al. (2013) reported that the legal representatives' high expectations of psychologists demonstrate that they mainly seek psychological knowledge; not legal opinion and discussion. The authors also noted that it was unsettling to find that psychologists' inputs fell short of what legal representatives expected of them. Two factors play a role in this regard.

Legal representatives do not realise that what they interpret to be common psychological knowledge, is actually specialised psychological knowledge (Grøndahl et al., 2013). Lambiase and Cumes (1987) found that psychologists are not direct with legal representatives about the limits of their trained abilities or understanding of legal expectations. In this regard, Lambiase and Cumes (1987) noted that psychologists are pressurised into agreeing to tasks that go beyond their limits because of their psychological nature to be helpful. It is also very common for psychologists to accept any instruction, even if it exceeds their abilities. This tendency highlights the professional responsibility of psychologists to accept evaluations only when they are experts in all the relevant issues in question, or only to do such evaluations in collaboration with another psychologist who is an expert in a specific field. Roos et al. (2016) reports that this is imperative in the forensic neuropsychological context. Brodsky and Gutheil (2016) and Lambiase and Cumes (1987) emphasise that legal representatives and psychologists agree that any expert who conducts a forensic evaluation must be neutral and objective at all times. However, Lambiase and Cumes (1987), found that South African psychologists generally fail to meet even the moderate expectations of legal representatives. A specific area of concern is psychologists' poor ability to effectively communicate with legal representatives, because they do not completely understand the legal context.

The Norwegian forensic psychologists, Grøndahl et al. (2013), did a study of how 157 legal professionals perceive the role of expert forensic psychologists in court, both in criminal and civil matters and what experiences they have had with these experts. Forensic psychology experts in Norway, are mostly appointed by the court and therefore most likely more impartial. Tredoux et al. (2005) indicated that the interaction between psychologists and the court can be ambivalent, and the level of mutual understanding may fluctuate depending on the origin of their appointment. This means little is known about how forensic experts and legal representatives view each other. Other research studies have indicated that forensic psychologists are

satisfied with their evaluations in the legal context, but they also reported problematic aspects of communicating with legal professionals (Grøndahl et al., 2013; Melton, Petril, Poythress, & Slobogin, 2007). The question then arises of how do the lawyers view the experts? One study found that legal representatives preferred experts with specialised knowledge in a distinct field, a good ability to convey this knowledge, and a good reputation in the field (Mossman & Kapp, 1998). Bach and Gudjonsson (1998) found that lawyers find that forensic experts give relatively acceptable specialised input and that most legal representatives were satisfied with the knowledge they sought from the forensic psychologists, but that standards were irregular. Leslie, Young, Valentine, and Gudjonsson (2007) investigated barristers' opinions of British forensic experts. In this regard a questionnaire was developed with a combination of qualitative and quantitative questions dealing with themes such as their training, report-writing abilities, and their experience with court expert testimony. The study also asked the participants to evaluate their opinions of psychiatric experts in comparison with psychologist experts. The findings indicate that professionalism, clarity of language, and substantiated conclusions were associated with competencies in both the writing of the report and court testimony. Negative experiences were reported when the experts altered or changed their professional opinion during a trial. Also, some barristers were in favour of additional accredited education of the forensic professionals (Leslie et al., 2007). Grøndahl et al. (2013) also investigated a sample of three types of court professional about their experiences with psychologist experts. Their research questions were the following:

- (i) What are the expert witness' standards used by lawyers?
- (ii) Does it make a difference to the lawyer which professional (psychologist or psychiatrist) has been instructed to act as the forensic expert?
- (iii) Is there any criticism raised against forensic psychiatrists and psychologists which is reflected in the experiences with and attitudes towards the experts?

The sample included 39 (25%) prosecutors, 74 (47%) defense attorneys and 44 (28%) judges. Of the 157 participants, 69% (109) were men and 31% (48) were women. Across the groups gender distribution was not significant ($p = .451$). The average age was 51 years. Most legal professionals had instructed a forensic expert in less than 5% of their legal matters, but prosecutors had markedly more cases with forensic experts (about 10% for prosecutors, 7% for judges and 5% for defense attorneys). The prosecutors had instructed forensic psychologists and psychiatric experts in a significantly larger part of their matters than the defense lawyers had. The results pertaining to satisfaction with the forensic experts indicated a favourable finding for the forensic experts. Also, 71% noted satisfaction with experts (66 to 74% in the three groups), and generally their experience with the expert psychiatrists and psychologists was good. Examples of substandard expert opinions were more associated with specific forensic experts, whereas satisfaction with experts were more a general stance. Also, not so many judges reported dissatisfaction with forensic experts (36%) in comparison with prosecutors (59%) and defense attorneys (49%). Prosecutors indicated frequent frustration with defence-appointed forensic experts, because in their opinion they too easily sided with the defendant's stance. On the other hand, defence lawyers noted frustration about experts' professional conduct, for example conceding too easily, inconsistent opinions, and providing data that was not comprehensive. All participants in the study indicated that the most important factors for them are effective communication skills and good qualifications. Emphasis on clinical and forensic experience was reasonably high (Grøndahl et al., 2013). In response to the question of what constituted an effective and an ineffective expert could be divided into ten (10) factors. The results found that 26% of the opinions were made describing effective and ineffective experts (*Verifiability*). *Thoroughness* was next with 22%, followed by *Language* with 12%. Verifiability was seen as the expert's effectiveness in communicating factual information, argument presenta-

tion, and how they explained their findings and summaries. The legal representatives understandably wanted verifiability and logic, with direct avoidance of technical language and jargon. They wanted an explanation of a conclusion, and that the conclusion was logical based on court expectations. Negative findings were unclear and inaccurate conclusions, or general and vague conclusions and statements. Many legal representatives criticised the forensic experts for not spending enough time with the client, and not consulting enough collateral sources; therefore not having a comprehensive picture of the case. The results also indicated that simple and understandable language is preferred by the court professionals. In this regard unexplained professional jargon or complicated technical language elicited negative feedback. Distinct categories of statements were *Structure* (9%), *Mandate* (6%), *Doubt* (7%), *Expert Characteristics* (5%), *Balanced* (4%), and *Legal* (4%). The Mandate factor included sticking to the mandate given by the legal representative or the reason for the referral, and clear role comprehension with avoidance of any form of speculation. Further negative characteristics included linear and rigid conclusions, no consideration of alternative hypotheses, not addressing uncertainties, and avoidance to acknowledge that it is at times acceptable to be uncertain (Grøndahl et al., 2013). The category Structure referred to the report itself, where negative findings were made. The legal representatives criticised forensic experts for including too much irrelevant facts making it excessively long and confusing. Another frustration that was severely criticised was ready-made report templates which did not receive much variation from document to document. In *Expert Characteristics*, the forensic experts themselves were seen to be good when they showed effective clinical judgement and high levels of integrity, but devaluated when they were speculative and opinionated. The category Balanced overlapped slightly with Clarity and Thoroughness but focused more on documenting the negative and positive elements when evaluating a case. The study indicated that legal representatives are mainly satisfied with the forensic psychologists they had. At the same time, the forensic psychologists were also clear

about legal expectations regarding their performance in court. They expect the forensic experts to have extensive experience, to present effective and clear clinical judgement, to provide verifiable and logical conclusions and recommendations, and to do so in understandable language. The study also found that legal professionals seemed to have clear recollections of ineffective experts. The characteristics and examples of good and bad experts refer to principles underlying any scientifically-based text, namely language clarity, accuracy and verifiability. Examples of good and bad experts were also confirmed in the research of Allan and Louw (2001) as well as Bach and Gudjonsson (1998). With specific reference to forensic psychology reports, Grøndahl et al. (2013) found that the text and presentation need to be understandable to legal representatives themselves. The court professionals must understand how the forensic psychologist has reached his or her findings and conclusion, and this is most often the main criticism when they are dissatisfied with a written report. Furthermore, specialist experience and training were also seen as important for an expert to be viewed favourably.

The role of experience of the forensic psychologist is also discussed in the literature, as experience does not always result in more accurate conclusions (Ackerson, Brodsky, & Zapf, 2005). Instead, other key factors may be more relevant than an expert's experience, such as ability to present arguments clearly, respond accurately to the mandate, and clearly address the reason for referral. Hence, what may appear like a persuasive presentation, such as good presentation abilities, extensive experience, and sound clinical judgement, may not always serve the court's specific expectation, which is a scientifically valid evaluation and report (Hom, 2003; LaDuke, 2009, Young, et al., 2009). Grøndahl et al. (2013) and Hom (2003) note that legal representatives prefer professionals who were court appointed, but when they are appointed by one party, they should still present objective and neutral evaluations.

Based on the above-stated studies, the expectations of legal professionals are extensive. However, Kaliski (2006) reports that there is no clear guidelines in South African law to assist

forensic psychology experts and no systematic and coherent process of peer review. Instead, there is a dependence on guidelines developed abroad; on CPD courses; or on organisations such as SAMLA, SACNA, and Neuropsychology SA that have presented several workshops to educate medico-legal professionals in the legal context. Therefore, it appears that the South African forensic neuropsychologist does not have coherent guidelines as to what the legal representative expects of them. However, based on the available literature, it appears that the forensic neuropsychologist must be familiar with the current legislation and requirements when conducting evaluations (Kaliski, 2006; Roos et al., 2016). In the legal context it is expected of neuropsychologists to explain the evaluation findings comprehensibly, but also to maintain the utmost level of ethical behaviour while conducting such evaluation (Brodsky & Gutheil, 2016; Lambiase & Cumes, 1987). It is against this background that expert evaluators and reports are needed. To understand forensic neuropsychologist involvement, the accepted methods used by these professionals must be explored.

9. Methods applied during forensic neuropsychological evaluations in motor vehicle accident claims

Many methods of psychological evaluations exist and many approaches to gathering psychological data. The general approach implemented by the psychologist will depend not only upon the specific referral request but also upon the psychologist's experience and education (Gudjonsson & Haward, 1998). According to Hebben and Milberg (2002), a psychological evaluation is not a specific procedure but an integrative holistic process where clinical, or any other types of data are applied in a hypothetico-deductive context of case formulation and problem conceptualisation. As such, it cannot be minimised to a limited set of specific steps. The final psychological opinion is usually based on a variety of information sources and professional methods (Melton et al., 2007). Hom (2003) refers to the Daubert Court's reasoning

with regards to the admissibility of scientific testimony, which has a direct influence on psychological evaluation methodology. In the Daubert matter, the court stated that the focus is on the professional expert methodology, and not the generated conclusion (*Daubert v. Merrell Dow Pharmaceuticals* [1993])³. This condition does not mean that a finding or conclusion will be admissible merely because some part of the methodology has been scientifically validated. It is stated that the entire reasoning approach must be valid, and a logical and descriptive link must be established between the formulation and the conclusion. Hom (2003) reports that once that is accomplished, the evaluation moves from the position of one of admissibility to one of the pillars the legal representative can use to substantiate the conclusion. Therefore, the forensic neuropsychological evaluation is a complicated process that incorporates all available information to develop a clear clinical picture of the individual, to illustrate what is their level of functioning, and to determine neuropsychological aspects which are responsible for the behaviour interference (Hebben & Milberg, 2002).

Lezak et al. (2012) reported that it has long been recognised that there is no single and formalised model for neuropsychological evaluations. The primary reason is that brain injury is recognised as a multi-faceted phenomenon, and depending on the nature and extent of the injury, requires an individualised, case-related investigation. Such an evaluation must include a significant educational component that involves cognitive abilities, brain behaviour, social skills, and personality functioning (Sweet et al., 2003). The holistic nature of a neuropsychological evaluation allows for an accurate diagnosis, strength and weakness determination, as well as deference to psychological and neurological interventions which include accurate planning for individualised treatment (Hebben & Milberg, 2002). Hom (2003) recommends that forensic neuropsychologists should request and review the following records before a legal evaluation,

³ *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

namely, arrest and police reports, mental health reports, hospital/medical records, defendant and witness statements, previous evaluations, and other pertinent records (e.g., school and educational reports). He highlights that as part of the methodology, the forensic neuropsychologist must primarily focus on hospital records, other expert opinions, and prior academic and occupational progress reports.

Moreover, the forensic neuropsychologist should be familiar with recent empirical studies in the field but may often need to do case specific literature searches (Hebben & Milberg, 2002). Gathering background information in this way helps the forensic neuropsychologist to prepare for questioning and methods of assessment. It is the duty of the legal representatives to make sure that the psychologist is provided with all the necessary and relevant background documents, and that they obtain the client's consent for the psychologist to gather collateral information (Allan, 2016).

As noted above, the key responsibility of the forensic neuropsychologist is to provide information based on scientifically validated methodology as well as neuropsychological concepts that is relevant to the "forensic question" at hand. For example, does the plaintiff suffer from neuropsychological distortion because of a mild head injury sustained in a motor vehicle accident? (Hom, 2003). The forensic neuropsychologist must address the critical "forensic question" of not only whether the client has dysfunction, but whether this dysfunction stems from the incident under consideration, in the case of this study referring to the motor vehicle accident. The forensic neuropsychologist might be faced with the question of whether the client's neuropsychological complaints are reflective of brain impairment considering low intelligence, poor school education, previously diagnosed medical conditions, or to a psychological reaction to the accident (Kaliski, 2006). Sweet et al. (2003) emphasises that the forensic neuropsychologist must apply clinical methodology that can provide information about the client's current

cognitive function and deficits and can address the cause of any problems identified. The forensic neuropsychologist must apply a methodology that has been validated in empirical contexts of brain-impaired individuals and can distinguish the various brain pathologies from the normal population. Specifically, as well as differentiating various neuropsychological disorders that can affect the brain, this methodology must have empirically demonstrated validity in identifying the presence of brain dysfunction, the location of the possible cerebral injury, and the nature of the brain condition (Lezak et al., 2012). The methodology must be able to identify whether any dysfunction found is, in fact, the result of neurological pathology as opposed to non-neurological, or even factitious disorders (Hom, 2003).

As reiterated by Heilbronner (2004), the forensic neuropsychologist must thus use applied methodology that allows the formulation and conclusion to clearly demonstrate that the findings are specific to the brain-related problem under dispute. Also, differentiating the various brain conditions requires scientific and validated test procedures and patterns. In this regard such patterns can illustrate, for example, whether substandard scores on one or more psychometric test, in comparison with other test scores, are suggestible of brain impairment or of normal variability. Most importantly, these identified patterns must be able to independently distinguish brain impairment resulting from one neurological aetiology from another. Russell (1998) referred to a test pattern analysis procedure that primarily focuses on the relationships between tests rather than on the individual scores on particular tests. This procedure compares psychometric tests with one another in order to identify a pattern that provides information about a specific cognitive condition (Lezak, Howieson, & Loring, 2004). Inherently, this evaluation approach requires the application of a set of psychometric tests that have been administered on people with confirmed brain deficits of various types. The use of these patterns provide information and guidelines that can be used to answer the “forensic question” (Hom, 2003).

10. The forensic question

Hom (2003) reports that in dealing with the “forensic question” it is common practice to administer a combination of standardised psychometric tests that provides data on the client’s profile in comparison with others of the same gender, age and level of education. However, exclusive reliance on standardised tests has certain limitations in answering this “forensic question”. Hom (2003) reports that while this position addresses the client’s level of functioning, it is unable to address the underlying cause of any dysfunction. This approach of neuropsychological evaluation uses the function of healthy persons as the norm basis for comparison, and any findings are limited to statements regarding the client’s position compared to normal populations. Should the client achieve a low test score, it can be difficult to conclude that this poor performance is the result of brain injury if the test norms include only normal populations (Hom, 2003; Sweet et al., 2003). Therefore, the presence of cognitive impairments does not necessarily confirm brain injury or pathology. A reasonable conclusion with regards to a brain injury can only be made with an established evaluation methodology that has been validated to report on neurocognitive functioning related to brain-behaviour situations. The mere selection of normed and standardised tests to identify cognitive impairments does not guarantee that the psychometric results will be relevant in the forensic context. The forensic neuropsychologist should strive to demonstrate causality between the cognitive deficits and the injury in question. Hebben and Milberg (2002) emphasize the certitude that the neuropsychologist must opine with a reasonable degree of neuropsychological certainty. Therefore, what is needed is a clear methodology that can foretell the cause of any neuropsychological deficits, because often the mere co-occurrence of the motor vehicle accident is used to conclude that the accident in question is the exclusive cause of the cognitive problems. However, keeping in mind that the client has experienced the psychological effects of an MVA and also has a financial incentive to

appear injured, it is the duty of the forensic neuropsychologist to identify whether the dysfunction found are the result of brain pathology from this accident, as opposed to a pre-existing condition, emotional trauma, physical injuries, symptom exaggeration, or a combination of the above (Hom, 2003).

It is common to use a battery of tests during a forensic neuropsychological evaluation in order to assess neurocognitive functioning and to answer the requested neuropsychological questions. In clinical practice forensic neuropsychologists often construct psychometric test batteries from different test selections (Roos et al., 2016). In certain cases, some batteries are created based on the reason for referral and the client's presenting complaints which is termed the "flexible battery". In other instances the forensic neuropsychologist begins with a predetermined set of psychometric tests, hardly digressing from this psychometric test selection, although often supplementing the basic test battery ("fixed battery"). Regardless of the test selection procedure, the test battery results often form the main basis for the forensic neuropsychological testimony in answering the "forensic question" (Hebben & Milberg, 2002; Lezak et al., 2004; Russel, 1998). Next, neuropsychological assessment is discussed to create a foundational frame of reference about the forensic neuropsychological evaluation.

11. Neuropsychological assessment

The concept of neuropsychological assessment is a direct and focussed activity aimed at gathering specific neuropsychological information by using measuring instruments (psychometric tests) and information from several other related sources (Foxcroft & Roodt, 2014). These sources include conducting interviews, investigating the individual's history, examining collateral information and the use of psychological tests. Neuropsychological testing is, therefore,

one of the essential components of assessing individuals. Foxcroft (2011) defines a psychological test as a systematic procedure for obtaining a sample of behaviour, relevant to affective, interpersonal, or cognitive functioning and for scoring and interpreting those samples according to standards. The first resemblance of psychological testing can be dated as far back as 2200 BC when the Chinese Emperor prescribed testing of all his public officials from whom only a small percentage of the group was then selected (Gregory, 2007). Since then, tests have been developed in various contexts to assess an individual, their personality, and capabilities (Pillay, 2018). Psychology as a formal science was first noted during World War I when individuals were selected and assessed using psychological testing. These individuals were assessed on their competence to take on the roles of officers and for special assignments in the war. Subsequently, much research and efforts have been put into the development of psychological tests in various contexts. As such, psychological tests began to grow in value and recognition across the world (Pillay, 2018).

According to Oakland, Poortinga, Schlegel, and Hambleton (2001), psychological testing became widely recognised because of World War II as various professionals were prepared to use them (Oakland et al., 2001). As Oakland et al. (2001) contends, this motivated the public, national governments, and private organisations to develop tests. Furthermore, the development of clinical neuropsychology was driven by “war-damaged brains” at the beginning of the 20th century (Lezak et al., 2004, p. 3). It was then that a need arose for screening and diagnosing brain injury and developing neuro-rehabilitation for behaviourally impaired soldiers (Lezak et al., 2004). Neuropsychological assessments have since evolved significantly. It has moved away from a purely diagnostic role during the Second World War to a role that now also encompasses the ability to characterise an individual’s functional strengths and weaknesses (Goldstein & McNeil, 2004). Thus, testing has become essential as the data gathered can be

utilised in making predictions of an individual's ability to function competently in prospective work settings (Pillay, 2018).

12. Forensic neuropsychological testing

Clinical neuropsychology involves the integration of clinical psychology and behavioural neurology (Sbordone, Saul, & Purisch, 2007). This field simply investigates the individual's behaviour about their brain functioning (Lucas, 2013). Neuropsychological testing is a subfield of psychological testing that is essential to test the functioning of the human brain. By utilising specific neuropsychological tests, it is possible to test an individual's strengths and limitations related to their behavioural, cognitive, and emotional domains that are dependent on how intact the structural and functional mechanisms of the brain are (Sbordone et al., 2007).

Neuropsychological tests are crucial for informing on the care and treatment of clients (Bowden, 2017; Pillay, 2018). As a result, high-quality assessments are of great importance, as the accuracy with which clients' cognitive functioning is assessed can have a significant impact on their lives. There is, therefore, a great need for valid neuropsychological assessment tools (Bowden, 2017). Many individuals are referred for neuropsychological testing following a suspected or known brain injury to determine the impact of the injury, the possible areas of impairment, and to inform the treatment and rehabilitation process further. In the arena of the forensic neuropsychological field, the purpose of the testing is to determine a direct nexus between the injury and the behavioural problems. However, pertaining to forensic neuropsychological testing, numerous suggestions have been made about the criteria that must be met before tests are included in a forensic neuropsychological evaluation. Heilbrun (1992) and Pillay (2018) recommend that a forensic neuropsychometric test must be based on established aca-

demic principles and have clear research and empirical evidence with regards to its development and use. Ethically, the applied test must have a manual that explains the test development, test properties, as well as administration procedures for test scoring and interpretation. Furthermore, the psychometric variables should have adequate reliability and validity to justify its use in the legal context (Hebben & Milberg, 2002; Gudjonsson & Haward, 1998; Pillay, 2018). Also, a psychometric test should only be utilised when relevant to the legal question or neuropsychological construct underlying this legal question (Heilbrun, 1992). Hebben and Milberg (2002) provides a clear warning to forensic psychologists against interpreting a test to correlate with a particular legal opinion. Also, psychometric tests should exclusively be administered to clients who are the same as the normative group on which the psychometric test was standardised (Heilbrun, 1992; Kaliski, 2006).

An important challenge in South Africa is that most of the tests originate from Western societies, which can raise questions about whether they can be validly used in the African context, particularly where language barriers exist (McDonald & Van Eeden, 2014). Furthermore, in the forensic neuropsychological context, lack of test training and experience can be legally challenged and may undermine the results' credibility. Hebben and Milberg (2002) also warn against the use of out of date versions of tests and norms, or altered forms of test administration that have not been empirically researched. As part of ethical methodology, forensic neuropsychologists should adhere to the dictated test administration specified in the manual of each test (Allan, 2016; Heilbrun, 1992). However, as indicated, neuropsychological tests utilised within the South African context, most have been developed in the UK or US (McDonald & Van Eeden, 2014). Thus, unless the currently utilised psychological tests are evaluated for their relevance to the South African population, the tests cannot be meaningfully interpreted, which can challenge and influence a legal outcome. According to Form 207 of the Health Professions Council of South Africa (HPCSA), it is the test user's responsibility to ensure that:

... the test is valid for the purpose for which it is being used; appropriate norms are consulted' and where tests that have been developed in other countries are concerned appropriate research studies need to be undertaken to investigate whether the test is culturally biased and special care should be taken when interpreting the results of such test (p. 3).

Hebben and Milberg (2002) and LaDuke et al. (2012) recommend that forensic neuropsychologists should closely monitor administration of psychometric tests and for instance, avoid asking the client to complete the test at home. Allan (2016) cautioned against arriving at conclusions based on scores from an invalid or inaccurate test profile and recommend that forensic neuropsychologists clearly emphasise and discuss any factors that could undermine the validity of the test (e.g., visual problems, language barriers). Ackerman (2010) concedes that it may be challenging to adhere to all the above criteria in every matter and recommends that the forensic neuropsychologist must always be able to explain and defend the applied test whilst also admitting the possible effects of any limitations or shortcomings.

Given the legal nature of forensic neuropsychological evaluations, it is not strange to receive requests from non-psychologists for test materials and raw test data (Allan, 2016). Ackerman (2010) highlights that psychologists have a contractual and ethical duty to protect the integrity of all the tests they use. In this regard, psychologists should not share test material or raw test data with non-psychologists, for several reasons. Firstly, it is important to communicate that most tests and associated material are attached to copyrights and should not be provided to persons who have not bought the test. Secondly, sharing of raw test data and test materials puts them in the public arena, and this could affect the test reliability as well as the test validity which might jeopardise its future use (Ackerman, 2010). Thirdly, the raw data may be misunderstood by non-psychologists. Therefore, should any party in a legal matter request raw test data, then the forensic neuropsychologist should arrange for it to be shared in confidence with

a colleague psychologist who has been appointed on behalf of the party concerned (Allan, 2016). Therefore, forensic neuropsychological assessments in the South African context pose many challenges to the practitioner and highlights the need for specialist training. The way forward in South Africa, as Lucas (2013) recommends, is to train future neuropsychologists, as well as forensic neuropsychologists to confirm the reliability and validity of tests used, while maintaining socio-cultural empathy and sensitivity.

13. Are shortfalls present in psychological reports of neuropsychological evaluations in motor vehicle accident claims?

Grisso (2010) reports that until the past decade, forensic psychologists looking for assistance to improve their forensic reports have had a limited number of support structures and resources. Most literature focused on general clinical reports and not the forensic style of reporting. Ackerman (2010) reports that what makes the written forensic report different from clinical or treatment reports has predominantly to do with style and content. Often the content is different because of the need to address forensic questions that requires different information than most clinical reports. The style differs because forensic reports are written to adhere to the demands of the legal context and non-clinical readers, therefore common errors and shortfalls became more prevalent in the forensic reports (Grisso, 2010). However, Melton et al. (2007) reported that a complete and overall view of the types and frequency of shortcomings found in forensic reports has not been provided. In this regard, Grisso (2010) researched a sample of 62 forensic reports that had been given to the American Board of Forensic Psychology by applicants for forensic board certification. A panel of 32 experienced forensic mental-health practitioners critiqued the reports to create an inventory of all the discrete types of shortfalls encountered in the reports. The findings were integrated with local opinions about shortfalls encountered in forensic reports.

13.1. Not addressing the reason for referral

It was found that the forensic question or purpose is not stated, is inappropriate or inaccurate (Nicholson & Norwood, 2000). The referral question, circumstances of the case, or final forensic opinion required supplemental or additional information that was not gathered, or was not reported in the document, and for which the absence was not explained. Also, data and interpretations were often written together in a heading section that reports data. The forensic questions were not addressed or answered, and an understandable explanation for every important opinion, finding or conclusion was not provided. Multiple sources of data were also often not sought to support a hypothesis.

13.2. Irrelevant data or opinions

Some opinions and conclusions in the report are irrelevant to the forensic question. Furthermore, clinical reports often base conclusions on the client's self-reported information, but Grisso (2010) suggests that forensic experts should provide relevant interpretations only when two or more methods verify the data on which they are based. Relying on multiple information sources and cross-method verification has been emphasised because of the increased probability of error in reliance on the self-report of clients in forensic matters that often involve reasons that could motivate the examinee to exaggerate the data they provide. Furthermore, information is presented in a disorganised manner, usually without a reasonable understanding and logic for its sequence. The professional presentation and appearance of the document can have errors, confusing sentences, and untechnical terminology (Ackerman, 2010; Kaliski, 2006). Grisso (2010) reports that opinions are often stated without sufficiently discussing or explaining their basis in logic and case formulation. Therefore, reports often fail to identify the forensic psychologist's understanding about the correlation between clinical data and the psychologist's opinion about the client's legally relevant dysfunction.

13.3. Ignoring alternative hypotheses

The data allowed for alternative hypotheses, while the written report did not offer explanations about why they were not included (i.e., often malingering). Sometimes experts conclude that the alleged injury is the exclusive cause of neuropsychological deficit in the client while ignoring other possible reasons. A forensic expert may come to the conclusion that the client's dysfunction in working memory is only due to the brain injury that is at the centre of the legal proceedings while not acknowledging other possible reasons for the client's difficulties. Several conditions, such as learning difficulties, substance related abuse, and/or a depressive disorder, have more of an effect on cognitive functioning than does a slight mild traumatic brain injury. Given that the research has indicated that various problems can influence cognitive abilities, it is crucial to consider all other possible reasons or causes to the client's neuropsychological profile (Ackerman, 2010; Allan & Louw 2001; Kaliski, 2006).

13.4. Over-reliance on a single source of data

Vital key factors of the data interpretation relied wholly on one source of information when corroborating data from multiple sources was required. Often over-reliance on the client's self-report is the primary factor considered (Grisso, 2010).

13.5. Language problems

Multiple and constant instances of gratuitous comments, jargon or biased phrases are apparent in psychological reports. At times, complex concepts and professional technical terms are used that leaves non-clinicians confused or puzzled (Ackerman, 2010; Allan & Louw, 2001; Grisso, 2010; Kaliski, 2006)

13.6. Invalid interpretation of results

Melton et al. (2007), supported by Grisso (2010), report that psychological tests not relevant for addressing the forensic question are often used. Reporting test data is often without explanation as to the identified scores, and their normative meaning is not described. There is often a tendency for forensic experts to over-interpret substandard test scores either due to a lack of test score understanding or to favour the legal representative who retained them (McDonald & van Eeden, 2014). Furthermore, not considering normal neuropsychological and cognitive variability during a forensic neuropsychological evaluation is grounds for misinterpretation of information (Nicholson, & Norwood, 2000). Experts may also incorrectly assume that clients with above-average intelligence levels will score above average on all other cognitive psychometric tests, and therefore, low scores indicate a deficit. They are exclusively accepting that low cognitive scores suggest a traumatic brain injury (TBI), which can be in fact due to another reason. Hom (2003) also reports that a general shortfall in neuropsychological evaluations is assuming that low cognitive scores correlate with a brain injury, or evidence to the seriousness of a brain injury (i.e., mild, moderate, or severe).

13.7. Lack of specialised training

A significant shortfall, as reported by the literature, is the limited specialised training for forensic neuropsychologists. This limitation is mostly because the field of forensic neuropsychology is relatively new but is a quickly evolving subspecialty in psychology (Hom, 2003). There are, at present in South Africa, no formal educational curricula, licensure requirements, or professional organisations specifically assigned to forensic neuropsychology. In this regard LaDuke et al. (2012) found that despite their escalating involvement in the United States legal system, not much is known about neuropsychological professionals working in forensic contexts. Therefore, they surveyed 59 neuropsychologists from the American Academy of Clinical

Neuropsychology and the National Academy of Neuropsychology about their training, and experience in forensic neuropsychology. Most of the participants reported that they work in both civil and criminal forensic contexts (64%), with most restricting their practice to civil matters only (34%); practising exclusively within the criminal forensic context was rarely reported (2%). The majority of participants' graduate and postdoctoral training was in neuropsychology, typically supplemented by forensic training through continuing postgraduate education or continues professional development (CPD). LaDuke et al. (2012) highlighted that additional specialised training is required for this specific section of practitioners.

Furthermore, Hom (2003) and LaDuke et al. (2012) indicate that there are relatively few academic textbooks in the field, one being *Forensic neuropsychology in practice: A guide to assessment and legal practices* by Young et al., (2009) and only a single journal devoted solely to the field, the *Journal of Forensic Neuropsychology*. Furthermore, there is no registration process for allocating the title of “forensic neuropsychologist” on to a practitioner, but rather, this title can be assumed, in most USA states, by a professional who initially qualified as a licensed psychologist, and who has the additional education and experience needed to meet the guidelines for a neuropsychologist. It is expected for the forensic neuropsychologist to have additional training in the legal context, although, to date, this education has not been clearly specified (LaDuke et al., 2012). This international dilemma also seems to be the case in South Africa.

13.8. Being the “hired gun”

A prerequisite of acting as an evaluator and witness for the court, is to maintain clear and constant objectivity and neutrality (Tredoux et al., 2005). It is not uncommon for experts to feel pressurised to provide an opinion which favours the instructional legal representative rather than providing an unbiased opinion. This concept can also be termed as being “the hired gun”, which suggests that a forensic psychologist is instructed to produce an “opinion” that is

bias and supportive to the side giving the mandate or instruction (Mossman & Kapp, 1998). Not only is this unethical but also significantly reduces any credibility of expert opinion. However, pressure to provide a biased and unprofessional opinion may be subtle. For example, legal representatives often ask forensic experts to adapt their opinions in reports to suit their court case (Gudjonsson & Haward, 1998). For example, in a 2011 British research project, 32 psychologists indicated that they had been requested to change their conclusion or opinion, 19 reported being asked to omit reference to a document seen, and 44 reported being requested to remove specific findings. It is noteworthy that compliance with these requests was done by 22, 74, and 41% of respondents, respectively. LaDuke et al., (2012) and Roos et al., (2016) suggests that forensic experts should continuously reflect on their objectivity and view themselves as guests in service of the court, regardless of who has provided the instruction. Generally, it is seen to be inappropriate practice for a forensic expert to change any opinion under pressure, or to remove information from a document, although it is considered clinically acceptable to change certain factual information, which should preferably be done in an addendum (Gudjonsson & Haward, 1998).

14. Summary

The professional forensic neuropsychologist is undoubtedly a psychology specialist with significant responsibility to the court and the client. However, South African forensic neuropsychologists are currently self-taught and rely on limited CPD workshops or international courses that are not accredited locally. Therefore, it is expected that significant discrepancies can arise between the findings and opinions of the forensic neuropsychologist and the court's expectations because South African forensic neuropsychologists do not have clear guidelines as to the expectations of legal practitioners. However, based on the available literature, it appears that the forensic neuropsychologist must be familiar with the legal legislation and requirements

when conducting evaluations (Kaliski, 2006; Roos et al., 2016). The legal context expects the neuropsychologist to explain the findings of an evaluation in an understandable manner, but also maintain the utmost level of ethics while conducting such evaluation (Allan, 2016; Brodsky & Gutheil, 2016; Lambiase & Cumes, 1987). It is against the above background that expert evaluators and their reports are essential.

In the forensic situation, the forensic neuropsychologist must opine with a reasonable degree of neuropsychological certainty. However, to arrive at this neuropsychological opinion, the professional needs to follow an evaluation method, but according to Lezak et al., (2012) and Russel (1998) no single model for neuropsychological evaluations, let alone forensic neuropsychological evaluations, exists. The primary reason being that brain injury is recognised as a multi-faceted phenomenon and depending on the nature and extent of the injury, it requires an individualised, case-related investigation. Therefore, the forensic neuropsychologist must rely on multiple data which includes self-reporting, collateral information, and a selection of standardised, psychometrically sound tests. In this regard, the forensic neuropsychologist aims to answer the forensic question, which is to demonstrate to the court a causative link between the cognitive impairments and the injury at hand (Hebben & Milberg, 2002).

Several shortfalls may arise in forensic neuropsychology evaluations, which is without a doubt present in the South African forensic neuropsychology context as no formal training is available in the country for the forensic neuropsychologist. Grisso (2010) highlighted specific shortfalls in reports that can result in reader confusion and unprofessional conduct.

Therefore, considering the perused literature, there are significant identity and regulatory challenges for, not only the South African neuropsychologist, forensic psychologist and forensic neuropsychologist, but also their international counterparts. The local changes in registration for the field of neuropsychology is, without doubt, a step in the right direction. However, as can be concluded from the literature survey, forensic neuropsychology professionals require a

clear and specialised understanding of not only neuropsychological principles but also a specific legal awareness of constructs which are exclusively reserved for the courts. Given the fact that neuropsychology is gaining its own identity in South Africa, the literature suggests that direct and focussed research must be pursued to create a separate professional awareness for forensic neuropsychology, but also educate the public of the nature and purpose of the psychological specialisation.

It seems that no uniform standards for the forensic neuropsychology category are available nationally as well as internationally. Most local practitioners rely on CPD courses, and they graduate training that might result in an untrained and uninformed branch of South African psychologists. However, a more precise indication about the expectations of South African legal professionals from forensic neuropsychologists, a more coherent and unified methodology that can be used by the South African forensic neuropsychologist and an awareness of potential professional shortfalls when conducting evaluations and writing reports, can, without doubt, create a step closer to produce a competent South African forensic neuropsychologist.

15. Motivation for the study

The aim of this study is to critically analyse neuropsychological evaluations in motor vehicle accident claims in South Africa. With the disseminated and published results, the researcher envisages a contribution to the present training curriculum for neuropsychologists in South Africa, and to provide guidelines on how to address practitioners' local dilemmas. Training material could be developed after completion of the study that can be used in student training curricula and applied to Continued Professional Development (CPD) programs. The current research will therefore be focussed on informing forensic neuropsychologists of the challenges

that are present in forensic neuropsychological evaluations and make recommendations as to how to address them.

16. Aims and objectives of the study

The research firstly aimed to explore the current expectations of the court (as viewed by lawyers) with regards to neuropsychological evaluations in motor vehicle accident claims. This study aimed to investigate the practical expectations of the court when a lawyer involves a psychologist in a motor vehicle accident claim. These expectations have to be understood with regards to the document or reports that are provided to the court and what specifics need to be included or excluded during the forensic neuropsychological evaluations to be useful for the court.

A second aim contained in the study was to explore the shortfalls present in the forensic neuropsychological reports when a motor vehicle accident claim is investigated. These shortfalls were particularly explored about psychologists' perception of neuropsychological evaluations and reports and the problems that arise. Input from these experienced professionals provided clear guidance as to the correct and appropriate content of the report and how to ensure that an acceptable document is prepared.

The third aim was to explore current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists. In this regard, the forensic neuropsychologist's objective is to provide opinions supported by evidence that will answer the referral question or reason for referral. Therefore, the objective was an analysis of forensic neuropsychological reports to identify the current neuropsychological evaluation methods that could favourably position the forensic neuropsychologist in providing a specialised professional document.

The final aim relating to carrying out an effective and relevant forensic neuropsychological evaluation was a recommendation of an evaluation guideline for forensic neuropsychologists who conducts neuropsychological evaluations in motor vehicle accident claims. Therefore, the researchers incorporated the results into proposed guidelines for psychologists conducting forensic neuropsychological evaluations in South Africa.

17. Research approach and design

When conducting research, it is of paramount importance to explicate the epistemological stance of the research. The meaning of the word epistemology has its root in the Greek word for knowledge. By choosing a certain approach, the researcher makes a statement about his or her thoughts about the nature of knowledge or what counts as legitimate knowledge. The researcher makes an implicit statement about the relationship between the researcher and the objects/subjects of the research (Krauss, 2005). The epistemological stance of a research project, therefore, implies certain assumptions between what can be seen as legitimate data and how that data can be obtained (Harper, 2012). In the following paragraphs, an attempt is made to explain the research approach and the subsequent design of the current study.

17.1. Quantitative and qualitative research methods

Since the advent of modernist thinking, the dominant epistemological stance in scientific research is the positivist perspective that proposes that knowledge can be gained by directly observing and measuring objects and that these objects of attention in research exists separately and independently of the researcher (Krauss, 2005). From this perspective, the best manner to gain knowledge is to observe and describe sensory phenomena that should ideally be measurable and directly observable (Blackburn, 2005). Quantitative methods of data collection are therefore preferred in studies with a positivist and realist framework.

The epistemological stance has obvious merit in studies within the naturalistic and empirical sciences and gave rise to most of the scientific theories that organise and describe our world today. Within the social sciences, quantitative research had similarly been useful to build the psychological, sociological, and educational theories with which we are acquainted. Quantitative methods were used to collect data from individuals, identify patterns of behaviour in specific groups, and to conduct specific experiments or large-scale surveys (Creswell, 2005). This approach is still useful to these relevant purposes; or when a researcher has a specific narrow question to answer about a specific topic; or when the researcher can collect numeric data from participants that can be analysed and compared to existing theories (Creswell, 2005).

This strictly positivist stance and the use of quantitative means of data collection can, however, be problematic to the social sciences because of the way the human social world is viewed, organised, and described. In a strictly positivist approach, researchers see themselves as separate and detached from the research subjects and would remove the subjects of research from their naturalistic settings to be placed in an experimental situation apart from context and personal experience (Creswell, 2005). The researcher's point of view is paramount, and observations made of subjects' responses under experimental conditions are used to build a theory, accumulate data, and manipulate it statistically to obtain answers to the specific research questions (Creswell, 2005). However, conditions must be specific to accommodate a theory based on observations of a finite number of examples within a restricted setting. Exceptions are bound to occur, and individual differences and perspectives will be lost.

Condition-specific accommodation could create a dilemma because in the human sciences; everyone's experience is unique. Patterns of aggregate data derived from experimental subjects become unreliable and cannot describe and predict conditions for application in a specific human instance (Gantt, Lindstrom, & Williams, 2016). There are difficulties in capturing the subjective elements of human experience and answering questions relating to the makings of

these experiences if the researcher is dependent on general or statistically derived datasets (Gantt et al., 2016). These objections limit the use of a positivist epistemological stance for some studies in the social sciences (Gantt et al., 2016).

In the current study, the use of quantitative data (in the forms of surveys, pre-existing questionnaires) was not deemed the best way to proceed. Quantitative data could distort rather than disclose given experiences and behaviour, would presuppose theoretical constructs, and would restrict the generation of subjectively experienced data (Moustakis, 1994). Moreover, broad data samples from which deductions and comparisons could be made (Moustakis, 1994) did not exist for the phenomenon in question as a great deal of the data on this topic remains unexplored.

An alternative to a positivist and quantitative stance is the qualitative or naturalistic view of research. Qualitative research designs depend on the point of view of the participants; the researcher is seen to be involved with the participants; subjective, broad, and general questions are asked; and the data collected usually comprises words that are analysed into categories or themes (Creswell, 2005). Qualitative designs are useful when the problem that needs to be explored requires a deep understanding and when many complexities need to be addressed.

The current study, therefore, followed a qualitative approach stipulated by Creswell (2005) regarding qualitative designs – a procedure of research applied in many different academic settings, traditionally in the social sciences. Researchers applying the qualitative approach aim to gather an in-depth comprehension of human behaviour and the reasons that regulate such behaviour. This study investigates the “what is used and what is lacking”, therefore smaller but focused samples are more often used than large samples (Creswell, 2005).

Several qualitative methods of analysis are available. As well as recording semi-structured interviews, a thematic analysis was applied for the three articles in this study as the method for

identifying, analysing, and reporting patterns (themes) within the data. It minimally organises and describes your data set in detail. However, it also often goes further than description and organisation and interprets various aspects of the research topics (Moriarty, 2011). Thematic analysis is an essentialist method, which reports meanings and experiences of participants, or it can be a constructionist approach, which examines how realities, meanings, experiences, and similar issues are the effects of narratives manifesting within society. It can also be a contextualist approach, which is positioned between the two poles of constructionism and essentialism, and characterised by paradigms such as critical realism (Moriarty, 2011). This method acknowledges the ways individuals understand their experience and the ways the larger social context views those meanings while keeping focus on the material and other limits of “reality”. Therefore, thematic analysis can be an approach that works both to reflect reality and to untangle the outline of “reality”. However, the theoretical position of a thematic analysis must be made understandable, as this is all too often left unaddressed. Any theoretical framework carries with it several assumptions about the nature of the information, what they represent in terms of the world, (reality), and so forth. A good thematic analysis will make this clear (Braun & Clarke, 2006).

17.2. The study population and the sampling method

The study was conducted on South African legal representatives and psychologists, and as such, the results could potentially be generalised to other South African legal professionals and psychologists.

For the first article, the focus was on the knowledge and experience of legal practitioners. It was intended to apply purposive sampling of 20 experienced legal practitioners (attorneys and advocates) from the Gauteng and North-West provinces as the researcher had easier access to these regions. However, the involved legal practitioners shared their study participation with legal colleagues which resulted in participation requests from 6 additional legal professionals

and brought the total to 26 participants. The study promoter was of the view that the amount of 26 would produce data saturation. The participants had to be skilled in Afrikaans or English because some reports made reference to the Afrikaans language. A list available at the High Court indicating which practitioners work in the context of motor vehicle accident claims was used to identify the participants. These participants had to have at least ten (10) years' experience of matters arising from motor vehicle accident claims. The information gathered from these semi-structured interviews were qualitatively analysed using thematic analysis based on the model of Braun and Clark (2006).

The senior partner of each firm was personally interviewed where the researcher made the study known to them. They were also be provided a written brochure setting out the aims of the study with the request that he/she inform his/her employees and colleagues about the study (Appendix A). The researcher's contact details was provided with the request that they must contact the researcher or the senior partner if they were willing to participate in the research. The researcher followed up after seven (7) days to enquire if they were interested in participating in the study. Hereafter the willing participants were contacted telephonically or by email to arrange a date for the interview. Recording of the interviews took place in a private venue that suited the participants and where confidentiality was guaranteed.

The second article focused on the shortfalls in neuropsychological reports of registered South African psychologists. Twenty (20) psychologists were identified from a list of names the researcher obtained at the High Court of psychologists known to do neuropsychological evaluations. This sample was seen as sufficiently representative in the South African context and this notion was also supported by the study promoter who had the view that a group of this size would produce data saturation. Due to the specific focus on psychologists working in the field of neuropsychological evaluations, purposive sampling was applied. The participants had to be proficient in English or Afrikaans. The selection criteria of the participants included that they

must have at least ten (10) years' experience of matters arising from motor vehicle accident claims which requested neuropsychological evaluations. The researcher used the list of psychologists working in the forensic context for sending email introductions. Kaufman (2010) notes that psychologists primarily work in individual practices; therefore, the format of email correspondence was chosen. In this email, they were provided with a written brochure setting out the aims of the study (Appendix A). The researcher followed up after seven (7) days to enquire if they were interested in participating in the study. Thereafter the willing participants were contacted telephonically or by email to arrange a date for the interview. The recording of the semi-structured interview took place in a private venue which suited the participants and where confidentiality was guaranteed. When a potential participant did not respond to the email, the researcher made telephonic contact to request participation.

The third article focussed on the structure and methods applied in available psycho-legal reports. Reports of previous neuropsychological evaluations in motor vehicle accident claims as done by psychologists were selected from the National Archives of South Africa (Appendix F & G). These reports were not be older than six (6) years starting at 2009 and were selected using the alphabetical order of the claimant's last name. The reports were selected starting from the most recent going backwards until 2009 (six years back). The researcher continued with document evaluation until data saturation was reached.

Written permission in this regard, was received from the National Archives of South Africa (Appendix G). As well as trends identified in Objective 1 and 2, the reports were perused and compared to international guidelines and expectations. The reports were qualitatively analysed through thematic analysis.

17.3. Data collection method

17.3.1. Data collection for Article 1

Various legal firms were approached to identify participants to interview. These firms were identified by obtaining a list at the High Court of legal firms in Gauteng and the North-West (Province) (SA) who primarily deal with motor vehicle accident claims matters. A personal interview with the senior partner of each firm was arranged where the researcher made the study known to them as outlined by a written brochure setting out the aims of the study with the request that he/she informs his/her employees and colleagues about the study (Appendix A). The researcher's contact details were provided with the request that they had to contact the researcher or the senior partner if they were willing to participate in the research. The potential participants were given seven (7) days to decide to participate or not. Hereafter the willing participants were contacted telephonically or by email to arrange a date for the semi-structured interview. The semi-structured interview took place in a private venue which suited the participant and where confidentiality was guaranteed. A list of questions was prepared (Appendix D). From an ethical point of view, candidates were requested by the researcher to complete an informed consent document (Appendix B) presented by the research assistant, before the information gathering started and the participants were reminded of the voluntary and anonymous nature of their interviews before conducting the semi-structured interviews with each of them. The researcher conducted and audio-recorded the semi-structured interviews by himself. The semi-structured interviews lasted until data saturation of the topics were reached. Information about expectations and limitations regarding evaluation methods of neuropsychologists were explored. With each theme raised, exploratory questions were asked until it appeared that all relevant ideas on that particular experience had been explored and captured.

17.3.2. Data collection for Article 2

Various psychology practices were approached to identify participants to interview. The researcher used a list of psychologists working in the forensic context in Gauteng and the North-West Province to send email introductions. In this email, they were provided with a written brochure setting out the aims of the study (Appendix A). The potential participants were given seven (7) days to decide to participate or not after which they were followed up by contacting them telephonically. After that, the willing participants were contacted telephonically or by email to arrange a date for the semi-structured interview. The semi-structured interviews, as outlined by the interview schedule (Addendum C), took place in a private venue which suited the participants and where confidentiality was guaranteed. From an ethical point of view, candidates were requested by the researcher to complete an informed consent document (Addendum B) presented by the research assistant and were also reminded of the voluntary and anonymous nature of their interviews before conducting the interviews with each of them. The participants were also selected to fit the criteria, as indicated by the promoter. A list of questions was discussed (Appendix E). The researcher himself recorded the semi-structured interviews. The semi-structured interviews lasted until data saturation was reached. Psychologists' perception of limitations about neuropsychological evaluations were explored during this semi-structured interview. With each theme raised, exploratory questions were asked until it appeared that all relevant ideas on that particular experience had been explored and captured.

17.3.3. Data collection for Article 3

As court cases are open for access, the researcher visited the National Archives of South Africa at the National Archives Reading Room at 24 Hamilton Street, Pretoria, Gauteng (refer to Appendix G on permission to access to the National Archives of South Africa). The researcher requested the Archives personnel to retrieve cases where psychologists were involved in and provided reports (Appendix F). The reports were selected starting from the most recent going

backwards alphabetically until 2009 (six years back). Permission had been granted to photocopy reports from files which falls under the category of the public domain during certain pre-arranged times. The themes identified were categorised so that data comparisons could take place. The researcher continued with document evaluation until data saturation was reached. During this evaluation of the reports patterns also became prevalent which were analysed. Triangulation was done, as multiple analysers were used to ensure trustworthiness.

17.4. Data analysis method

A contextualist and critical realism method was applied to examine how the legal practitioners, psychologists, and reports derived methods and perceptions. This method can also be seen as a “constructivist perspective” that can be explained as follows: Being between two poles, essentialism and constructionism are characterised by theoretical understanding such as critical realism (Willig, 1999), which acknowledge the manner people make sense of their perceptions, and, in turn, the ways the larger social context understand those conceptualisations while keeping focus on the material and other limits of “reality”.

The data was qualitatively analysed through thematic analysis. Analysis of Article 1 and 2 applied the methods described by Braun and Clarke (2006) which involve identifying themes within the data and analysing themes within the data. Article 3 relied on Braun and Clarke (2006) principles as patterns of themes within the data were reported.

Sampling and interviews were done until data saturation took place. Member checking was also applied. The analysed reports were perused and compared to international guidelines (Kaufman, 2010) as found in literature and expectations as identified in aims 1 and 2. The themes were categorised so that data comparisons could take place. The data was also synthesised. In order to ensure trustworthiness both researchers analysed the data independently. Therefore, the data was triangulated to assure the validity of the research. The results were

documented, one article has been published and three articles are awaiting approval for publication. Therefore, analysis of the themes and patterns reflect perceptions of the legal practitioners and psychologists, as well as the written text in reports, all within the context of MVA claim matters.

17.5. Validity, reliability, and trustworthiness

This study followed the constructivist perspective that allows for multiple views (Creswell, 2005). Exploratory research, if conducted in such a manner, can achieve sufficient validity, and it can provide innovative ways to analyse reality.

Operating within any specific framework lends itself to criticism from others who view that work from a different perspective. Therefore, the criteria that was applied in this research was made clear according to the purpose and orientation of this research to increase credibility (Patton, 2002). The findings and methods of this exploratory research which are utilised is grounded in both relevant and applicable theoretical frameworks.

According to Schurink (2009), four qualities to help the reader evaluate the power and trustworthiness of phenomenological principles can be utilized, namely: vividness, accuracy, richness, and elegance. Furthermore, data was presented poignantly to encourage engagement with the descriptions.

Through literature research and collaboration with the panel of experts (as noted below) the researcher aimed to avoid any former personal assumptions to maintain a transparent approach towards the phenomenon as it presents itself. The researcher also followed an approach of active and sustained reflection during the data interpretation process. Continuous and systematic readings of the transcript was done by focusing on the phenomenon obtaining verification of transcripts of data which followed the description of emerging themes (Willig, 1999) to ensure the highest level of quality and to emphasise the complexity of participants' experiences.

The documentation was executed in such a manner to allow other prospective researchers to follow the researcher's investigative process. A peer review group or panel of experts consisting of one senior advocate, one junior advocate, one senior attorney, one junior attorney, one senior psychologist and one junior psychologist were requested to examine the researcher's analyses to overcome any possible inherent bias (Schurink, 2009). Member checking also added to the trustworthiness.

Throughout the data analysis phase, in overlap with continuous checking for representativeness of data and fit between coding categories, critical awareness of the limitations of data analysis further reduced bias and increased study trustworthiness (Willig, 1999).

17.6. Ethical considerations

Ethically this study posed a low risk since only professionals were included as well as existing psychological reports which are public information. However, some ethical aspects needed consideration in the planning and execution phases of this study.

17.6.1. Ethical risk

The risk associated with this study was deemed at a minimal level for the following reasons:

- (i) There was little chance for potential harm and/or emotional discomfort and distress from the participants.
- (ii) The potential for physical harm was minimal.
- (iii) Even though the participants' names and locations were known to the researcher, the information gathered were not personal.
- (iv) The research topic was not sensitive; therefore, self-harm was not a consideration.

17.6.2. Modulation of risks

The researcher attempted to modulate harms or risks and introduced the following precautions:

- (i) The privacy of the participants was maintained through confidentiality. All references containing identifying information and geographical details were removed from the transcriptions. Participants could, therefore, not be matched to a protocol other than by the main researcher.
- (ii) Privacy was further ensured by interviewing participants in a private and secure location, such as their offices; at hours they choose. Only the researcher was present during the interviews.
- (iii) Participants were informed in the consent document that they could withdraw from the study at any time. To obtain unbiased consent, it was requested by the research assistant, who was an honors psychology student.
- (iv) Participants provided consent for the dissemination of the results in the form of published articles and workshop material. They will be offered feedback on the results upon completion of the project.
- (v) All publications will maintain anonymity.
- (vi) Consent was not be required for obtaining the archived reports because they are already in the public domain. Appendix G, as received from the National Archive of South Africa, clearly notes that court case material is open for access to the public.

17.6.3. Benefits of the study

17.6.3.1. Advantages for the court

The study indicated to the court which present methods are employed in neuropsychological evaluations in motor vehicle accident claims by South African psychologists. The shortfalls in psychological reports of neuropsychological evaluations in motor vehicle accident claims as compared to literature guidelines were also identified.

17.6.3.2. Advantages for the psychologist

The findings of this study provided the psychologist with clear categorised expectations of the court with regards to neuropsychological evaluations in motor vehicle accident claims as perceived by attorneys and advocates. Furthermore, Continued Professional Development (CPD) courses, after completion of the study, can be utilised to train psychologists in scientific methodology in the investigation of neuropsychological matters in motor accident vehicle claims.

17.6.3.3. Advantages for the community at large

The claimants will benefit as all role-players involved in evaluations in motor vehicle accident claims will have a clear understanding of how to conduct and complete the evaluation process.

17.7. Ethical approval

The Health Research Ethics Committee (HREC) of the North-West University, Faculty of Health Sciences (Potchefstroom campus) approved the study after due processes were followed relating to ethical applications and submissions. The approval for the study was granted on 25 February 2016 with the ethics approval number NWU-00197-14-A1.

17.8. Outline of the study

Section 1

Section 1 provides a contextualisation, background, motivation and literature review of neuropsychological evaluations in motor vehicle claims in South Africa.

Section 2

Section 2 presents the results of the study, enclosed in four separate articles. The author guidelines for the relevant journals to which the articles have been submitted precedes the articles in each section. References are provided before each separate article. The articles and the relevant academic journals are listed below:

- (1) Expectations of lawyers with regards to neuropsychological evaluations in motor vehicle accident claims (*Professional Psychology: Research and Practice*)
- (2) Shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa (*Journal of Psychology in Africa*)
- (3) Exploring current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists (*Psychiatry and clinical neurosciences*)
- (4) A proposed forensic neuropsychological evaluation guideline for South African motor vehicle accident claims (*South African Journal of Psychology*)

Section 3

The study concludes with Section 3, where the researcher reflects on the execution of the study. The researcher attempts to make sense of the interpretations of the participants as well as the analysed reports on the critical analysis of neuropsychological evaluations in motor vehicle accident claims in South Africa. The researcher furthermore reflects on the future requirements for training forensic neuropsychologists in South Africa. The study concludes with a reflection on its strengths and limitations and with recommendations of the findings. A comprehensive reference list is provided at the end with Section 3, which is followed with appendixes.

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SECTION 2: MANUSCRIPTS

2.1. Article 1

Title: Expectations of lawyers with regards to neuropsychological evaluations in motor vehicle accident claims

Accepted for publication in Professional Psychology: Research and Practice

Required length: should not exceed 30 pages (including cover page, abstract, text, references, tables, and figures)

Current length: 24 pages

2.1.1. Author and submission guidelines: Professional Psychology: Research and Practice

Retrieved from: <https://www.apa.org/pubs/journals/pro/?tab=4>

Professional Psychology: Research and Practice

Editor: Kathi A. Borden

ISSN: 0735-7028

eISSN: 1939-1323

Published: Bimonthly, beginning in February

Impact Factor: 1.324

Psychology – Multidisciplinary: 74 of 137

5-Year Impact Factor: 1.873

2.1.1.1. Submission

To submit to the Editorial Office of Kathi A. Borden, please submit manuscripts electronically through the Manuscript Submission Portal in Microsoft Word or Open Office format:

SUBJECT MANUSCRIPT

Kathi A. Borden, PhD

Antioch University New England

General correspondence by de directed to Sarah Dedej, the journal's Peer Review Coordinator.

For potential use by the editorial office and later by the production office, the corresponding author should supply:

- Email address
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For all other authors, please supply names, email addresses, and affiliations.

Submit manuscripts in either Microsoft Word (.doc) or Rich Text Format (.rft) and keep a copy of the manuscript to guard against loss.

Professional Psychology: Research and Practice® is now using a software system to screen submitted content for similarity with other published content. The system compares the initial version of each submitted manuscript against a database of 40+ million scholarly documents, as well as content appearing on the open web. This allows APA to check submissions for potential overlap with material previously published in scholarly journals (e.g., lifted or republished material).

2.1.1.2. Manuscript length and style

A standard serif font (e.g., Times New Roman) of 12 points (no smaller) should be used and margins should be set to at least 1 inch on all sides. The entire paper (text, references, tables, etc.) must be double spaced and written in the style described in the Publication Manual of the American Psychological Association. Typically, manuscripts should not exceed 30 pages (including cover page, abstract, text, references, tables, and figures). However, if your material requires additional pages, please consult with Professional Psychology: Research and Practice's Editor, Kathi Borden.

For general guidelines to style, authors should study articles previously published in the journal. They should note that the readership of *Professional Psychology: Research and Practice* consists of psychologists from a broad range of subspecialties engaged mainly in practice, and some in training careers.

The introduction of the manuscript should be written to anchor the topic in the experiential world of these readers. The final section should be an implications and applications section, which provides concrete and usable information that can be used in everyday clinical practice or in training programs. View additional writing guidelines.

Professional Psychology: Research and Practice accepts brief reports that may not meet requirements for full-length manuscripts because of limited focus or applicability; innovative work with preliminary findings in need of replication or stronger empirical evidence; or replications studies of existing work applied to new populations, problems, or settings. Brief reports should not exceed 16 manuscript pages, including abstract, references, tables, and figures. Brief reports cannot focus on material previously published, and authors must agree not to submit a

full report of the study to another journal while the brief report is under review or after it is published in *Professional Psychology: Research and Practice*.

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In order to permit anonymous review, all authors' names, affiliations, and contact information should be removed from the manuscript itself and included instead in the submittal letter. Every effort should be made by the authors to see that the manuscript itself contains no clues to their identities.

Please ensure that the final version for production includes a byline and full author note for typesetting.

Manuscript Preparation

Prepare manuscripts according to the *Publication Manual of the American Psychological Association* (6th or 7th edition). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the 6th edition or Chapter 5 of the 7th edition).

Review APA's Journal Manuscript Preparation Guidelines before submitting your article.

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We strongly encourage you to use MathType (third-party software) or Equation Editor 3.0 (built into pre-2007 versions of Word) to construct your equations, rather than the equation support that is built into Word 2007 and Word 2010. Equations composed with the built-in Word 2007/Word 2010 equation support are converted to low-resolution graphics when they enter the production process and must be rekeyed by the typesetter, which may introduce errors.

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- Go to the Text section of the Insert tab and select Object.
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Use Equation Editor 3.0 or MathType only for equations or for formulas that cannot be produced as Word text using the Times or Symbol font.

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Because altering computer code in any way (e.g., indents, line spacing, line breaks, page breaks) during the typesetting process could alter its meaning, we treat computer code differently from the rest of your article in our production process. To that end, we request separate files for computer code.

In Online Supplemental Material

We request that runnable source code be included as supplemental material to the article. For more information, visit [Supplementing Your Article With Online Material](#).

In the Text of the Article

If you would like to include code in the text of your published manuscript, please submit a separate file with your code exactly as you want it to appear, using Courier New font with a type size of 8 points. We will make an image of each segment of code in your article that exceeds 40 characters in length. (Shorter snippets of code that appear in text will be typeset in Courier New and run-in with the rest of the text.) If an appendix contains a mix of code and explanatory text, please submit a file that contains the entire appendix, with the code keyed in 8-point Courier New.

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Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

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Authors who feel that their manuscript may benefit from additional academic writing or language editing support before submission are encouraged to seek out such services at their host

institutions, engage with colleagues and subject matter experts, and/or consider several vendors that offer discounts to APA authors.

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2.1.1.4. Abstract and keywords

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List references in alphabetical order. Each listed reference must be cited in text, and each text citation must be listed in the References section.

Examples of basic reference formats:

- Journal Article:

Hughes, G., Desantis, A., & Waszak, F. (2013). Mechanisms of intentional binding and sensory attenuation: The role of temporal prediction, temporal control, identity prediction, and motor prediction. *Psychological Bulletin*, 139, 133–151.

<http://dx.doi.org/10.1037/a0028566>

- Authored Book:

Rogers, T. T., & McClelland, J. L. (2004). *Semantic cognition: A parallel distributed processing approach*. Cambridge, MA: MIT Press.

- Chapter in an Edited Book:

Gill, M. J., & Sypher, B. D. (2009). Workplace incivility and organizational trust. In P. Lutgen-Sandvik & B. D. Sypher (Eds.), *Destructive organizational communication: Processes, consequences, and constructive ways of organizing* (pp. 53–73).

New York, NY: Taylor & Francis.

2.1.1.6. Figures

Graphics files are welcome if supplied as Tiff or EPS files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file.

The minimum line weight for line art is 0.5 point for optimal printing.

For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines.

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2.1.2. Manuscript

Expectations of lawyers with regards to neuropsychological evaluations in motor vehicle accident claims

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Abstract

This article aims to indicate what the current expectations of the South African Courts are as viewed by lawyers regarding neuropsychological evaluations in motor vehicle accident claims in South Africa. Purposive sampling of 26 experienced legal practitioners in the Gauteng and North-West provinces was done. They were identified through a list available at the High Court indicating which practitioners work in the context of motor vehicle accident claims. Participants had at least ten years' experience in matters arising from motor vehicle accident claims. Semi-structured interviews were conducted, which were recorded, transcribed, and analysed by thematic analysis. The results indicate that legal practitioners find neuropsychological reports to be too long due to unnecessary repetition. They expect more structure in the document and less jargon and fewer technical terms. According to the legal practitioners, there is too much focus on the test results and too little elaboration on the behavioural implications of injuries. They also expect reports to clearly illustrate the link between collateral findings and the neuropsychological sequelae. To make the information more understandable, the lawyers expect the forensic neuropsychologist instead to report the test descriptions and results together. Findings must be clear to provide a clear psychological prognosis (i.e., indicate the difference between pre- and post-morbid) to determine loss of earnings. In conclusion, it is recommended that forensic neuropsychological practitioners receive more specialised training to satisfy the expectations of the courts.

Keywords: evaluations, forensic neuropsychologist, lawyers; legal professionals; motor vehicle accident claims, neuropsychologist

Public significance statement

This study identifies expectations of the South African Courts regarding neuropsychological evaluations in motor vehicle accident claims. The results show that lawyers find neuropsychological reports to be too long and expect less jargon and less focus on test results. More elaboration on the behavioural implications of injuries is required, but also with an illustrated link between pre- and post-morbid functioning, collateral findings, and the neuropsychological sequelae. Specialised legal training is also recommended.

Over the last century, the involvement of psychologists in legal proceedings has increased steadily to assist the Courts in matters that required the interface between psychology and law (Ackerman, 2010; Gould & Martindale, 2009; Gudjonsson & Haward, 1998; Petrella & Poythress 1983; Roos & Vorster, 2009). Up until 1970, psychologists in the Republic of South Africa (RSA) mainly became involved in forensic matters when requested by a psychiatrist to administer psychometric tests, or as part of the forensic team in one of the state psychiatric hospitals. Since then, there has been a rising trend by legal professionals to make use of the services of psychologists in court proceedings. Neuropsychology is one of the categories where psychologists are often engaged by practitioners to apply the concepts and practices of neurology to assist legal decision-making. Among other roles, this may include assessing the nature and extent of potential brain injury in personal injury litigation, opining about a defendant's competency to stand trial where organic brain deficit is suspected, or assisting in the mitigation analysis in capital sentencing. Due to its dramatic evolution over the past few decades (Kaufmann, 2010; Sweet, Meyer, Nelson, & Moberg, 2011; Sweet, Moberg, & Suchy, 2000; Sweet, Peck, Abramowitz, & Etzweiler, 2003), some of the field's leading experts have termed neuropsychology the most rapidly developing subspecialty within psychology in South Africa and other countries, such as North America (Heilbronner, 2004; Hom, 2003). However, this rapid development has not been uniform across civil and criminal contexts, as neuropsychologists acting as experts in civil Motor Vehicle Accident (MVA) claim proceedings, increased rapidly throughout the last few decades of the 20th century. As a result, the empirical investigation of neuropsychologists has focused almost exclusively on the civil forensic arena, in South Africa and North America (Roos & Vorster, 2009; Sweet et al., 2011).

Given the relatively nascent nature of neuropsychological practice, prior surveys (Sweet et al., 2000) and status updates (Heilbronner, 2004; Hom, 2003) many questions remain about neuropsychological practitioners who apply their expertise to MVA claim cases due to limited

formal training (Genis, 2008; Roos, Scholtz, & Wessels, 2016). The most relevant questions include types of psychometric procedures used by practitioners as well as evaluation methods of Traumatic Brain Injury (TBI) patients. Kaufmann (2010) and Sweet et al., (2011) noted that it is not known what constitutes generally accepted practice among neuropsychologists working within the MVA claim context or what training they have received. Both general acceptance and training have a significant impact on whether these practitioners will be admitted as experts in legal cases, yet it is unclear to what extent their reports are being challenged in court. However, there is no consensus between neuropsychologists as to what the courts expect from a neuropsychologist as an expert in South Africa. The legal punctuation on key points such as the importance of pre-morbidity, collateral information, neuropsychometric tests, normative results, to name but a few, remains unclear. In this light, unnecessary legal criticism is made about neuropsychological evaluations due to the lack of a set format or structure for these types of evaluations (Sweet et al., 2011). However, in South Africa, deciding on the format of evaluation is made by the clinician based on their base level of experience, and not training (Roos et al., 2016).

It is disconcerting to find that psychologists' knowledge falls significantly short of what lawyers expect of them. Furthermore, Sweet et al., (2000) reported that psychologists found it challenging to communicate psychological knowledge in the legal context. Ackerson, Brodsky, and Zapf (2005) indicate two reasons in this regard. The first is that lawyers do not realize that what they consider to be general knowledge is, in fact, specialist knowledge beyond the general psychologist's field of expertise. Mossman and Kapp (1998) and White, Day and Hackett (2007) believe that this happens because psychologists allow themselves to be pushed beyond their limits because they want to be helpful. Secondly, Ackerson et al., (2005) indicates that psychologists accept instructions that exceed their abilities which can affect their objectivity. In a magistrate study conducted by Grøndahl, Grønnerød, Stridbeck, Varoy and Brauer (2012)

it is commented that generally, psychologists provide invaluable evidence because they are inclined to be defensive of their point of view, which detracts from their objectivity.

To add to, Grøndahl et al., (2012) reference to “gunslingers” unfortunately taint the very ethical image of psychology as a profession. They also reported that even judges are not satisfied as one judge with more than 30 years’ experience said that he finds psychologists as biased in favour of the party which employs them, to the extent that their objectivity and integrity become suspect. Some studies found that judges, advocates, prosecutors, and magistrates expect psychologists to take a firm stand and guide the court with objective findings (Dixit-Brunet, 2006; Kaliski, 2006; Vanderploeg, Curtiss, & Belanger, 2005). This must also be the case in MVA matters, where the expectation is to highlight if the sequelae are indeed related to the accident in question or not (Kaliski, 2006; Leslie, Young, Valentine, & Gudjonsson, 2007). Grønnerød, Grøndahl and Stridbeck (2013) indicate that lawyers expect factual, to-the-point reports as many psychological reports included some irrelevant information from other experts. They also opined that reports are written from ready-made templates without much individual variation (Grønnerød et al., 2013; Vanderploeg et al., 2005).

Grønnerød et al. (2013) also indicated that court professionals expect consistent professional performance from psychologists in writing their reports and appearing in court. They expect the experts to have considerable experience, to present good clinical judgement, to present clear and verifiable conclusions in the reports, and to do so in clear and plain language. Ireland (2008) and Leslie et al. (2007) report that legal representatives seemed to have vivid images of poor experts, and gave many anecdotal, but enlightening, stories of how not to write or present assessment reports.

According to Kaliski (2006) and Roos et al. (2016), there is no coherent body of South African law to guide expert psychology evaluators or witnesses and no statutory systematic process of peer review. Instead, there is a reliance on principles developed abroad or local non-statutory

training programs. Continued Professional Development (CPD) courses and organisations such as the South African Medico-Legal Association (SAMLTA) has presented several talks and workshops in an attempt to train medical professionals in the legal context, but no exclusive model for South African psychologists is available (Louw & Allan, 1998; Roos et al., 2016; Tredoux, Foster, Allan, Cohen, & Wassenaar, 2005). Therefore, it appears that psychologists in South Africa and internationally do not have clear guidelines for the forensic neuropsychologist as to what the legal practitioner expects of him or her (Hom, 2003; Roos et al., 2016). Therefore, the aim of this study was to determine the court's expectations as viewed by lawyers regarding neuropsychological evaluations of claims in motor vehicle accidents in South Africa.

Methodology

Research design

The research design was qualitative exploratory and descriptive. This design allows for insight into legal professionals' expectations with regards to neuropsychological evaluations in motor vehicle accident claims in the South African context.

Participant recruitment

After ethical clearance was obtained from the North-West University, South Africa (ethical clearance number: NWU-00197-14-S1), the researchers started the gathering of data. Purposive sampling of experienced legal practitioners (attorneys and advocates) was done. They were selected in the Gauteng and North-West provinces and were identified using a list available at the High Court indicating which practitioners work in the context of motor vehicle accident claims. The process started with a personal interview with the senior partner of each firm where the researcher made the study known to them. They were provided with a written brochure

setting out the aims of the study with the request that they inform their employees and colleagues about the study. The researchers' contact details were also provided with the request that they must contact the researchers or the senior partner if they are willing to participate in the research. After seven (7) days, the researchers did a follow-up to enquire if they were interested in participating in the study.

Interestingly, none of the contacted participants declined to participate. After that, the participants were contacted telephonically or by email to arrange a date for the interview. The interviews were recorded in a private venue that suited the participant but also for confidentiality reasons. Written consent was obtained from all the legal practitioners about the nature of the study, as well as their right to confidentiality and to withdraw at any time. No risks were involved; a qualitative approach was applied, and semi-structured interviews were conducted, recorded, transcribed, and analysed through thematic analysis.

Sample

During the sampling process an interesting participant reaction occurred as it was intended to apply purposive sampling of 20 experienced legal practitioners (attorneys and advocates) from the Gauteng and North-West provinces because the researcher had easier access to these regions. However, the involved legal practitioners shared their study participation with colleagues which resulted in participation requests from 6 additional legal professionals. Therefore, the sampling yielded 26 experienced legal practitioners (9 female and 17 males) from the Gauteng and North-West provinces who were willing to partake in the study. All legal practitioners are listed with the Gauteng high court. The inclusion criteria were that only qualified attorneys and advocates would be included in the study. They had to have at least ten (10) years' MVA claim experience. The justification of having at least ten (10) years' experience

of matters arising from MVA claims is to get clear guidelines from experienced legal professionals regarding specific contextual court expectations and personal opinions about dealing with neuropsychological reports. Lastly, the participants had to be proficient in English or Afrikaans. Twenty (20) were identified through a list available at the High Court indicating which practitioners work in the context of motor vehicle accident claims. Therefore, the 26 participants can be considered as representative data from the field.

Data collection

Legal professional expectations were explored through semi-structured interviews which were guided by the research topic. Interviews complied to guidelines as set out by Merriam (2009). Some participants were interviewed alone and some with other participants. Interviews were audio-recorded and verbatim transcribed. The interview question was designed by the researchers based on the aim of the study. The primary question was as follows: What are your expectations of neuropsychological evaluation and reports in motor vehicle accident claims? This was followed by secondary probing questions.

Data analysis

The interviews were transcribed, and thematic analysis was done. Initially, open coding was used to identify patterns and themes. Constant comparison was used to generate and refine categories and subcategories (Braun & Clark, 2006). Agreement was reached on the themes by all coders talking over the identified themes. High inter-rater reliability was present due to a high degree of agreement between the researchers. Analysis was completed when data saturation was reached, and no new themes emerged (Given, 2008). Thematic analysis of the participants' responses yielded four dominant themes presented in Table 1.

Findings

Table 1: Brief description of the themes generated

Themes	Subthemes
1. Findings should indicate the differences between pre- and post-morbid functioning and provide a clear psychological prognosis.	
2. A clear link between the neuropsychological profile and collateral findings must be illustrated.	
3. The format of reports must be adjusted to be more user-friendly regarding an overload of content and repetition	3.1. Report structure 3.2. Length of the report 3.3. Test descriptions
4. The need for legal training for psychologists is imperative to work and understand the legal context.	

Note: Within some themes, no instances of subthemes emerged.

Theme 1: Findings must be clear to provide a clear psychological prognosis (indicate the difference between pre- and post-morbid) to determine loss of earnings

This aspect was continuously repeated by the 26 legal practitioners who indicated that a clear comparison must be made between the pre-morbid level of functioning of the client and the post-morbid, post-accident clinical picture. The more experienced lawyers emphasised this aspect. They also indicated that effort must be undertaken by the forensic neuropsychologist to ensure that the difference between pre- and post-morbid clinical pictures are highlighted. A

clear legal expectation is reported that the psychologist must describe how the injured was functioning before the accident, and what the impairments are since the accident.

Participant 11 stated, “The significance of the reports for me would be to see what evaluations could bring about to show what the plaintiff was like had the accident not occurred, and what the significance of the accident has done to him”. Participant 12 agrees with this statement and reported that “Sometimes I get to the end and feel they [psychologists] miss the mark completely of before and after the accident.” Furthermore, Participant 20 elaborated along the same lines by also confirming that “We mostly want to look at it in terms of the clinical psychologist’s opinion, we want to look at for example what is the post-traumatic stress disorder and what is the degree of that, and how is that going to affect him mostly occupationally as well as in terms of his future career and family life. So, before and after the injury.” Another interesting view was provided by Participant 16 who emphasised elaboration on the consequences of the accident in question by remarking that “In terms of clinical or neuropsychological impairment, ask what the effect it has on him neurocognitively, or what can he do and what can’t he do? Elaborate on the sequelae, you know as an estimation of this is a permanent thing [condition] and what are the possibilities of it subsiding in the future.” Another confirmation about the pre- and post-morbid clinical picture presentation, Participant 5 reported that “We want to work with the facts, such as here are the fact and here is the change in personality of the claimant, and his ability to work, there has to be a lot of emphasis on before and after the accident. And to do this you need to know how the person was before the accident because he might have been someone who also had some issues.” Also supporting Participant 5’s views, Participant 13 elaborated by stating that “Your psychological diagnosis comes first, and the industrials follows. I think the most important part is the pre- versus post-morbid”. According to Participant 6, the psychologist needs to provide a comprehensive clinical picture to assist with the quantum findings, where he reported that “I think that sometimes what the clinical psychologist

forgets that we need to be able to take things from that report that will have some kind of significance to us in determining the loss of earnings. If there is a mild or moderate brain injury, what we can use from that to quantify a person's claim in respect to our general damages which is not damages. So be clear on the pre- and post-scenarios." An emphasis on the present clinical condition was reported by Participant 18, where he indicated that "They need to tell us, you know what is wrong with this person now neuropsychologically. What can they no longer do, because those are really the only things that can assist us assessing the damages to this person? It is the pre- and post-morbid condition."

Theme 2: Illustrate the link between relevant collateral findings and the neuropsychological profile

The necessity and importance voiced by all the legal professionals were the inclusion of collateral information. Participant 2, 13, and 23 emphasised how collateral information must fit with the found clinical picture in the neuropsychological report. The need for a clear link between collateral findings and the neuropsychological picture is emphasised by Participant 13 who stated that "Collateral is very important when you look at the family members and the employers, especially when you know you are working on a big case where the loss will be significant." Participant 2 agreed by adding "I've noticed that a clinical psychologist report can be a lot better if they are in possession of an orthopedic surgeon's report, a neurosurgeon's report, and an occupational therapist's report, just to see what the actual other sequelae of the injury is and what has been done to this person and that can also help bring about to fully explain to why this person has a loss of earnings." Participant 23 felt that "You should not only get the patient who tells you that he used to be this strong person before the accident, because just as you get malingering, especially with men, you have to look at collateral. Because when

you do finer investigation regarding place of work and marriage, you get much more information about the person.”

Theme 3: Format of the report

When referring to the report format, the legal professionals indicated specific feedback regarding their requirements. They were outspoken about three themes in this context, namely the structure of the report, length of the report as well as the test descriptions. These themes are displayed in the following areas.

Report structure

The participants reported the necessity of a logical flow in a report. Participant 13 stated in this regard, “When your findings or your conclusion are not at the same place in the report, then at the time when you read the relevant parts, the court has forgotten what the exact purpose of the test was, or if it provided any value to the clinical picture”. Participant 3’s statement was more detailed, “I think the most important in the report is to highlight the before and after. Your pre-and post-morbid must be clear in the conclusion section of the report. And coupled with this is usually the collateral information and section addressing this.” A similar notion was voiced by Participant 8 as the following is stated, “Regarding the pre-morbid emotional condition, it is common to get a bloke that has special needs. This is an important element in the conclusion to determine who this person was before the incident. Case law dictates that ‘you take your victim as you find them’, and this just makes it easier if you had had a pre-morbid versus post-morbid picture. So, highlight it in the final stages or conclusion of the report.”

Length of the report

The thematic analysis proved that legal practitioners were ambivalent towards the length of neuropsychological reports. The practitioners with less experience placed more emphasis on the excessive length of some reports, which is seen at times as frustrating. This was evident in

the implied frustration with Participant 13, who indicated that “For us to kind of try to get to the point a lot quicker, it is too long, due to unnecessary repetition. So, it would definitely be helpful if the reports are more to the point and not so long. So, they need to get to the point faster.” The need for a shorter report was also reported by Participant 8 as she indicated that “categories which assist us especially as defendant lawyers are shorter reports, because we do work in volumes. For us the amount of files we work with through a day is a lot, so it will be nice to at least go to the relevant section and summarise faster.” This is also echoed by Participant 21 who made the statement, “make it [neuropsychological reports] a bit more brief and make it a bit more comprehensive, come to the point faster to say about what the sequelae can do for this person and his career.” Participant 26 was more direct about the long report length frustration by reporting that “I feel like they ramble on about the whole lot and at the end of the day all we can really take out of that report is a small section.” However, Participant 5 did not voice any concern with the length of a psychological report as he indicated that “A long report does not scare me, so you must not allow a long report to scare you. Complete the report in your chosen way, in your style because an experienced practitioner will not have a ‘hang-up’.”

Test descriptions

When referring to measuring instruments and the reporting thereof, the legal professionals indicated that it is more understandable if both are grouped because if separated, they tend to be confused as to what the tests were supposed to measure. The need for clarity was voiced by Participant 8 who reported that “I must say for myself as well, like indicated we don’t understand the technical terms, you know all the medical and test terminology. So, explain what you mean in the jargon”. Similar frustration was reported by Participant 9 who indicated that “There is a lot of complaints that I am getting, you know people read a page and they come back and say they don’t really understand what they are reading. I had three advocates today. All three

of them saying, you know I read a page and I don't know what's happening." Test descriptions was another theme that was identified as part of the document format because frustration and misunderstanding of technical jargon were found in reports. The legal professionals indicated it to be frustrating and a waste of time to try and understand technical language as could be seen by the notion voiced by Participant 23 who indicated that "The tests administered aren't really much of importance to us because we don't really understand". Participant 9 provided a clear guideline on test reporting as he reported that "What works is when you have the tests coupled with the results. You can then browse over the tests yourself and see where the problems are and then I can see what is normal and what is not and then I know here is a problem. The court and I can see to what extent there is a deviation, for example 3 out of 10 provides a good idea to the court and to myself."

Theme 4: Further legal training

Furthermore, some of the legal practitioners (Participants 3, 5, 13, 22, 24) indicated that it would be helpful for psychologists to have basic training into the legal process of claims. According to Participant 3, some continuity will be created when psychologists have basic training into legal processes as seen in his view that "It will assist us if a psychologist can do a basic course in which they are taught the basic legal principles. This is our factual witnesses, and this is how we present our expert witnesses to the court and this how your CV should be presented and what is a Rule 36(9)(a). They need more training to allow them to think in the right direction or to just think a bit like us and just have a little bit of that background training." Participants 5 and 13 reported that it would be helpful if psychologists undergo a basic form of compulsory legal training to synchronise the findings and opinion. The willingness to share knowledge was reported by Participant 23, who reported, "pick up the telephone and ask us what to do, don't guess because problems will develop. Better yet, let the psychologists also

get some form of university training to help with the legal understanding.” A similar notion for additional training was reported by Participant 24, who reported that the basic training of psychologists should include a module about the inner workings of a claim process and where the expert fits into the general cycle.

Discussion

The literature indicates that legal practitioners are very specific in their expectations of neuropsychological reports. As indicated by Lambiase and Cumes (1987), the relationship between the court and psychologists is cordial, but their most common failings are inadequate factual inquiries, confusing findings, and misunderstandings of what the court requires. The results of the present study refined legal expectations into four primary expectations, namely: findings should indicate the differences between pre- and post-morbid functioning and provide a clear psychological prognosis, a clear link between the neuropsychological profile and collateral findings must be illustrated, the format of reports must be adjusted to be more user-friendly regarding an overload of content and repetition, and the need for legal training for the neuropsychologist is imperative to work and understand the legal context. These findings are supported by Pope, Butcher, and Seelen (1993). They reported that the lawyers’ very high expectations of psychologists in respect of specialist psychological knowledge demonstrate that what lawyers primarily seek from psychologists is psychological knowledge, not legal expertise but an understanding of the legal process. Lambiase and Cumes (1987), supported by Kaliski (2006) and Ireland (2008), made it clear that lawyers and psychologists agree that psychologists who give expert reports and testimony must be objective, impartial, and unbiased. However, Allan and Louw (2001), also supported by Genis (2008), report that in general psychologists who do forensic work in South Africa fail to meet the moderate expectations of South African

lawyers. Theme 4 of the present study confirmed the previously mentioned as the legal expectations were that psychologists must receive more specialist training to understand the claims process. As indicated by Louw and Allan (1998), Allan and Louw (2001), and Genis (2008), it was also evident from the results that there seems to be a great discrepancy in South Africa between lawyers and psychologists, specifically when it comes to reporting findings and the format of reports. These are a valuable contributory finding in terms of determining legal expectations, as the literature shows that rather little is known about how-court professionals view psychologists. Leslie, Young, Valentine, and Gudjonsson (2007) report that law professionals apply critical thinking and logic that necessitates the provision of Theme 1, where findings must indicate the differences between pre- and post-morbid functioning. The present study's findings (Theme 3) also confirmed literature notions as reported by Genis (2008) that lawyers had difficulty in understanding specific certain terms and/or phrases. Grønnerød et al. (2013) indicate that some evaluations are found to be "narrow", and "thin"; pertinent and significant criticism that psychologists are relying on too few sources, thereby having a limited scope of information on which to base their evaluations. This result correlates with Theme 2 of the study where it was found that that there needs to be a clear link between the neuropsychological profile and collateral findings. Another confirmation found in this study which correlated with the research of Allan and Louw (2001), is the question of report format as discussed in Theme 3. The results also show that legal professionals prefer language that is clear, simple, and understandable – ostensibly an international frustration as too much technical language and jargon, coupled with repetition are found in the reports (Sweet et al., 2011).

Louw and Allan (1998) and Allan and Louw (2001) report that sticking to the mandate given by the court, that is, to explain the claim matter clinically, is an expectation of the court. In this regard, Theme 1 of the study found that the appointed psychologist must be clear in indicating

the differences between pre- and post-morbid functioning in a particular claim matter and provide a clear psychological prognosis. Faust and Ziskin (1988) and Grønnerød et al. (2013) highlighted, which was confirmed in this present study that the law professionals criticized psychologists for including too much irrelevant information, making the reports too long and unfocused (Theme 3). The study of Grønnerød et al. (2013) indicated that court professionals are of the same view than those in Theme 4 that South African psychologists need essential legal training. This opinion refers to specifically those psychologists who conduct neuropsychological evaluations within the MVA claim context. Therefore, the legal practitioner expects the neuropsychologist to explain the findings of an evaluation in a legally understandable manner.

Limitations and recommendations

Due to the diversity of neuropsychological evaluations, generalisability is limited. In this study, only legal professionals in Gauteng and the North-West province were included; therefore, it could be more valid if all the provinces formed part of the study. This limitation is particularly important as some legal practitioners feel that the courts in the various provinces do not function uniformly when it comes to dealing with claims. Furthermore, based on the results, a need for a descriptive link between the neuropsychological profile and collateral inputs are required. Also, it was found that the format of reports must be adjusted to be more user-friendly regarding an overload of content and repetition, but in this regard, a shorter document might address this challenge. Therefore, in South Africa, as well as internationally, further development and research in the neuropsychology field needs to be done. However, these findings provide the opportunity to understand the complexity of claims and the expectations of the court. Limited training or lack of training is a training shortfall that needs immediate attention. This recommendation must be taken under advisement and included in tertiary programmes as a forensic

neuropsychological category as soon as possible; more so because forensic psychology has already been acknowledged by having a quality to a degree to be indicated. Based on the findings of this study acknowledgement of forensic neuropsychology as a speciality career is justified. A blueprint for report-writing is integral to a neuropsychological training program.

Conclusion

Based on the perused literature, Lambiase and Cumes (1987), Louw and Allan (1998) and Allan and Louw (2001) reported some concerns and provided guidelines on psychological reports. However, to date, legal representatives are reporting the same cited problems. Therefore, it seems that there was minimal movement in the context of psychological report writing. Furthermore, it seems that South African psychologists battle with the same challenges as international psychologists. This study indicates that forensic neuropsychological practitioners have much value to provide to the South Africa courts; however, practitioners need specialised training to satisfy the expectations of the court generally.

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2.2. Article 2

Title: Shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa

Submitted to: *Journal of Psychology in Africa*

Required word count: Manuscripts can be a maximum of 7 000 words.

Current word count: 6 891

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Journal article

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Book

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. Emmaus, PA: Rodale.

Edited book

Galley, K. E. (Ed.). (2004). *Global climate change and wildlife in North America*. Bethesda, MD: Wildlife Society.

Chapter in a book

Cook, D. A., & Wiley, C. Y. (2000). Psychotherapy with members of the African American churches and spiritual traditions. In P. S. Richards & A. E. Bergin (Ed.), *Handbook of psychotherapy and religiosity diversity* (pp 369–396). Washington, DC: American Psychological Association.

Magazine article

Begley, S., & Murr, A. (2007, July 2). Which of these is not causing global warming? A. Sport utility vehicles; B. Rice fields; C. Increased solar output. *Newsweek*, 150 (2), 48–50.

Newspaper article (signed)

Landler, M. (2007, June 2). Bush's Greenhouse Gas Plan Throws Europe Off Guard. *New York Times*, p. A7.

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Appoh, L. (1995). The effects of parental attitudes, beliefs and values on the nutritional status of their children in two communities in Ghana (Unpublished master's thesis). University of Trondheim, Norway.

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2.2.2. Manuscript

Shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa: Perceptions of psychologists

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Abstract

This article explores psychologists' perception of shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims. Twenty experienced psychologists in the Gauteng and North-West provinces participated in the study. Semi-structured interviews were conducted, which was recorded, transcribed, and analysed through thematic analysis. The findings identified psychologists' experience in the current field by referring specifically to the lack of training; the need for a regulating body; and problems with content, format, and methodology of reports. The importance of determining a pre- and post-morbid clinical image is emphasised, but a clear reference to and discussion about DSM-5 neurocognitive domains are also indicated. The article concludes by showing that a lack of training and the need for a regulating body is not only a local challenge but a global need.

Literature review

Psychologists' involvement in legal proceedings where they assist the court in a more in-depth understanding of human psychological functioning to guide a legal outcome (Roos, Scholtz, & Wessels, 2016), has become more prominent than a century ago when it was first requested to assist courts in matters that required the interface between psychology and law (Roos et al. 2016; Williams, 1997). A specialised branch of psychology, neuropsychology aims to understand how behaviour and cognition are influenced by brain functioning (Sweet, Moberg, & Suchy, 2000; Sweet, Peck, Abramowitz, & Etzweiler, 2003). Neuropsychologists, however, also play an important role in forensic psychology as expert witnesses in court to testify regarding issues with the brain or brain damage after motor vehicle accidents (Williams, 1997). Hom (2003) reports that this falls into the arena of forensic neuropsychology, which is a subspecialty of neuropsychology that directly applies neuropsychological principles and practices to matters that pertain to legal decision-making⁴.

Hom (2003) and Roos et al. (2016) indicate that the field of forensic neuropsychology is rapidly evolving; however the primary responsibility of the forensic neuropsychologist in such a context is to provide information to the court based on validated

⁴ The term *Forensic Neuropsychology* is used in the literature, but is not commonly used in South Africa.

neuropsychological concepts and clinical methodology that is relevant to the forensic question under review, which is not just whether the client has a deficit, but whether it stems from the incident under consideration, such as a motor vehicle accident (Sweet et al., 2000; Sweet et al., 2003).

Roos et al. (2016) suggests that forensic neuropsychologists play an all-important role in South African claims, specifically on two levels, namely to either determine the extent of the neuropsychological injury or to identify possible malingering of symptoms. Furthermore, Roos et al. (2016) noted that the subspecialty of forensic neuropsychology is currently limited by its lack of dedicated professional organisations, practice standards (or less formal practice guidelines), and specialised certification and credentialing procedures. This phenomenon has also been indicated during the 24th Annual PsySSA Congress 2018, held in Johannesburg, South Africa. According to Hom (2003), in the United States of America (USA), there are, at present, no formal educational programs, licensure requirements, or professional organizations explicitly devoted to forensic neuropsychology – confirmed locally by Roos et al. (2016). There are relatively few textbooks in the field, and only a single journal devoted solely to the field, the *Journal of Forensic Neuropsychology*. Hom (2003) further indicates that there is no formal process for allocating the title of *forensic neuropsychologist* upon a practitioner. Rather, in America this status title can be claimed, in the majority of USA

states, by someone who is first qualified as a licensed psychologist, and who has received additional legal training necessary to meet the regulations for registration as a neuropsychologist. However, in South Africa, the title of *forensic neuropsychologist* is still foreign and the category is not yet registrable.

In South Africa, many questions are raised about practitioners working in the neuropsychological field who apply their expertise in the forensic field. In South Africa, it is unclear what constitutes generally accepted practice within the MVA claim context or what training is done in this regard. Experienced South African psychologists hold the view that no such training has been provided to date (Nield, 2007; Oosthuizen, & Phipps, 2012). Also, the extent to which these experts are challenged in court is unclear (Sweet et al., 2000; Sweet et al., 2003).

Due to this lack of standardised training, there is a lack of consensus amongst forensic neuropsychologists regarding methodology, the use of psychometric tests, and whether this type of work falls within the scope of practice of all existing practitioners (Roos et al., 2016). Although, neuropsychology has been accepted as a separate registration category by the Professional Board of Psychology of South Africa in November 2019 (South Africa. Department of Health, 2019) the field of forensic neuropsychology is still undefined.

Therefore, prior to November 2019 neuropsychology as well as forensic neuropsychology, were practised by clinical, counselling, industrial, and educational psychologists in an attempt to evaluate the extent of inability to a particular skill and to attempt to localize the area of the brain which may have been affected after brain injury or neurological illness (Genis, 2008; Van Eeden, & De Beer, 2013). Unfortunately, at this time, the forensic neuropsychologist in South Africa is left with no option but to pursue their profession with an undefined scope of practice. In this light, Allan and Louw already in 2001 noted criticism about forensic neuropsychological evaluations that lacked training and non-consensus on a set format or structure for these types of evaluations. Currently, South African forensic neuropsychologists are self-taught and rely on limited CPD workshops, international courses, online courses, and peer review groups to guide them in the evaluation process. In this regard, Hom (2003) emphasised that the forensic neuropsychologist should use appropriate methods that have been scientifically validated and that can distinguish various neurological pathologies from each other as well as from normal profiles. However, there exists a lack of consensus regarding what must be included in such a test battery and how the report must be written (Roos et al., 2016). Therefore, Hom (2003) indicates that one would expect a forensic neuropsychologist to have additional training in the legal context, although, to date, the specific nature of this education has not

been described. It is therefore obvious that specialised training for forensic neuropsychologists in South Africa, is of paramount importance, due to the high incidence of motor vehicle accidents annually resulting in Road Accident Fund (RAF) claims with high costs (Roos et al., 2016). Therefore, despite the subspecialty's significant growth over the past few decades, additional work must be done to develop the practice and scope of forensic neuropsychology into a more established specialisation, with scientific-based methodology and rigorous, standardised training (Hom, 2003). To serve the best interest of clients in MVA evaluations, formal training and a regulating body specifically pertaining to forensic neuropsychology needs to be established in the South African context.

Goal of the study

The aim of this study was to determine a group of South African psychologists' perception of shortfalls in forensic neuropsychological evaluations and reports in motor vehicle accident claims.

Method

Research design

The research design was qualitative exploratory and descriptive in nature (Braun & Clarke, 2013). These authors report that exploratory research is a research conducted for a problem that has

not been studied more clearly, intended to establish priorities, and develop operational definitions. Therefore, exploratory research helps determine the best research design, data collection method and selection of subjects.

Participants and setting

Ethical clearance was obtained from the North-West University, South Africa (ethical clearance number: NWU-00197-14-S1), after which the researchers started the gathering of data from psychologists. Purposive sampling of 20 experienced psychologists was done. Participants were adults aged between 37 and 56 (mean = age 46,5). The sample of 20 comprised of eight females and twelve males. Their home languages were English (n = 11) or Afrikaans (n = 9). Participants were identified through a list available at the High Court indicating which psychologists work in the context of motor vehicle accident claims. Inclusion criteria were that they had to be registered with the HPCSA and have at least ten (10) years' experience specifically in the field of forensic neuropsychological evaluations in motor vehicle accidents.

The process started with an email request sent directly to the psychologist. Potential participants were provided with a written brochure setting out the aims of the study. The researchers' contact details were also provided with the request that they must contact the researchers if they are willing to participate in the study. The researchers did follow-up after seven days to enquire if they were interested in participating in the study. After that,

the willing participants were contacted telephonically or by email to arrange a date for the interview. The interviews were recorded in a private venue which, for confidentiality reasons, suited the participating psychologist. Written consent was obtained from all the psychologists. They were also informed and aware as to their right to confidentiality and to withdraw at any time. No risks were involved.

Data collection

The perceptions of experienced psychologists were explored through semi-structured interviews which were guided by the research topic. Interviews complied to guidelines as set out by Castillo-Montoya (2016). These guidelines include the following: ensuring interview questions align with research questions, constructing an inquiry-based conversation, receiving feedback on interview protocols, and piloting the interview protocol. The interview was guided by the following two questions: What problems do you experience in the current field of neuropsychological evaluations of motor vehicle accident claims in South Africa? What is your perception of neuropsychological reports regarding motor vehicle accident claims in South Africa? Interviews were audio-recorded and transcribed verbatim.

Data analysis

The interviews were transcribed, and thematic analysis was done. Initially, open coding was used to identify patterns and

themes. Following the method of Braun and Clark (2006), a constant comparison was used to generate and refine categories and subcategories. The analysis was completed when data saturation was reached, and no new themes emerged. Agreement between the researchers was reached on all the themes. Thematic analysis of the participant responses yielded several themes, as discussed below.

Results

This research aimed to determine a group of South African psychologists' perception of the shortfalls in forensic neuropsychological evaluations, specifically related to motor vehicle accidents. Results will, therefore, be discussed under these two headings namely: problems psychologists experience in the current field of forensic neuropsychology as well as the perceptions of existing neuropsychological reports regarding motor vehicle accident claims in South Africa.

Problems psychologists experience in the current field of forensic neuropsychology

Regarding shortfalls that forensic neuropsychologists experience in this field three themes were identified: (i) A lack of training; (ii) No regulating body; (iii) Problems with content, format, and methodology. Verbatim extracts of participant interviews will be used to demonstrate the findings.

Theme 1: Lack of training

The participants agreed that effective forensic neuropsychological evaluation required specialised training. Frustration about the lack of regulated training was reported; for instance, by Participant 7, who referred to the poor quality of work due to limited training:

... because there isn't a registration category for neuropsychology⁵, there isn't any formalised training in neuropsychology and there isn't any singular body responsible for such training... and I think really there are many psychologists who just wake up one morning and decide that this is what they want to do. They change their letterhead and put special interest in neuropsychology on and somehow that qualifies them. Therefore, there is a great need for training and a regulating body.

The participants indicated that in South Africa deciding on the format of a neuropsychological evaluation is made by the clinician based on their level of experience and generic training, and not formalised or specialised university training. For example, participant 18 indicates that the individual entirely drives the training, and the knowledge base is not unified. Furthermore, it was also indicated that most neuropsychological knowledge is

⁵ *The data was gathered in 2018. In November 2019 the registration of South African neuropsychologists was promulgated.*

self-taught and that the individual followed their own, untrained approach and highlighted by Participant 19, who reported that:

The evaluation and report format is not set by anybody and everybody does whatever they think makes sense to them ... It's all self-taught you know, and my knowledge in neuropsychology is also self-taught so I'm no better than anybody else. Of course, self-taught means it can be done in many ways. You can fiddle around a little bit and think now I got it or you can travel wide and far and attend conference and training or you can have formal training overseas or whatever. That is part of the problem, because it is completely driven by the practitioner.

It, therefore, seems as if the senior, experienced colleague is no better off than anybody else and this results in frustration because often misunderstandings occur, especially in the context of the compilation of joint minutes. Due to the lack of formal training graduate programs for the forensic neuropsychologist, the participants indicated that the only option is attending conferences, participating in Continued Professional Development (CPD) training, or enrolling into formal training overseas, which is often not recognised by the HPCSA. Participant 11, 16, and 17 all reported that there is no accredited training available on a national educational level, which is a profound reason for concern, not only for the field but more so for the clients who have no assurance of a uniform accredited evaluation approach:

In South Africa presently, some universities have started training in neuropsychology, but that means that most practitioners out there are not formally trained. The South African Clinical Neuropsychological Society (SACNA) tried and failed for many reasons which I think is more sort of political and so on ... but we have been doing this for 30 years and the irony is over the 35 years of pure credentialing, SACNA only has forty-five full members. In other words, only 35 members who have passed the pure credentialing. Not because it's so difficult to pass but I think because it's voluntarily and it's not a statutory requirement. Some people put themselves through it and others just decide, well I can do this job without doing that so why would I bother because it takes a lot of time and effort (Participant 11).

This participant referred to neuropsychology in general, but as indicated above, currently, there is still no operational category for forensic neuropsychology. Participant 17 referred to non-statutory organisations such as SACNA, whereby psychologists can become voluntary members by saying,

Because some organisations outside of universities are pure credentialing, there is no accredited training available, some universities only started recently, which is great reason for concern, more so for the clients who are not evaluated from a specialised point of view.

Participant 16 also referred to the lack of formalised training by stating, “There is no uniform process of evaluation, due to a lack of training, I mean specialised training. And in essence it is the clients who suffer.” Participant 17 agreed by stating, “So for now the psychologists follows their own ideas.”

Participants 10, 14, and 19 also report frustration with the lack of formalised training in forensic neuropsychology and indicates that it is the individual who follows their own approach, “The challenge is that most if not all psychologists rely on self-taught information. Meaning the little they learnt at university and CPD courses” (Participant 10); and, “All that is left for the practitioner to do is to follow the training they had received during graduate training and then attend CPD courses and get training overseas. However, overseas training is not formally acknowledged in this country” (Participant 14).

“If you manage to qualify in psychology, you can pretty much do neuropsychological assessments, I think it’s really just a lack of not knowing what you don’t know, there’s actually specialised training that’s needed. Most people don’t know and because they don’t know, they don’t really know what to do. We do have a problem with training as well, but I think if more people knew that they don’t know enough, then there would be more demand for training and I think from a training aspect, it should probably get sorted out” (Participant 19).

It, therefore, seems that the participants in this study agreed that one significant current shortfall is a lack of formalised training in South Africa for forensic neuropsychologists.

Theme 2: Regulating body for forensic neuropsychologists

Participants point to the absence of an active formalised HPCSA category training since the field of forensic neuropsychology in South Africa came about and expressed the necessity for a statutory regulating body for the regulation of this fast-growing field. In the words of Participant 17, “Since this field started in South Africa, it has never been formalised, only recently neuropsychology was introduced to some university curricula, but that is still going to take some time. So, nobody is regulating it.”

Participant 11 succinctly articulated the interrelatedness of weak reports, the lack of training, and the absence of a regulating body in her response, “I think part of the reason of that is because there isn’t a registration category for forensic neuropsychology, there isn’t any formalised training in forensic neuropsychology and there isn’t any singular body responsible for such training or regulating or setting standards. Referring to psychologists who do forensic neuropsychological work, Participant 11 asked the question, “The problem is who monitors them based on best practice standards?”

Participant 17 also expressed her concern that there is no current registration category for forensic neuropsychology and believes that it leads to a “bipolar” challenge between the delivery from poor to excellent reports. Participant 18 indicated that “... a few bodies try to bring in some form of regulations for the field, for example, the South African Clinical Neuropsychological Association (SACNA), South African Medico-Legal Association (SAMLA) and Neuropsychology SA. However, the challenge is that it is all voluntary.”

Participant 17 further added, “All that is left for the practitioner to do is to follow the training they had received during graduate training and then attend CPD courses and get training abroad. But this is only a partial solution, because no matter what you do elsewhere, the Board does not recognise it.”

Theme 3: Problems with content, format, and methodology of reports

Participants experienced problems with the content, format, and methodology of reports. Four subthemes emerged: no consensus regarding the appropriate use of tests; no clear reference is made to the pre- and post-morbid clinical picture; clear reference is not made to the neuropsychological domains; and lack of structured report format.

Subtheme 1: No consensus about appropriate test use and interpretation of results

Participants experienced that due to a lack of standardised training, each new psychologist in the MVA evaluation context tends to use any testing of what they deem to be right; for instance, Participant 20 indicated:

I think, well there are colleagues who do not use a comprehensive test battery so that does not mean that the test I chose are the only tests that one can ever use, but there are colleagues that use tests that are really not considered within the international neuropsychological community as the best kind of test to assess something, and then present their findings based on a very limited neuropsychological test battery which I very often failed to even see the reason why these tests were chosen... and then there are some of these batteries that are really not conclusive which have dire implications for people or you know it has implications for people's lives. So then when you come to a joint minute, then obviously there is a conflict about what constitutes a test battery.

Participant 3 supported this by stating that "practitioners use appropriate tests but misinterpret the results. Opposing colleagues have pages and pages of writing and tests, but it doesn't come together, and some practitioners claim that they have conducted a neuropsychological assessment, but in fact it's not. Mostly it's either not a full and comprehensive battery or the tests are not

neuropsychological tests, or a very small number of tests are used to reach a very large generalised finding”.

These results indicate a great frustration, especially where colleagues must work together. Participant 17 reported that by trying to cooperate, practitioners do not compare “apples with apples”, but rather try to keep the legal process on track and turns a blind eye by accepting a poor report. Therefore, while practitioners are expected to simplify a joint opinion, it still does constitute an unbiased and scientific opinion. And, in the view of this participant, unfortunately, sometimes professional courteousness by accepting substandard reports and opinions becomes the root of the problem. She elaborates by stating:

And I think the problem, one of the major problems is that we are aware not to delay the legal process, so you can see this person is not trained or has proper experience, but where do you start, you can't lecture that person, therefore you agree on poor test use and work. And this is not in the interest of the clients. Therefore, this must be monitored in some way.

She also stresses that, sadly, the clients are disadvantaged, and the practitioner continues with sub-standard work. Participants stressed that practitioners use incorrect test norms or outdated norms or misreporting the norms, or maybe the norms are correct, but the interpretation is incorrect. In this regard, Participant 7 states:

Experts are often not asked to testify anymore so you can actually say whatever you want in a report and then you can rely on a joint minute where you also say what you want. Even if he used the incorrect norms or outdated norms, they still use it. I think this is a huge problem because it does not bring people into accountability. Even sometimes it happens that they misreport the norms. What also happens is that the norms are correct, but the interpretation is not correct. So there are challenges using relevant test norms and knowing where to find those norms, and knowing how to evaluate the norms. The practitioner does not always know when to rigidly adhere to the test norms and when to not rigidly adhere to them.

Regarding the suitability of a test battery participants 9, 12 and 15 indicated that most forensic neuropsychological evaluations show a lack of test structure as each clinician seems to use what they deem relevant. Participant 13 reports her problem is with the general format of neuropsychological testing, where she has found that some assessments do not adhere to international requirements. This often happens because psychologists misunderstand the referral question. Participant 13 also reports that this results in a confusing product that does not come to a concluding point and the reader is therefore left confused, “Often a psychologist says that they did a neuropsychological evaluation but

only [participant's emphasis] used three tests. This is not on international testing standard at all. So, the test format is all wrong because they misunderstand the referral request, and this will leave the reader confused.”

Therefore, she maintains that practitioners must be trained in test selection, report-writing skills and analytical thinking. In this regard, she states,

The problem has been everything from dealing with people who say it's a neuropsychological assessment but in fact it's not. So in other words, it's either not a full and comprehensive test battery or it's tests that are not neuropsychological test or it's using a very small number of tests and making large generalised findings and taking large generalised findings from it. I think there's a skill in that, that not everybody has. There must be a report writing skill or analytical thinking skill, which I think can be taught, but it often isn't or its absent and then you have as I say, you have a report that contains a lot of information but what comes out at the end does not answer the referral. The skill is in the analytical thinking when writing the report.

Participants' input point to an expressed need for a statutory body for forensic neuropsychology to regulate the standard of reports.

Subtheme 2: The importance of determining a pre- and post-morbid image is not often recognised

The participants indicated that forensic neuropsychological evaluations are more than just assessing for neurocognitive functioning. Such assessment must be done within a holistic focus of a client's psychological, personal, interpersonal, and broader contextual pre- and post-morbid circumstances in order to provide the court with all relevant information. Most participants indicated that the primary purpose of the evaluation and written report must be a verification of a neuropsychological change pre- and post-morbid. However, this is often not the case. Some of the participants also indicated that it is of paramount importance that the severity of the head injury must be determined, together with the inclusion of medical history on pre- and post-accident level, a thorough perusal of educational and employment history, reference to leisure activities, and also a reflection on interpersonal background.

For me, the starting point would have to be medical information. Applicable medical-related evidence is often not included in the report. This is not reported in reports. What does the medical information tell you, or what happened to the person, in other words, how severe was the head injury. In some reports, the severity of the injury is completely ignored. But for me, then from there I have this information

generate a general broad set of questions that I can ask during the interview. I look at the medical history, pre- and post-accident functions, the educational history, employment history, even what do they do for fun, and also look at their interpersonal relationships (Participant 17).

However, participants 9, 11 and, 17 felt strongly that the presented clinical picture is not necessarily what the person is reporting and that pre- and post-morbid collateral information is, therefore, essential and must be clearly indicated in the report.

Sometimes the person does not know how he was or does not recall, that is why the medical and personal background obviously clarifies how he was before, and this must be discussed in the report, but is often not. Here you see the need to do a collateral follow-up, to get the full picture of how he was and how he is now. Many reports neglect to do that (Participant 9).

Participant 11 demonstrated the importance of personal report supported by collateral information by saying, “In terms of this you have four main points regarding the pre-morbid and post-morbid namely, his medical history, his educational and work history, his sports and leisure, and the psychology of his personality. But some reports skip this and immediately go to conclusion and recommendations.”

Participant 9 agreed by saying:

Many reports are too general and not thought through, it is rushed. The psychologist must consider all the background information before the final report is written, namely his medical history, occupational history, what leisure activities did he does, what was his personality before and after, and how is he now, post-accident.

Participant 17 emphasised the importance of scrutinising all available information carefully. She explained, “Go into the detail of the medical history, work history, relationship history, and personality, everything as much as you can get. Sad to say some reports just rush through this, or miss the point at times.”

Participants 3, 8, and 15 highlighted the importance of reporting the background to the injury as this will guide the test selection.

Participant 3 reported,

In the South African context and within specifically a medico-legal context, sometimes you cannot get all the background, sometimes background information is sparse, but most importantly try to find out how did the injury occur. This will already give you any idea of what tests to use. But in some reports, you can see that not enough time was spent on how the injury occurred, and it shows in the test selection.

Still on the reporting of the history of the injury, Participant 8 believed:

I mean that if you have a testing-based approach, you see a person, you do testing, you look at the test results and you make a conclusion of the test while taking the person's history into account, especially the history of the injury. This history will guide you on what to do next, but many reports focus more on tests and results, and not on the history. This blurs the pre- and post-image.

Participant 15 added:

Without reporting on the background of the head injury, the psychologist will not know what to do or what to write. This is where I start, to first find out what exactly happened and how much can the person remember, also look at the Glasgow Coma Scale (GCS) score ... Then I decide on the tests. But that type of thinking must clearly be reported in the report, then you can see how the psychologist reasons and how he came to his conclusion. It's all scientific.

Therefore, the participants indicated that the pre-morbid and post-morbid picture must be discussed in the report, but is not always the case which is a significant shortfall.

Subtheme 3: Clear reference is not made to neurocognitive domains in the reports

The involved participants indicated that the final product of the forensic neuropsychological evaluation is the written report that

highlights where the neurocognitive problems are. In this regard, they refer to the neurocognitive domains as cited in the DSM-5. However, some criticism suggests that this is not done, as is indicated by Participant 5, who reported:

A neuropsychologist must understand the neurocognitive domains and clearly discuss where the problems are in the report. The DSM-5 defines six key domains of cognitive function, and each of these have subdomains. Identifying the domains and subdomains affected in a particular patient can help the practitioner establish the aetiology and severity of the neurocognitive disorder. And these must be clearly discussed in the report, but many times everything is put together, which must be very confusing to the untrained reader.

Most participants reported that by identifying the domains and subdomains affected in a particular client, can help establish the severity of the neurocognitive disorder:

The neuropsychological lens which consist of knowledge of the neurocognitive domains as prescribed by the DSM-5, is very important. It makes writing and reading of the report easier because you have themes or headings that can be followed. How some psychologists write a report without these is beyond me.

The participants indicated that every specific construct or domain need to be discussed separately in the report. In this regard, Participant 3 mentioned:

Firstly, when writing the report, discuss the neurocognitive domains, namely orientation; attention; concentration; memory; intelligence; language; visual-perception, and executive functioning. I will take the conclusions of all my domains in the report and summarise and give my opinion if there is a domain problem.

Participant 6 believed, in overlap with DSM-5 regulations, the neurocognitive domains must be discussed separately in the report. She states that one must identify where the primary domain problem is by evaluating and indicating each domain separately in the report. Participant 2 emphasised the importance of a supplementary discussion on emotional and personality sequelae.

Participant 9 agreed by stating:

The emotional problems post-accident must also be discussed in the report, and should be integrated with the various domain discussions. In essence it is titled a neuropsychological report, therefore the psychological aspects need to be present as well. But many reports ignore this altogether.

The importance of a clear summary or discussion of the problematic neurocognitive constructs or domains must be evident

from and included in the report. Participant 13 indicated this by stating:

Everything needs to come together in the conclusion part of the report, I mean the summary or discussion where all the problematic neurocognitive domains should be highlighted in the report. This will then be clear to the reader where the problems are. But I've seen reports where domains are partially reported or not at all, and this is a big mistake in my view.

Participants report that a significant shortfall in reports is not discussing findings at the hand of neurocognitive domains. The perceptions are that these domains guide the writer of the report to highlight where problem areas might be.

Subtheme 4: The lack of a structured format in the forensic neuropsychological report

Regarding a report format, most of the participating psychologists' structure the evaluation by including clinical interviews, psychometric testing, and collateral follow-up as a general report structure. Participants 3, 9, 11, and 15 all identified the methodology that needs to be followed: Firstly, the relevant history needs to be obtained from the clinical interviews and a review of the records. Then, the forensic neuropsychologist needs to outline the observation made during the consultation, and report on

the neuropsychometric testing. As well as the focus or purpose of these tests, information must include particulars of the instruments used. The description of the methodology must incorporate the interpretation and conclusion of the findings, together with appropriate clinically based recommendations. However, they opine that in some reports, the unstructured approach of the report is confusing to the reader. Participant 5 explained the need for a holistic perspective when working with the client by stating that:

I believe that clinical impressions are very important, they cannot replace everything but certainly should be central to the evaluation. Some reports completely ignore this, which is strange as a psychologist is trained in clinical observation. Everything should be considered together, and nothing can be left out of the report. It's a holistic assessment, it's an assessment, it's not only a testing.

Furthermore, the methodology must indicate what possible treatment and/or referrals to other specialists will be best suitable for the client. Therefore, the importance of a structured and scientific report-writing approach was also emphasised by the participants. Participants 15 and 16 indicated that some reports have no logical flow. They suggested that the format must be structured by indicating history, clinical observation, neuropsychometrics, formulation, and recommendations. Participant 15 reports, "I have seen reports with no logical flow. I think its best

to create and maintain a structure at the hand of history, clinical observation, psychometrics, formulation and recommendations.” This response was supported by Participant 16, as she indicated to “stick to a format that creates a structure. I recommend referring to history, clinical observation, neuropsychometrics, formulation and recommendations.”

Participant 11 and 17 indicated that forensic neuropsychological evaluation and report writing asks for analytical thinking. In this regard, Participant 15 reports that not everybody necessarily has the forensic neuropsychological report-writing skill; however, she believes that the skill can be taught. She states that adherence to a format or structure will aid in more natural report writing.

There is a definite skill in that, I mean you have to be skillful to write a good report. But this report writing skill or way of thinking can be acquired, I mean the skill can be taught. And I can see in some reports that this skill lacks, because there is not structure that is followed and no critical analysis or thinking.

The above discussion underlined the need for contextual forensic neuropsychological training to allow the forensic neuropsychologist to act in the best interest of the client.

Discussion

As can be seen from the results, the group of experienced South African psychologists committed to this study, identified several evident shortfalls in neuropsychological evaluations and reports. Participants are convinced that, currently, the field lacks trained forensic neuropsychological professionals which is evident from poor quality of work. They voice their concern that this does not serve the client's interests. The literature supports this notion. Foxcroft and Roodt, (2014) and Joosub, Cassimjee, and Cramer, (2016) indicate that no specialist training has been provided to South African neuropsychologists or forensic neuropsychologists. In conformance, participants reported that, in South Africa, deciding on the format of neuropsychological evaluation is made by the clinician based on their level of experience and generic training; unilaterally seen as a significant shortfall. Participants recommended a set structure or format that can assist the experienced as well as the novice South African forensic neuropsychologist to provide a more comprehensive and reader-friendly report.

In addition to the absence of a regulating body that can address the present, and apparent, mediocre to substandard evaluations and reports, the absence of formal training programs adds to the status quo. But this does not seem to be an exclusively South African challenge. As far back as 2003, Hom reported that no

formal educational programs, licensure requirements, or professional organisations dedicated to forensic neuropsychology existed in the USA. He also indicates that, at that time in the USA, there were relatively few textbooks in the field and only a single journal devoted solely to the field, the *Journal of Forensic Neuropsychology*. Although Hom (2003) mentioned that the American Board of Professional Neuropsychology (ABPN) added the subspecialty in forensic neuropsychology to its registration process, they still do not have a body of regulation. Hom (2003) also noted the absence of a formalised process for assigning the status title of “forensic neuropsychologist” upon a psychologist, but rather, this title can be assumed, in several American states, by a practitioner who is first qualified as a psychologist, and who had some additional training to meet the requirements for qualifications as a neuropsychologist. This lack of a formal process for assigning the title still seems to be the case locally, where a qualified psychologist can claim to do forensic neuropsychological work without accreditation (Roos et al., 2016). However, Hom (2003) indicates that one would expect a forensic neuropsychologist to have additional training in the legal context, although, to date, the type of this educational inputs have not been described. Alosco and Steyn (2019) and the National Academy of Neuropsychology (NAN, 2020) report that in most states (in the USA), the examiner should at least be licensed in psychology to perform neuropsychological testing.

Further training involving formal graduate-level training is recommended as a standard by organisations such as the American Psychological Association (APA) and the National Academy of Neuropsychologists (Alosco & Steyn, 2019; NAN, 2020). Many individuals “Board Certified” in neuropsychology by the American Board of Forensic Examiners have qualified solely based on an application fee. They would not meet the criteria for requiring formal graduate school education or supervision in neuropsychology. On further investigation, the closest to a regulating body the researchers could find was prompted by the Florida Board of Psychology who instated general rules in 2007 to provide some regulation in this regard. The Florida Board of Psychology also reported that limited American states (Louisiana is one) have licensing laws governing the subspecialty of neuropsychology, and regulation is taken up by laws governing the practice of psychology and generally APA ethical standards which require psychologists to practice within their scope of competence (Alosco & Steyn, 2019; NAN, 2020).

Therefore, as can be seen from the above, the participants’ need for regulation and setting standards seem to be national as well as international. Therefore, the need for an active registration category for forensic neuropsychology is clear. The requirement for a separate registration category is also indicated by bodies such as the SAMLA, SACNA, and Neuropsychology SA who try to set a standard in terms of neuropsychological assessment.

However, membership of these organisations is voluntary and not statutory regulated.

This study furthermore identified the need for formal training in forensic neuropsychology as participants highlighted problems with shortfalls regarding methodology and format, specifically on test selection. This finding concurs with Gadd and Phipps (2011). They had, even back then, found evidence that colleagues did not use a comprehensive test battery and that some of the tests used are not considered by the international neuropsychological community as the most relevant neuropsychological tests in this context. The participants report concern that test batteries that are not conclusive can affect the conclusion that is presented to the court, as was similarly reported by Roos et al. (2016). Poorly compiled test batteries, due to a lack of formal training escalate inconsistencies in findings, especially where colleagues must work with one another such as in the context of joint minutes. The outcome can be catastrophic because the trend is to be courteous towards colleagues and accept inadequate evaluations to avoid slowing down the legal process. Such inclinations, in turn, result in findings that are incomprehensive or inaccurate. Following Roos et al. (2016), some participants identified another shortfall by stating that some practitioners claim that they have conducted a neuropsychological assessment, but, do not use a comprehensive battery, and conclude with insubstantial, generalised, or unfocused findings. Joosub et al. (2016)

and Gadd and Phipps (2011), implied similar opinions. About the format and content of reports, the participants report a lack of clear structure. Sweet et al. (2003), as well as Sweet et al. (2000) questions the extent to which expert reports are being challenged in court because the report is most likely to be accepted, whether the opinion expressed is an expert opinion or not.

In this regard, each clinician relies on their own preference for non-standardised, neuropsychological evaluation methods. Adding to the shortfalls, the participants highlighted the importance of determining a pre- and post-morbid clinical image that is often not highlighted in the report. This notion is supported by Hom (2003) where it is indicated that the forensic neuropsychological evaluation is more than purely assessing for neurocognitive functioning because it also has to encompass a focus on a person's psychological, personal, interpersonal and wider contextual pre- and post-morbid circumstances. Similarly, existing studies support the notion, for example, Walsh (1991); Sweet et al. (2000); Sweet et al. (2003). The participants report a lack on elaboration on the accident history, severity of the head injury (GCS score), the importance of medical history, educational and employment history, leisure activities, interpersonal background, all reporting on pre- and post-accident level, which is required to contextualise pre- and post-morbid circumstances.

Also indicated and supported by Joosub et al. (2016), the participants emphasised the importance of collateral information which forms part of the pre- and post-accident analysis by investigating the person's personality psychology. To make the report more understandable and user friendly, participants voiced the recommendation to discuss findings according to neurocognitive domains to indicate clearly where the problems might be. This recommendation is supported by Lezak, Howieson, Bigler, and Tranel (2012), who confirmed that the neurocognitive domains used in the DSM are applicable. A lack of report structure is seen to be another shortfall by the participants, and a format is proposed that must include clinical interviews, psychometric testing, and collateral follow-up. The ability to produce a final report is seen as a skill that the forensic neuropsychologist must have (Lezak, et al., 2012). The ability to produce a skillful report is a significant factor because the psychologist must assist the court in the more profound understanding of human psychological functioning to guide a comprehensive legal outcome (Lucas, 2013). The findings echoed the need for coherent report-writing – a skill that goes hand in hand with training. And although forensic neuropsychological report writing asks for analytical thinking, it is a skill that can be taught. Thus, specialised training becomes a determining factor in producing professional reports.

Value and limitations

The value of this study is that a direct and recent understanding is provided by experienced psychologists on the shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa. This understanding can enhance the quality and accuracy of neuropsychological evaluations and reports. However, limitation of the study included the use of a small sample drawn from the Gauteng and North-West (Province) (SA) of South Africa. Further studies should sample from other provinces in South Africa as well to obtain a more comprehensive understanding of South African psychologists pertaining to shortfalls in neuropsychological evaluations in motor vehicle accident claims in the country.

Conclusion

Based on this study, it is reassuring to see the ambitions of South African psychologists to aspire towards working as forensic neuropsychologists, but also the encompassing need to serve the clients' best interests. Due to the infancy of the field definition in South Africa, several shortfalls were identified; however, all are areas that can be addressed simultaneously. The golden thread running through the existing literature and, particularly, in the studies under review seems to be the need for specialised training in forensic neuropsychology and a regulating professional

body for this field. However, it is illuminating to determine that the need for formal recognition is a global tendency which confirms as well as justifying the matter. Therefore, it seems that forensic neuropsychology practitioners are convinced that forensic neuropsychology must be formally recognised and regulated. One possibility of formally operationalising this field is to consider including a subbranch in the training program of neuropsychologists to develop the necessary knowledge and skills to practise forensic neuropsychology as a specialised field.

Author note

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2.3. Article 3

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2.3.1.1. Manuscript submission

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2.3.1.2. Editorial and content considerations

2.3.1.2.1. Aims and scope

Psychiatry and Clinical Neurosciences is published at least 12 online issues a year by the Japanese Society of Psychiatry and Neurology as its official journal. The journal publishes papers in all fields of psychiatry and related neurosciences in the following categories: Review Articles, Regular Articles and Letters to the Editor. Other categories may be occasionally set for invited articles.

2.3.1.2.2. Editorial decision

The Editor will ask authors of a manuscript to revise it, if it is judged to require alterations through its review process. The Editor reserves the right to refuse any material for publication. Final acceptance or rejection rests with the Editor. Authors are informed about the Editor's decision after the review process is completed. Where contributions are judged as acceptable for publication on the basis of scientific content, the Editor or the Publisher reserve the right to modify typescripts to eliminate ambiguity and repetition and improve communication between author and reader.

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A brief letter (less than 750 words, excluding references; no abstract, and no key words. A total of 10 references or less. Up to 1 table or figure) will be considered for publication if they include the notation 'for publication.' Letters critical of an article published in the journal must be submitted within 12 weeks of the article's publication. The authors of the original work will be invited to respond, and both the original letter and the authors' response may be published together. Letters that offer perspective on content already published in the Journal can use an arbitrary title, but a Response from authors must cite the title of the first letter: e.g., Response to [title of Letter]. This ensures that readers can track the line of discussion. Letters can accompany supporting information.

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Manuscripts should be presented in the following order: (i) title page, (ii) abstract and key words, (iii) text, (iv) acknowledgments, (v) disclosure statement, (vi) Author Contributions, (vii) figure legends, (viii) references, (xi) a list of supporting information if relevant, (x) tables

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2. Canuet L, Ishii R, Iwase M et al. Psychopathology and working memory-induced activation of the prefrontal cortex in schizophrenia-like psychosis of epilepsy: Evidence from magnetoencephalography. *Psychiatry Clin. Neurosci.* 2011; **65**: 183-190.

Journal articles published ahead of issue (print or online)

3. Benz PJ, Soll J, Bölter B. Protein transport in organelles: The composition, function and regulation of the Tic complex in chloroplast protein import. *FEBS Journal* 2009. doi: 10.1111/j.1742-4658.2009.06874.x

Non-English journal articles

4. Adachi J, Yukihiro R, Inoue M et al. Reliability and validity of Short Version of Pervasive Developmental Disorders (PDD) Autism Society Japan Rating Scale (PARS): A behavior checklist for people with PDD. *Clin. Psychiatry* 2008; 50: 431-438 (in Japanese).

Abstracts in journals

5. Ono Y, Yamauchi K, Yoshimura K et al. Social relationship of mixed anxiety disorder. *Arch. Psychiatr. Diag. Clin. Eval.* 1994; **5**: 89 (abstract) (in Japanese).

Books

6. Hyman SE, Nestler EJ. *The Molecular Foundations of Psychiatry*. American Psychiatric Press, Washington, DC, 1993.

Chapters in books

7. Klerman GL. Introduction: Clinical psychopharmacology of affective disorders. In: Meltzer HY (ed.). *Psychopharmacology: The Third Generation of Progress*. Raven Press, New York, 1987; 1019-1020.

Electronic material

8. Morse SS. Factors in the emergence of infectious diseases. *Emerg. Infect. Dis.* (Serial online) 1995 Jan-Mar; **1**(1). [Cited 5 June 1996.] Available from <http://www.cdc.gov/ncidod/eid/index.htm>.

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2.3.2. Manuscript

Exploring current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists

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Number of figures and/or tables 0

Number of words in the abstract 154

Number of words in the manuscript 5744

Number of words should not exceed 7500

The manuscript is being submitted to the Clinical Neurophysiology and Neuropsychology
Section in the *Journal of Psychiatry and Clinical Neurosciences*

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Abstract

This article will focus on the neuropsychological evaluation methods applied in current forensic neuropsychological reports. The forensic neuropsychologist's objective is to provide opinions supported by evidence that will answer the referral question. The successful forensic neuropsychological report necessitates good writing skills, clarity, simplicity and brevity. The researchers analyzed 50 forensic neuropsychological reports to identify the current neuropsychological evaluation methods in motor vehicle accident claims as employed by psychologists in South Africa. The results indicate that a report structure must include background information, patient observation, testing, interpretation and recommendations.

Keywords: forensic neuropsychologist, neuropsychological evaluations, reports, testing, motor vehicle accident claims.

INTRODUCTION

Forensic neuropsychological evaluation is a performance-based method to assess neuropsychological functioning where the forensic neuropsychologist is generally asked to provide expert opinion on legal cases that involve purported brain damage.^{1,2} Overall, the final step in the evaluation process has multiple purposes, including summarizing and communicating the neuropsychological information and helping the legal system understand the findings and conclusions. To this end, it is essential to differentiate between the clinical report and the forensic neuropsychological report because the clinical or therapeutic context aims to promote the psychological wellbeing of the client. However, the forensic neuropsychological context aims to assist the court. Therefore, the aim of the clinical report is psychotherapeutic as the psychologist is attempting to establish rapport with the client, comprehend perceptions of their existence, evaluate their emotional and behavioral adjustment and develop means to enhance adjustment.³ The main goal of the forensic neuropsychological report is to gain facts for the judicial system as the court is the client, and the referral question will be related to a psycho-legal issue. While clinical reports can provide additional insight and influence the outcome of treatment, forensic neuropsychological reports often have more lasting legal and monetary repercussions.⁵ In the legal context, the forensic psychologist maintains a neutral, objective stance and the information gathered from the client is not treated as confidential in comparison to clinical treatment. Hebben and Milberg, supported by Melton et al^{4,5} state that the forensic neuropsychological report must contain specific information organized in a comprehensible format for the court to understand. A forensic neuropsychological report must be systematic, clearly specify identifying information, the reason for referral, background and historical information, behavioral observations, testing and conclusive findings⁴.

Therefore, the forensic neuropsychologist must consider who requested the report, who might read the report, and which type of information the report must provide – criteria similar to clinical reports, but the format differs. Karson and Nadkarni⁶ suggested that the forensic neuropsychologist's task is to provide opinions supported by neuropsychological evidence that answer the referral question in plain and understandable language. This finding was made in the article by Swanepoel and Van Rensburg⁷, where the expectations of the court as viewed by attorneys and advocates about neuropsychological evaluations in motor vehicle accident claims in South Africa was researched. It is, therefore, clear that forensic neuropsychological reports require good writing, including clarity, simplicity, and brevity. In this regard, Allan⁸ proposed numbering the paragraphs for easy referral when testifying in court, which is in accordance with the South African Court Rules 36 (9).⁹

The methodology and reporting must be clear and concise as detailed in the research by Swanepoel and Van Rensburg⁷, where the shortfalls in forensic neuropsychological reports about motor vehicle accident claims in South Africa were investigated. Hom¹¹ confirms the imperatives of the scientific and precise methodology in reports.

While generally constant across sources, most of the literature available provided opinion on forensic neuropsychological evaluation methods from a singular perspective. Some writings chose to explain what should be done, some chose to describe what should never be done, and some described both.¹¹⁻¹³ Several authors agree that it is imperative to remember that forensic expert opinions are not factual statements, but rather conclusions based on the provided analyzed neuropsychological data.¹² They also indicate that just as neuropsychological evaluation methods have their flaws, the forensic neuropsychologist's opinion is one of several and even contradictory to other expert views. Evaluations must

focus on neuropsychological aspects, for example, the referral question, and not to discuss all data that was gathered, for instance, confidential information that is not relevant to the questions under investigation. Psychologists must bear in mind that the report is a summarized opinion and not a complete clinical case history discussion. Forensic neuropsychologists should only include data what they are able to justify in court testimony. In other words, anything documented in the report will be subject to scrutiny, thus the forensic neuropsychologists should only include material they will feel able and comfortable to defend.^{5,8,10,12}

Three general psychological report styles were identified in the literature whereby results are organized by themes, or a test-by-test format or a combination of the two whereby a test-by-test format is first reported and then followed by an integration of the themes. In the test-by-test chronology, the forensic neuropsychologist discusses each test separately and reports on those specific results.¹¹ The thematic approach focuses on conceptual aspects about the individual's neuropsychological functioning and draws from several psychometric results and collateral inputs to support those hypotheses. The combination of these approaches will result in a test-by-test description, followed by a conclusive summary. The integrated approach provides a more reader friendly report.^{12,14,15}

Hess and Weiner¹⁶ suggested the following guidelines for forensic neuropsychological evaluation and reports: Reports must be clear by indicating the sources of information they have used, use general and understandable English, limit their use of technical language, and write about the clients they have evaluated rather than focus exclusively on the psychological processes. Alarming, Roos et al¹² reports that South African psychologists display a tendency to write lengthy reports of sometimes up to 100 pages. In

this regard psychologists run the risk of misinterpretation and inclusion of irrelevant information to the legal matter at hand. Swanepoel and Van Rensburg⁷ report similar findings. Allnutt and Chaplow¹⁷ suggested writing the report as a phenomenologist first and a diagnostician second. Diagnostic categories can create far-reaching frustrations for both the court and the forensic expert; therefore, it is often more acceptable to address the aspect in terms of the related symptoms rather than the clinical diagnosis. The report layout must include specific relevant sections devoted to the evaluation findings and the opinion. A description of the neuropsychological impairment must be outlined, the impact of this pathology on the client's behavior must be explained and, finally, it must be reported how the behavior and neuropsychological pathology applies to the referral question at hand. The forensic neuropsychological report must be structured in a systematic and logical manner.^{18, 19}

Regarding content, the forensic neuropsychological evaluation must include the following information. Firstly, the pre- and post-morbid history of the client which is obtained by the interviews and review of records. Thereafter, patient observation during the interviews and formal testing procedures should be noted in detail. Observation of behavior while performing testing and self-report questionnaires of functioning are often critically important pieces of information.^{5,18} Next, testing is reported evidencing a variety of standardized and normative instruments that measure different areas of brain functioning.^{20,21} Psychometric tests are defined as a quantitative "standardized procedure" measuring a specific psychological construct of an individual against a specific norm group. A psychometric instrument is only quantifiable and reliable when it is used in accordance with its psychometric properties.²⁸ Psychometric assessment is a quintessential and significant

part of any forensic neuropsychological evaluation.¹² Compiling a battery of psychometric instruments for the assessment procedures in a neuropsychological matter is one of the most crucial skills of a psychologist who acts as an expert witness. A battery of psychometric tests must complement one another, be reliable, valid, and ethical considering the norms for the specific context and those on language, age, gender and educational status. It is important to consider that normative data is generally gathered on healthy persons who are free from cognitive dysfunction, developmental pathology or neurological deficits that could compromise cognitive skills. In some tests, there are established measures that provide specific comparison data based on race and ethnicity as well.²⁹

Forensic neuropsychological assessment is the normative application of performance-based assessments of several cognitive skills. Typically, neuropsychological assessment also involves tests of a variety of neurocognitive ability areas using more than one test per ability area. These generally include problem-solving, spatial and language functions, memory, attention, processing speed, reasoning, and judgment. The assessment battery can be standardized to the examinee in the assessment. The assessment can either be administered by a psychologist or by a psychometrist who performs and scores assessments and delivers them to the forensic neuropsychologist. Performance-based psychometric tests are structured to require clients to demonstrate their skills in the presence of an examiner.^{12,15,18}

Self-reports of a person's functioning are often affected by the presence of neuropsychological distortions and do not have the same value as performance under standard evaluation conditions that should be compared with normative data. A critical concept in forensic neuropsychological assessment is taking the test performance of a client at the time

they are evaluated and comparing that to a norm of the same population profile, for example age, race and level of education. All these demographic aspects have an effect on test performance in a forensic neuropsychological evaluation battery. Interpreting the test performance of clients, regardless of the neurological injury, is based on comparisons with people who are like them. These comparisons allow for an identification whether a person is performing as would be expected, given their level of education, or if their performance is weaker than expected. Performance that is substandard can also be quantified and interpreted accordingly. The findings are then integrated by correlating the psychometric test data and other collateral information gathered during the consultation to determine if there is a correlation between the injury and the evaluation results.^{12,18}

Roos et al¹² and Lezak et al¹⁸ dictate that, only then, the report is concluded with recommendations. This entails possible deferring non-psychological opinion to other healthcare specialists, for instance, a psychiatrist, orthopedic surgeon or occupational therapist. Therefore, forensic neuropsychologists will typically summarize the data gathered during the assessment and outline their clinical opinion. It is essential to list the sources of information used in the preparation of the report, highlight any critical omissions, and justify opinions considering any missing information.

CONCLUSION

The forensic neuropsychologist must utilise a method that can provide brain-relevant information about the client's current cognitive abilities and deficits that can address the cause of any identified dysfunction. Swanepoel and Van Rensburg's⁷ recent investigation confirm existing findings that reports must follow a methodology that results in clarity,

simplicity, and brevity – concepts advocated for the past twenty years. It is also emphasized that the forensic neuropsychologist must apply a methodology that has been standardized on brain-impaired persons and can differentiate the various neurological conditions from each other as well as from normative profiles.^{4-6, 18}

Hebben and Milberg⁴ highlights normative comparison that involves comparing performance to reference groups of the same gender, age, ethnicity, and highest level of education. The methodology must also identify whether any neuropsychological impairment found is the result of a neurological condition as opposed to non-organic, or psychological disorders. To this end, the forensic neuropsychologist must utilise an evaluation method that allows the conclusion to be specifically related to the neurological condition under dispute.^{5,10,15,18} Therefore, the aim of this study was to explore current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists.

METHODS

Research design

The research design was descriptive and qualitative exploratory. The design includes a document study that entails analyzing written materials that have information on the phenomena being studied²². The issue at hand was to explore neuropsychological evaluation methods currently employed by South Africa psychologists in motor vehicle accident claims.

SAMPLE

Non-random purposive sampling was done on 50 recent psychological reports. All 50 reports were written by different psychologists and all pertaining to forensic neuropsychological cases. These psychologists were either appointed by the defendant or plaintiff to write forensic neuropsychological reports to help the court reach a decision regarding the nexus between the injury and the accident. The inclusion criteria were that the reports had to be younger than six years and written by HPCSA registered psychologists. The reports also had to be written in English. The hypothesis was that 50 reports would provide a clear indication of the applied methodology in the field. The average age of the clients in the examined reports was 27 years; thus, more reports about adults were included in the study.

Data collection

After ethical clearance was obtained from the North-West University, South Africa (ethical clearance number: NWU-00197-14-S1), the first author consulted the National Archives of South Africa in Pretoria, Gauteng where legal documents are stored. The Archives personnel were requested to retrieve cases where psychologists were involved in and provided reports regarding motor vehicle accidents. Reports were selected starting from the most recent going backwards for six (6) years. Permission was granted to photocopy reports during certain pre-arranged times from files that fall under the category of the public domain. The document evaluation continued until data saturation was reached.

Data analysis

A thematic analysis was done on all 50 identified reports. Constant comparison was used to generate and refine themes and subthemes. Agreement was reached by both authors

after reviewing and discussing the identified themes. A high degree of consensus was present due to a high degree of agreement between the researchers. Analysis was completed when data saturation was reached, and no new themes emerged.^{24,25}

Results

Theme 1: Instructing party

Thirty-seven reports were written on behalf of the plaintiff and thirteen for the defence. Concerning the question of representation, 36 reports (72%), did not indicate the instructing party. Therefore, in most reports, the reader is not informed about the instruction position, an omission increasing the likelihood of confusion because it often happens that the opposing experts are requested to liaise with each other. Ignorance of legal awareness on the side of the appointed forensic neuropsychologist, means the plaintiff's expert can share findings with the defendant's expert or vice versa without the instructing lawyer's knowledge, running the risk of jeopardizing the legal strategy. This, too, was highlighted where research findings indicate that lawyers expect evident legal training for novice psychologists.⁷ It stands to reason that related representation is indicated in the report.

Theme 2: Registration categories

Presently, the active and practising registration categories for psychologists in South Africa are educational psychologists, clinical psychologists, neuropsychologists, counselling psychologists, research psychologists; and industrial psychologists. The registration of neuropsychologists was promulgated on 15 November 2019 in terms of The Health Professions Act 1974, Act 56 of 1974,²³ and registration for neuropsychologists is in progress in terms of a grandfather clause or newly graduates. Individuals qualify under this clause when they have worked in the field of neuropsychology for a minimum period of

five (5) years before the date of the promulgation. However, the registration of forensic psychologists has not been approved in South Africa, thus it is still unclear how the forensic neuropsychologist will be acknowledged. The letterheads on the evaluated reports indicated that five of the participating psychologists had dual registration as counselling and research psychologists; three had dual registration as clinical and counselling psychologists and six had dual registration as counselling and educational psychologists. Fifteen were registered as educational psychologists, twelve clinical psychologists and nine counselling psychologists. It thus seems that educational psychologists dominate the field of forensic neuropsychological evaluations in this study group. Seeing that most categories conduct forensic neuropsychological evaluations, apparently, no distinction is made between which psychology category does what. It suggests that clinical, counselling and educational psychologists can do the same type of work, thereby leaning towards a generalist principle. This leaves a question mark over the pertinent difference between the scope of the profession as opposed to the scope of practice for the different categories.

Theme 3: Duration

A professional survey of 1,658 neuropsychologists from the membership of American Academy of Clinical Neuropsychology (AACN), Division 40 of American Psychological Association (APA), and the National Academy of Neuropsychologists (NAN) found that a typical neuropsychological evaluation takes approximately six hours.^{26,27} The number of sessions was indicated by most psychologists: 45 psychologists used one session for the full evaluation, whilst four psychologists used two sessions, and one psychologist used three sessions to complete the evaluation. It seems that most psychologists prefer to consult the client using only one session. As for the duration of sessions, 46 of the 50 reports examined did not indicate the total assessment time in hours spent with the client.

Two psychologists conducted evaluations amounting to six (6) hours; one psychologist took three (3) hours, and another needed eight (8) hours of evaluation time. The omission of time spent on evaluation can become problematic during cross-examination because it is often argued that an expert did not spend enough time to arrive at an applicable conclusion. It is therefore imperative that the specific time spent on the neuropsychological evaluation is recorded.

Theme 4: Appearance of the report

Subtheme 1: Purpose of the report

Regarding the purpose of the report, 35 reports were titled ‘Neuropsychological Report’, but 15 were unclear. However, most writers had stated the reason for the report as an evaluation of the client’s neuropsychological abilities. However, the overall purpose, namely the referral question, had not been stated. Therefore, following ethical and scientific guidelines to clearly state the aim of the report²⁶, the minimum standards are, ostensibly, not maintained.

Subtheme 2: Length of the report

The length of the perused reports varied; the average was 30.5 pages. The longest report was 58 pages and the shortest 16 pages. The new directive as reported by the Judge President in June 2019⁹ notes that expert reports must be drafted in a format designed for lucidity, brevity, and convenient cross-referencing. Psychologists are prone to be comprehensive in discussing a matter; however, longer reports can indicate a challenging ability to summarize and integrate. It must be noted that complex or multiple neurological injuries can result in an extensive discussion and argument that lengthens the document.

Subtheme 3: Reference list

The analysis found that 23 reports did not include academic references in the body of the report, whereas 13 did not have a reference list at the end of the report. Quoted sources are thus a challenge to find. Also, the expected scientific nature of the report seemingly does not adhere to the minimal standards of practice. Of the 27 reports that did include a reference list at the end, six (6) were incomplete in terms of dates and publishing details and one (1) report omitted publishing dates. Best practice guidelines²⁶ dictates that references must be following APA guidelines. It seems that some reports are not adequately edited before delivering, which could bring the field of psychology in disrepute as the documents eventually become public knowledge.

Theme 5: Content of the report

Regarding the content of the reports perused, in most reports, the information was captured under headings such as background history, client observation, psychometric testing, discussion and recommendations. It would thus appear that all psychology registration categories in South Africa, in this group, got exposed to similar training content.

Subtheme 1: Background history

The general trend to report background history is to discuss the client's biographical history, including developmental history, familial history, educational history, occupational history, the mechanism and sequelae of the accident. Of interest is that the reports focused on more details surrounding occupational history pre- and post-accident when evaluating adults and educational progression pre- and post-accident when evaluating children. By doing a thorough background description, this group of South African psychologists showed awareness of contextual information.

Despite their situational perception, eleven of the psychologists did not draw on any collateral information. The lack of collateral sources was not addressed in their reports, and there was no indication that collateral information had been sought. The use of multiple methods of data collection is not only ethically driven, but it also provides a rich and scientific database from which deductions and conclusions can be made.¹² Gaining a full neuropsychological conceptualization of any matter requires that the relevant systems must be consulted citing the context of collateral sources. Like psychological testing, collateral data is designed to provide evidence of convergent validity.

Subtheme 2: Client observation

Emphasis on client observation was consistent throughout analysis of the reports. Regardless of category, the psychologists spent significant time discussing the clients' clinical presentation, including test behaviour. Clinical observation is a significant skill as per best practice guidelines for psychological practice. South African psychologists in this group remained true to the guideline of this skill.

Subtheme 3: Assessment

The analyzed reports all included psychometric testing. In 33 of the reports, the test descriptions or definitions were presented in overlap with the specific client's results, but 17 of these reports also explained the test in an appendix. The remaining ten (10) only listed the tests with no definition or explanation. Based on best practice standards, the psychologist is required to keep the reader of the report in mind; therefore, a contextual explanation must be provided for the nonspecialist reader.²⁶ It was interesting to note that two psychologists presented results on biofeedback evaluation. Biofeedback is not a conventional neuropsychological method due to several normative challenges. Most of this

group of psychologists, namely 45, had used a minimum of four neuropsychological tests. The maximum of tests used in a neuropsychological evaluation was 15 tests. This is in line with APA best practice standards which suggest using a battery of tests to conduct an objective evaluation.²⁶

Close inspection of the psychological reports yielded several misgivings, where tests were often referenced but not indexed. At times, tests designed and standardized for adults were used on children and vice versa. It became apparent that clinicians indicated a certain battery of tests, which were not always used. The APA's best practice principle of correct and accurate references to the title of the applied psychometric tests is often wanting, which does not bode well for clinical accuracy and ethical awareness.^{26,27}

Subtheme 4: Discussion of results

All reports included a section for discussion and integration of findings. The case was summarized, provided clinical interpretations and set a hypothesis. However, in reports, significant repetition of previous sections was found that lengthened the reports significantly. Lengthy discussions of prior-reported content confuse the reader. It was found that in some of the reports that the description of a nexus between the injury or insult and the reported sequelae was vague and ambiguous. The conclusion of the report must inform the referral question or address the reason for the report. Based on best practice guidelines^{23,26,27}, this crucial relationship was not always satisfactorily identified in the reports.

Subtheme 5: Recommendation

All reports analysed included a recommendation section. Most reports provided quantification of treatment cost required to some extent. Recommendations were mostly clear

and substantiated; and specified required additional information, the necessity of a more expert opinion or cost estimation for treatment.

Theme 6: Discussion of neurocognitive domains in reports

In the discussion of the manner or mechanism of injury, most psychologists (44 reports) compared the client's post-accident functionality to DSM5 neurocognitive domains.¹⁸ Best practice of neuropsychological evaluations identify problems that must be discussed, referring to specifics and/or localizations of the injury or insult.²⁹ Domain discussion in the evaluated reports focused on perceptual-motor functioning, language abilities, executive functioning, learning and memory, complex attention and social cognition. This is following the Institute of Medicine's²⁹ guidelines for psychological testing in the service of disability determination. These prescribed domains to use as a point of reference are the following: general cognitive/intellectual ability, language and communication, memory acquisition, attention and distractibility, processing speed, and executive functioning.²⁹ It is encouraging to note that this group of South African psychologists maintain an international standard of contextual accuracy of neuropsychological findings in reports.

DISCUSSION

The analysis of 50 forensic neuropsychological reports suggests that South African psychologists in the forensic neuropsychological field have come a long way; however, best practice standards still need fine-tuning.

The findings augment the current dispute amongst South African psychologists of one group striving towards definite differentiation between the scopes of practices, and the

other dictating the need for a generalist category where scope of practices falls away. In this regard a group named RelPAG, were successful in a legal action to declare Regulation 704 of 2011 Scope of Practice invalid by the Cape High Court, meaning that presently the scope of practice for the various psychology categories does not exist. This implies that presently South African psychologists work as generalists not limited by a specific scope of practice, which was also confirmed in this study.

Lengthy reports failed the June 2019 directive by the Judge President that the format of the reports must be designed for lucidity, brevity, and convenient cross-referencing.

Drawn-out discussions and poor language in the perused reports confused even the researchers. It means that identifying the nexus between the injury or insult, and the reported sequelae are not illustrated to satisfaction.³⁰ The forensic neuropsychological evaluation has to assess neurocognitive functioning but more so, must centre on a person's psychological, personal, interpersonal and wider contextual pre- and post-morbid circumstances.^{4, 18}

Based on best practice guidelines²⁶ that the conclusion must inform the referral question or address the reason for the report is mostly not evident. Vague and laborious reports were one of the concerns noted by Swanepoel and Van Rensburg⁷ who set out to identify the expectations of the court as viewed by attorneys and advocates vis-à-vis neuropsychological evaluations in motor vehicle accident claims in South Africa. The latter study repeatedly endorses the imperative of additional training for practitioners who embark on a professional career in formal neuropsychology. When practitioners testify as expert witnesses in matters, it is often argued that forensic neuropsychological experts do not spend enough time to arrive at a case-related conclusion. Omitting the hours spent on evaluation then becomes problematic during cross-examination and could be perceived

as the reason for inadequate reports. Quality time-related effort dedicated to a neuropsychological evaluation will facilitate a well-accepted report. A tendency to omit the overall purpose of the report, namely the referral question, was prevalent. Referencing was often omitted and/or incomplete, a sure indication of inadequate editing before delivering. Neuro-forensic documents eventually become public knowledge; therefore, questionable reports could discredit the psychology profession.

Content, like report purpose, proved problematic over and over. Some practitioners did not consult collateral information as part of the background history, which should form part of the multiple method approach for a clear description of pre-morbid functioning.¹² Like psychological testing, collateral data provides evidence of convergent validity. In keeping with best practice guidelines²⁹, this group of South African psychologists remain true to relying on clinical observations, but their approach to describing the use of neuropsychometric instruments to non-specialists remains questionable. There is a tendency to disregard guiding the reader in comprehending the applied testing as no definition or explanation of the tests are provided, or incorrect tests are referenced in the report. Such shortcomings question the ethical awareness of practitioners. Based on best practice standards, the psychologist is required to keep the lay reader in mind by providing a contextual explanation.²⁹ Furthermore, report findings must be discussed at the hand of neurocognitive domains. It is reassuring that the psychological reports selected indicated that the South African psychologist markedly follow the prescribed DSM5 neurocognitive domains structure and professional guidelines for psychological testing.^{18, 29}

This study confirms the findings of related research by Swanepoel and Van Rensburg⁷ that the field of forensic neuropsychology in South Africa requires additional training and knowledge about legal procedures. In this regard, the need was highlighted to apply a

methodology that can clearly illustrate to the legal reader what the link is between the injury, the neuropsychological profile and collateral findings, and also to provide a clear neuropsychological prognosis. The inclusion of the aforesaid variables can provide a more user-friendly report format and avoid an overload and repetition of confusing content.

CONCLUSION

The ability to produce a decisive forensic neuropsychological report is reliant on specialized methodology. This is acknowledged as a skill required from forensic neuropsychologists, as Lezak et al.¹⁸ asserted nearly a decade ago. This study found that the methods applied by South African psychologists who conduct forensic neuropsychological evaluations in motor vehicle accident claims are venturing in the correct direction, but a lack of consistency exists. The analysis of the reports in this study shows a dire need for specialised training regarding legal procedures, but also in what legal representatives would regard as good reports. It seems as if there is a need for training in terms of sound scientific methodology but more also in scientific report writing.

Forensic neuropsychological reports of a poor standard can have significant ethical implications because answers to a legal matter can be influenced and disadvantage a client. In this regard, the neuropsychological dysfunction can be misinterpreted and be over- or understated. The forensic neuropsychological evaluation communicates results to other expert witnesses who can arrive at incorrect conclusions should the findings be based on a sub-standard forensic neuropsychological evaluation. Again, the court can be misguided

and rely on inaccurate facts.³⁰ Training institutions of South Africa's tertiary education system should adjust the teaching of the ethical implications of substandard reports.

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2.4. Article 4

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2.4.2. Manuscript

A proposed forensic neuropsychological evaluation guideline for South African motor vehicle accident claims.

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Dilemmas about forensic neuropsychological evaluations in South Africa, as well as internationally, were investigated within the context of motor vehicle accident claims. This was done by exploring the expectations of lawyers with regards to neuropsychological evaluations, by investigating the shortfalls in neuropsychological evaluations and exploring the current neuropsychological evaluation methods employed by psychologists in South Africa. Several problematic areas were identified that are currently present in South African as well as in international forensic neuropsychological evaluations. In this regard, the researchers aimed to provide guidelines on how to improve forensic neuropsychological evaluations to serve the court. The authors concluded that by applying a pre-evaluation, evaluation and post-evaluation approach, forensic neuropsychologists could compile more standardised, ethical and accurate reports.

Keywords: evaluation; forensic neuropsychological evaluations; guidelines, pre-evaluation; post evaluation; neuropsychologist.

The main duty of the forensic neuropsychologist is to provide an evaluation based on validated neuropsychological concepts and methodology that is relevant to the forensic matter under review, which is not just whether a person has neuropsychological impairment, but whether the impairment stems from the injury in question. Hom (2003) indicates that forensic neuropsychologists, therefore, provide the legal professional with specialized information regarding brain-behaviour interaction. In South Africa, due to the high vehicle accident rates, this is usually done to provide clinical information to the court about a possible nexus between a neuropsychological injury and the accident (Roos, Scholtz & Wessels, 2016).

In South Africa, as in the rest of the world, significant problems are experienced in terms of forensic neuropsychological evaluations. The general problem is that there is no formal procedure for assigning the title of “forensic neuropsychologist”⁶. Internationally, American neuropsychologist, Jim Hom indicated in 2003 that this title could be claimed, in most American states, by a professional who is first qualified as a psychologist, and who possesses the additional education and experience required to meet the guidelines for qualifications as a neuropsychologist. This is also the case in South Africa, where a psychologist can claim to be a forensic psychologist without any formal accreditation (Genis, 2008). However, Hom (2003) postulates that one would expect a forensic neuropsychologist to have further training and experience in specifically the legal arena, although, to date, the nature and type of this education have not been specified. This opinion is also expressed by Alosco and Steyn (2019) and National Academy of Neuropsychology (NAN) (2020) who indicated that in most American states, the forensic neuropsychologist should at the very least be licensed in psychology to perform neuropsychological testing.

⁶ The term “forensic neuropsychologist” is used for the purposes of this study, but is not recognised on statutory level.

Further education involving formal graduate-level training is recommended as a standard by organisations such as the American Psychological Association (APA) and the National Academy of Neuropsychologists (Alosco & Steyn, 2019; NAN, 2020). Yet, many professionals “Board Certified” in neuropsychology by the American Board of Forensic Examiners have qualified exclusively based on the payment of an application fee and would most likely not meet the criteria of requiring formal graduate school education or supervision in neuropsychology. The regulation and setting of standards for neuropsychologists seems to be problematic in South Africa as well as internationally.

In South Africa, it was confirmed by Swanepoel and Van Rensburg (2020a, 2020b, 2020c) that further specialised training in the field of forensic neuropsychology is required. Fortunately, the registration of South African neuropsychologists was promulgated on 15 November 2019 in terms of the Health Professions Act 1974, Act 56 of 1974. Therefore, registration for South African neuropsychologists is in progress in terms of a grandfather clause or for new graduates, which is a welcome development. However, it still does not adequately address the need for specialised training in forensic neuropsychology. This need was also highlighted by Pillay, Gowensmith and Banks (2019) who found that there is a growing need for forensic mental health services which calls for the development of specialised forensic psychology training programmes globally. They report that in South Africa, the licensing authority has also been focusing on this issue, and its task group has been investigating specialty training models about future developments in licensure, training, qualifications, and related registration matters. Regarding forensic neuropsychology, Swanepoel and Van Rensburg (2020b) investigated psychologists’ perception of the shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa. They found that a group of experienced South African psychologists who participated in their study, expressed their concerns about formal

training and the lack of a registration category resulting in a poor quality of work that does not serve the clients' interests.

Current literature also indicates that there is a need for forensic neuropsychologists to have some form of legal training when working in the legal context. Pope, Butcher, and Seelen (1993) report that lawyers' high expectations of specialist psychological knowledge demonstrates that lawyers primarily seek psychological knowledge from psychologists; not legal expertise, but still an understanding of the legal process. Referring to expert forensic reports, Martindale (2007) indicates that all findings must be based upon sufficient facts or data, and must be the product of reliable principles and methods. He also highlights that expert opinion must be offered by a witness who has applied the principles and methods reliably to the facts of the legal case. Swanepoel and Van Rensburg (2020a) found that during forensic neuropsychological evaluations, psychologists need to understand the complexity of claims and the expectations of the court. They also confirmed the legal expectation that psychologists require more specialist training to understand the claim process. As indicated by Louw and Allan (1998), Allan and Louw (2001), and Genis (2008), there seems to be a great void in South Africa between lawyers and psychologists, specifically when it comes to the format and reporting findings. This void between lawyers and psychologists is also very much an international trend (Institute of Medicine, 2015).

Furthermore, Swanepoel and Van Rensburg's (2020a) study confirms that of Grønnerød, Grøndahl and Stridbeck (2013) who found that evaluations were sometimes described as narrow and that psychologists rely on too few resources, thereby having a limited scope of information on which they base their evaluations. Swanepoel and Van Rensburg (2020a) reported that participant lawyers in their study indicated that they also had difficulties with psychological terminology. The use of jargon and technical language is similar to what Genis (2008) found. Too much technical language and jargon, coupled with repetition, is found in the

reports (Sweet et al., 2011; Institute of Medicine, 2015). Faust and Ziskin (1988), Grønnerød et al. (2013) as well as Swanepoel and Van Rensburg (2020a) highlighted that the legal professionals criticized psychologists for including too much irrelevant information, making reports too long and unfocused. In the South African Rules and Practice Notes of Superior Courts (2019), it is mandated that expert reports must be drafted in a format designed for lucidity, brevity, and convenient cross-referencing. Swanepoel and Van Rensburg (2020a) found in essence that the legal practitioner expects the neuropsychologist to explain the findings of an evaluation in a legally understandable manner.

Interestingly that Lambiase and Cumes (1987), Louw and Allan (1998) and Allan and Louw (2001) clearly reported some report writing concerns and provided guidelines on psychological reports, however, to date, legal representatives are reporting the same cited problems. Swanepoel and Van Rensburg (2020b) reported that a group of psychologists in South Africa unilaterally voiced concern about report writing quality, because the decision on the format of neuropsychological evaluations in the South African context is made exclusively by the clinician based on their level of experience and generic training, often leading to a lack of logical structure. Therefore, it seems that there was minimal movement in the context of neuropsychological as well as forensic neuropsychological report writing quality. Furthermore, Lezak et al. (2012) and the Institute of Medicine (2015) see the ability to produce a final, comprehensive report as an inherent skill, that can be taught. After all, the psychologist, as an expert, must assist the court in a deeper understanding of human psychological functioning to guide a comprehensive legal outcome (Lucas, 2013).

Another important part of forensic neuropsychological evaluation is sticking to the mandate given by the court, and explaining the claim matter clinically (Allan & Louw, 2001; Louw & Allan, 1998). Based on best practice guidelines (APA, 2010), the conclusion of the report

must correlate with the referral question or address the reason for the report, which is a requirement of the minimum APA (2010) standards. This correlation between the mandate and findings must clearly illustrate the differences between pre- and post-morbid functioning of the injured client and conclude with a clear psychological prognosis (Swanepoel & Van Rensburg, 2020a). Therefore, the forensic neuropsychological evaluation is more than merely assessing for neurocognitive functioning as it must integrate the person's psychological, personal, interpersonal, and wider contextual pre- and post-morbid circumstances (Swanepoel & Van Rensburg, 2020b, Tzotzoli, 2012).

In terms of methodology, current literature also highlights shortfalls regarding report format, specifically on test selection. The Institute of Medicine in Washington, DC (2015), found that psychologists often do not use a comprehensive test battery. Also, inconclusive test batteries are used that can affect the evaluation outcome and provide inaccurate information to the court (Swanepoel & Van Rensburg, 2020c). This questions the ethical awareness of the practitioner. Roos et al. (2016), as well Tredoux, Foster, Allan, Cohen and Wassenaar (2005) believe that unfocussed test batteries can affect the conclusion drawn from the findings that are presented to the court. Also, these poorly compiled test batteries are seemingly due to a lack of formal knowledge or inadequate professional training, which escalates inconsistencies (Institute of Medicine, 2015). The result is that clinicians rely on non-standardised neuropsychological evaluation methods which cause the unfocused findings. Even though APA (2010) guidelines emphasise the role of multiple data collection methods in forensic evaluations, which includes observation, clinical interviews, psychological testing and collateral data, this seems to be sparsely followed. In their analysis of fifty (50) South African reports, Swanepoel and Van Rensburg (2020c) found that psychologists did not always consult collateral information as part of the background history. Like psychological testing, collateral data is designed to provide evidence of convergent validity, but these omissions and oversights not only bring the

profession in dispute but also can cause devastating outcomes. According to Swanepoel and Van Rensburg (2020c), a significant outcome is that the court can make rulings based on poor and unscientific evaluations.

In terms of the content of a forensic neuropsychological evaluation, the Institute of Medicine (2015); Walsh (1991), Sweet, Meyer, Nelson and Moberg (2011); and Sweet, Peck, Abramowitz, and Etzweiler (2003) came to the same conclusion that reports should contain a coherent elaboration on the accident history; a diagnosis of the severity of the head injury (for example the Glasgow Coma Scale score); appropriate medical history; educational and employment history; leisure activities; and interpersonal background. This exploration must establish the pre- and post-accident level of functioning required to contextualise the post-morbid clinical picture. Psychologists in Swanepoel and Van Rensburg's (2020b) study also highlighted the applicability of a formulation of the found neurocognitive problems, concerning the DSM 5 neurocognitive domains. This approach is supported by the Institute of Medicine (2015).

Therefore, it appears that there are several matters of concern about forensic neuropsychological evaluations in South Africa that is echoed internationally. These sub-standard evaluations imply that a client is directly disadvantaged (Bush, Barth, Pliskin, Arffa, Axelrod, & Blackburn, 2005) because an inaccurate clinical profile can result in wrongful court rulings. Also, neuropsychological dysfunction can be misinterpreted and be over- or understated. Furthermore, the evaluation communicates results to other expert witnesses who can arrive at incorrect conclusions should the findings be based on a sub-standard evaluation (Bush, 2007). Eventually, the court is misguided and rely on inaccurate facts (Serafim, Saffi, Da Silva, De Almeida, Hokama, Barros, & Dias, 2015), and this can also be detrimental to the neuropsychologist's credibility. Therefore, in South Africa, as well as internationally, further research

in the forensic neuropsychological field needs to be done, and clear guidelines must be provided (Swanepoel & Van Rensburg, 2020c). In this regard, this article aims to provide guidelines for conducting a comprehensive forensic neuropsychological evaluation.

Proposed guidelines for forensic neuropsychological evaluation

Lucas (2013) reports that the forensic neuropsychologist must assist the court in the deeper understanding of human neuropsychological functioning, and Lezak et al. (2012) sees this as a skill. In this regard, a structured evaluation approach can guide the practitioner to assist the court. Three proposed stages can be followed to reach this goal, namely, a pre-evaluation phase, an evaluation phase and the post-evaluation phase.

Phase 1: Pre-evaluation phase

In this phase, emphasis must be placed on true practitioner independence and objectivity, and that the neuropsychologist-patient relationship will always adhere to ethical rules to both the retaining party and the examinee (APA, 2017, Bush et al., 2005).

Having the necessary competence

Before accepting an instruction from a third party, such as an attorney or insurance company, the practitioner must reflect whether he/she is competent enough and sufficiently trained to conduct the forensic neuropsychological evaluation. A psychologist involved in forensic neuropsychological evaluations must have a broad conceptualisation of neuroscience, neurological development, the central nervous system's functioning, and of various physical and mental pathologies which can affect brain function (Bush, 2007). Bush et al. (2005) notes that the forensic neuropsychologist practitioner also has to be competent to decide about the presence or absence of neurological and/or psychiatric disorders, causality pertaining to a specific event, prognosis, importance of treatment, and/or disability level. The forensic neuropsychologist

must be confident to provide answers to specific questions related to brain-behaviour relationships. Confident actions imply sufficient training and access to up to date test material and apparatus. He/she must also have an ethical awareness of when and whom to include as collateral informants. Apart from a professional interpreter if needed, he/she must know that a third party should preferably not be present during the interview with the claimant. It is generally accepted that the presence of third-party observers is harmful to the examinee based on the principle of beneficence and non-maleficence (Bush & Morgan, 2017). Some neuropsychologists use non-psychologist test technicians or psychometricians for test administration, but the onus is on the practitioner to ensure that this person is suitably licensed and experienced (Sweet et al., 2011).

Roles and relationships

As part of the pre-evaluation phase, the clinician must know that he/she does not work for the person being examined, but for a third party (attorney, insurance company) with the exclusive purpose to assist the court with an objective opinion. The goal is to objectively determine the examinee's neuropsychological status as accurately as possible, whether the conclusions advance or compromise the examinee's interests (Bush et al., 2005). Also, consistent with the Ethics Code of the American Psychological Association (2010), the forensic neuropsychologist strives to conduct a proper examination and practices only within the bounds of professional competence. APA Standard 3.06 (Conflict of interests) has to be considered because having a treating doctor relationship and then taking on the role of forensic expert could affect objectivity or effectiveness in performing professional functions (APA, 2017; Bush & Morgan, 2017). Also, the Speciality Guidelines for Forensic Psychology (APA, 2013) include the provision of both treatment and forensic services to the same person as a multiple relationship. The subjective wish to be helpful to as well the claimant as the defence attorney introduces bias into the forensic evaluation that can influence opinions and contribute to unjust legal decisions (Bush

& Morgan, 2017). Although a true neuropsychologist-patient relationship is not considered to exist within the context of a forensic neuropsychological evaluation, professionals have ethical duties to both the retaining party and the examinee. However, the primary duty is to the court for objective clinical feedback (Bush et al., 2005; Tredoux et al., 2005). Therefore, in the pre-evaluation phase forensic neuropsychologists must be trained to understand the unique relationships with the court, retaining parties and examinees, and strive to maintain true independence and objectivity.

Meeting contractual arrangements

Another pre-evaluation obligation is the contractual arrangements. Bush et al. (2005) and Halikias (1994) suggest that it is vital to have a policy agreement that concerns these legal evaluations where at a minimum, this agreement should specify procedures of evaluation, confidentiality limits, informed consent, the data provided to the client following the examination regarding the results, how records are preserved and costing. In South Africa, the practitioner must also be aware of the Protection of Personal Information Act of 2020 (South Africa: Protection of Personal Information Act of 2020) which dictates that the forensic neuropsychologist must carefully maintain records for six (6) years. APA (2010) guidelines state that practitioners may consider retaining records until seven (7) years after the last date of consultation for adults or until three (3) years after a minor reaches the age of majority, whichever is later. Examinees should not have access to raw test data and test protocols. Therefore, the policy agreement should inform participants that raw test data, test protocols and test manuals will not be given to them (APA, 2010; Bush & Morgan, 2017; Halikias, 1994). It is also expected that the practitioner must have the ethical awareness that the examinee always has the option of retaining another psychologist with appropriate expertise who could review and interpret their raw data for them following the South African 2004 Professional Board for Psychology: Rules of conduct pertaining specifically to psychology. The American Standard 9.04 (APA, 2017) indicates

that pursuant to a client release, psychologists may provide test data to the client or other persons identified in the release. The cornerstone of the fee policy, elucidated in the policy agreement, should be concise and clear that the referral source, and not the examinee is responsible for payment.

Phase 2: Evaluation phase

During this phase, the neuropsychologist determines the scope of the referral question, scope of the evaluation, and the procedures required to answer the questions posed by the retaining party. During the second and most comprehensive stage of the evaluation, the focus is on aspects of convergent validity in that conclusions must to be reached through more than one clinical procedure (Fink, 2017). Fink (2017) is supported by Roos et al. (2016) in that the forensic neuropsychologist must rely on observation, the clinical interview, neuropsychometric testing, and collateral sources. These stipulations are in accordance with convergent validity, (Halikias, 1994) that is, to gather data from multiple sources.

Observation

The forensic neuropsychologist should guard not to rely too heavily on test information and neglect the clinical data (Brodzinsky, 1993; Bush et al., 2005) because behavioural observation is a powerful lens through which human behaviour can be sampled (Fink, 2017). Observation of non-verbal behaviours represents a parallel process that occurs during the clinical interview. Observation is done, for example, to observe how an examinee interacts with office staff or engagement in telephone conversations, may also be of value. Observation alone may not be of probative value, but it facilitates hypothesis generation that can be tested against all other available data (Fink, 2017). Furthermore, on the level of clinical observation, Abbate and Trimarchi (2013) do not consider the Mental Status Examination (MSE) as a fully appropriate tool for neuropsychologists and rather propose a preliminary Neuropsychological Examination

(preliminary NPE) which includes observation of psychomotor speed, orientation, attention, insight, prefrontal functions, language, and memory.

The clinical interview

Fink (2017) notes that the interview is a dynamic encounter between examiner and examinee because limitations and strengths accompany all verbal responses from the examinee. The subjective self-report is a strength because this narrative is intertwined with the examinee's understanding of the chain of events, how the symptoms developed, and which complaints bear the most weight. The examiner can ascertain the neuropsychological reasoning patterns in the examinee's narrative. Roos et al. (2016) states that rapport is used to explore important time points in symptom history; that is, capturing the examinee's explanation demands a considerable emphasis on listening. While considering all reported factors, the examiner must be aware that the examinee's narrative is biased and influenced by memory inaccuracies, anxiety, and being questioned by several experts. The interview is guided by the mapping of the person's experience related to the injury and how it fits into their history. Fink (2017) advises starting with a general pattern of open-ended questions before proceeding to more specific questions. The neuropsychological interview is usually lengthier than a standard clinical history interview. As part of a legal process, consent and procedural aspects must be addressed initially to ensure that the client is fully informed about the examination, followed by the clinical interview. Fink (2017) reports that most aspects can be covered in a dialogue about the client's understanding of the consultation.

Test selection

Larrabee (2017) refers to three approaches to neuropsychological testing, firstly a fixed battery where every person is examined with the same battery of tests; secondly the flexible core battery in which the examinee is exposed to a core set of tests with adjustable testing to further

evaluate problems identified by the core tests; and thirdly the completely flexible approach where the test selection is dependent on the examinee's clinical presentation. According to Larrabee (2017), the flexible core battery option seems to be the most popular. It includes the revised editions of the Wechsler Adult Intelligence Scale (WAIS), revised editions of the Wechsler Memory Scale (WMS), the Trail Making Test, and the versions of the California Verbal Learning Test. Lezak et al. (2012) reports that there is no common core battery used in general, but Larrabee (2017) suggests that candidate tests must be evaluated on the following bases: Are they a measure of a core ability? Can they be seen as sensitive to the presence of impairment? Can they be seen as sensitive to the severity of impairment? Are they affected by unilateral stroke, aphasia or neglect? Can they predict functional capabilities? Do they contain a measure of performance validity? Larrabee (2017) also identified the following six core domains to be discussed in reports, namely verbal symbolic ability, visio-perceptual/visio-spatial judgement and problem solving, sensorimotor skills, attention working memory, processing speed and learning and memory. Additional to core neuropsychological testing, Bush et al. (2005) emphasized that testing of performance validity is an essential component of forensic neuropsychological evaluations, because the examiner must be able to comment on possible malingering or not.

Collateral resources

Considering the convergent validity to gather information from multiple areas, the use of collateral sources includes record review, interviews with professionals and interviews with significant others. The comprehensive forensic neuropsychological evaluation obtains records which represent all other's written accounts of the litigant. This approach is seen as an integral part of the forensic neuropsychological evaluation (APA, 2013). In this regard, the Speciality Guidelines for Forensic Psychology note the need to strive to access all information from collateral sources and to avoid relying exclusively on one source of data (APA, 2013). This record

collection and organization of the history are critical tasks because it provides rich systematic details about the person concerning the accident sequelae (Lezak et al., 2012). Administrative competence is a required skill for the credible forensic neuropsychologist; therefore, during the evaluation phase, the evaluator obtains as many records as possible (Halikias, 1994, Tzotzoli, 2012). Fink (2017) notes that in approaching a record review, the evaluator should assume a position like an archaeologist or a historian. As with the excavating task of an archaeologist, delving into records is not a random digging process but instead a systematic process of uncovering and documenting. Tagging all the relevant data is critical while consciously avoiding contamination of information. Like the work of a historian, the truth about the historical event is pursued where independent, factual data is filtered from secondary speculation. Therefore, the forensic neuropsychologist must track the independent facts through the records, and clearly cite every source document, both for and against the possibility of neuropsychological injury (Fink, 2017, Halikias, 1994). Then the skilled evaluator would put these records in chronological order and, thereby, establish a logical course and history of the injury (Halikias, 1994). Collateral sources can also include interviews with professional third parties such as therapists, or significant others, such as family members or friends.

Phase 3: Post-evaluation phase

During this phase, the results and conclusions are formulated. This integrative part of the evaluation phase is usually the most time-consuming.

Integration and triangulation

During the evaluation phase, the multiple information sources from the evaluation pose opportunity and challenge during the integration and triangulation process. Nevertheless, some important guidelines can assist practitioners in improving their ability to manage and integrate large amounts of information (Halikias, 1994). For example, it can be considered to employ

de-biasing techniques, such as contemplating reasons for and against a specific conclusion (Arkes, 1981; Arkes, Faust, Guilmette, & Hart, 1988). The evaluator needs to recognize data that disconfirms a conclusion rather than to ignore or suppress this information. According to Gould and Martindale (2009), the professional's methodology must provide a straightforward – not misleading – opinion; must be neutral, and not omit aspects that do not support their opinion, and must be properly researched. If a conclusion is based upon insufficient data because that data is unavailable, the expert should acknowledge the shortcoming and state their provisional opinion. Martindale (2007) highlights that by describing known restrictions in the data, evaluators provide legal professionals with important information that is essential to the legal case consideration regarding the weight to be assigned to each variable of the evaluators' input. From a purely strategic perspective, there is no reason for the forensic neuropsychologist to believe that voicing the limitations of their evaluation data renders them less effective as testifying experts. Although it is appealing to believe that all the information was integrated into the final conclusion, it is usually more accurate to admit that two or three pieces of information combined creates the neuropsychological opinion. The forensic neuropsychologist should be able to indicate what information determined such conclusions (Halikias, 1994), but a bigger challenge for the evaluator is to integrate and triangulate data in such a way that the referring questions are all addressed.

Report writing

Perhaps no stage of the forensic neuropsychological evaluation is more demanding than written opinion about the evaluation. Halikias (1994) indicated that the report should note information that contradict a particular opinion and should specify the limitations of the evaluator's findings when necessary. It should be expected that reports are legally scrutinized and become the grounding for the testimony the expert may be asked to give. Therefore, it is imperative during this stage to monitor written output carefully and critically, and in this regard, Swanepoel and

Van Rensburg (2020a & 2020b) found that practitioners must guard against too long reports and use less jargon. Bush et al. (2005) and Lezak et al. (2012) suggest that more elaboration should be done on the behavioural implications of injuries, a clear link between collateral findings and the neuropsychological sequelae must be indicated, and findings must be descriptive to provide a clear psychological prognosis (i.e., indicate the difference between pre- and post-morbid). Halikias (1994) recommend that constant critical reflection is done on the formulation and conclusion. A very common technique to critically evaluate the report findings is to have the report confidentially peer-reviewed or supervised by an equally or more qualified colleague.

Expert court testimony

Testifying in court requires the examiner to explain and if necessary, defend findings in open court. It is not uncommon that an opposing expert and colleague is appointed to identify areas of evaluation weakness and possible directions for cross-examination. Heilbronner (2008) reports that the testifying forensic neuropsychologist often has to explain in depth his or her reasoning and conclusion. However, a well triangulated and conceptualised report can protect the expert from rigorous and hostile cross-examination (Martindale, 2007).

Conclusion

The forensic neuropsychological evaluation requires a continuum of professional and ethical integrity. Working as a forensic neuropsychologist requires a specific frame of reference and goal-directed professional behaviour to arrive at a final report product which can be used by the court to reach a cohesive and accurate judgement. However, several problem areas were identified that are currently present in South African as well as international forensic neuropsychological evaluations. Therefore, the researchers aimed to provide guidelines to address and improve these evaluations for the benefit of the court. It is the view of the authors that by

applying this pre-evaluation, evaluation and post evaluation approach, the novice as well as established forensic neuropsychologists can compile more standardised, ethical and accurate reports. It is clear that specialised training in forensic neuropsychology is imperative, but in the meantime, these proposed guidelines can assist in creating a professional standard.

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SECTION 3: REFLECTIONS, LIMITATIONS AND RECOMMENDATIONS

3.1. Introduction

The final section covers the researcher's reflection about the phenomena under investigation, namely a critical analysis of neuropsychological evaluations in motor vehicle accident claims as perceived by legal practitioners and psychologists in South Africa. It also includes the personal reflections of the researcher, an indication of the strengths and limitations of the study, and the final recommendations.

This study's aim was fourfold: first, exploring current expectations of the court (as viewed by attorneys and advocates) regarding neuropsychological evaluations in motor vehicle accident claims; second, investigating current shortfalls as identified by psychologists in neuropsychological evaluation reports of motor vehicle accident claims; and third, looking at current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists. The concluding aim was to propose guidelines for forensic neuropsychological evaluations⁷ in motor vehicle accident claims.

A qualitative approach was applied during this research study. To this end, the researcher embarked on gaining an in-depth understanding of phenomena, which was done through thematic analysis. This course of action enabled the researcher to identify, analyse, and report on themes utilising the gathered data. This is a rich method of research because thematic analysis is an essentialist or realist method that reflects on experiences, meanings, and the reality of participants (Moriarty, 2011). As such, thematic analysis can be a dual-purpose method which works

⁷ The term "forensic neuropsychologist" is used for the purposes of this study, but is not recognised on statutory level.

both to reflect reality and to unpack or unravel the surface of “reality” (Braun & Clarke, 2006). Therefore, the findings can be viewed as the realistic and relevant reality of the included group of experienced South African lawyers and forensic neuropsychologists.

3.2. Reflections on the expectations of lawyers with regards to neuropsychological evaluations in motor vehicle accident claims

South African courts are accustomed to the presence and assistance of psychologists in legal matters. However, most current practising South African psychologists have received no formal training in court procedures or being expert witnesses. This lack of training constitutes an unclear awareness of lawyers’ expectations with regards to neuropsychological evaluations in motor vehicle accident claims. Therefore, the aim of this study was to determine these expectations. It was evident from the results in Study 1 that legal participants had the opinion that psychologists’ knowledge falls significantly short of what lawyers expect of them. However, lawyers do not realise that what they consider to be general psychological knowledge is, in fact, specialist neuropsychological knowledge, beyond the general psychologist’s field of expertise. This is most likely because of a psychologist’s makeup and ethos to be helpful or to be of service or assistance (Mossman & Kapp, 1998; White, Day & Hackett, 2007). Psychologists accept instructions that exceed their abilities, not knowing the legal expectations, which can affect their objectivity and expose them to being scrutinised while they are trying to assist (Genis, 2008). This was also confirmed by Ackerman (2006). It is not a surprise that the legal profession becomes frustrated with the psychological field because the core of the psychologist’s training is to help, where the legal representative merely wants an opinion; not assistance and guidance per se. This reflection is important because the need for further legal training pertaining to the claim process, specifically associated litigation procedures regarding plaintiff

and defendant disputes. Training in this regard is imperative because it will broaden the psychologist's professional awareness to think more critically and not exclusively therapeutically. The South African psychologist is primarily trained to promote the wellbeing of the client; therefore, their purpose of actions is therapeutic. The psychologist aims to establish harmony or an understanding with the client, understand their world, evaluate their emotional and behavioural adjustment, and develop means to improve adjustment. Contact is also confidential. The previously mentioned frame of reference is in direct contradiction with the role of the forensic neuropsychologist because, in this context, the primary goal is to gain facts and report them to the judicial system. Furthermore, the court is the client which is a foreign concept for South African trained psychologists who are trained primarily as psychotherapists. In this regard, the expectations of the court can be misinterpreted or misunderstood because as opposed being a treating psychotherapist, the forensic neuropsychologist must maintain a neutral, objective stance towards the client. What can also hamper these psychologists, as found by Grøndahl, Grønnerød, Stridbeck, Varoy and Brauer (2012), is that psychologists tend to become defensive of their point of view that detracts from their objectivity. The perception of a "hired gun" can be created and might result in bringing the field in disrepute. Dixit-Brunet (2006), Kaliski (2006), and Vanderploeg, Curtiss and Belanger (2005) indicate that legal professionals expect psychologists to take a firm stand to guide the court with objective findings and substantiated recommendations. It comes as no surprise that the investigation by Swanepoel and Van Rensburg (2020a) on attorneys, advocates and acting judges' expectations of psychologists' competence found that, mainly, the court's expectations, in other words, the lawyers', are not met. Lawyers seem to take a very critical stand towards psychologists providing expert opinion in the legal context. Lambiase and Cumes (1987) and Roos, Scholtz and Wessels (2016) agree that the relationship between the court and psychologists are cordial, but also concur on psychologists most common failings being inadequate factual enquiries, confusing

findings, and misunderstandings of what the court requires. Lack of forensic training will most certainly act as a contributing factor to these failings.

Therefore, this study provided valuable feedback in the matter of legal expectations, namely: findings should indicate the differences between pre- and post-morbid functioning and provide a clear psychological prognosis; a clear link between the neuropsychological profile and collateral findings must be illustrated; the format of reports must be user-friendly, and an overload of content and repetition should be avoided. The need for legal training for the neuropsychologist is highlighted as imperative to work in and understand the legal context. These expectations are not new; because Pope, Butcher, and Seelen (1993) reported that the lawyers' high expectations of psychologists on specialist psychological knowledge demonstrate that what lawyers primarily seek from psychologists is psychological knowledge, not legal expertise but an understanding of the legal process. Locally, Genis (2008), found that in her analysed group of psychologists who do forensic work, failed to meet even the most moderate expectations of South African lawyers; confirming the findings of the present study. In reflecting on the results of this study, a need for forensic neuropsychological diversification in South Africa is required to meet the court's expectations. Louw and Allan (1998), Allan and Louw (2001) and Genis (2008), indicate that there is a great void in South Africa between lawyers and psychologists, specifically when it comes to reporting findings and the format of reports. Therefore, these study findings provide the opportunity to understand the complexity of claims and the expectations of the court. It is also clear that, in South Africa, further development and research in the forensic neuropsychology field must be done. However, limited training, or the lack of training, is an imperative that must be addressed in the tertiary education of future forensic neuropsychologists. This can suggest the need for a possible separate specialisation field in forensic neuropsychology.

3.3. Reflections on the shortfalls in neuropsychological evaluations and reports in motor vehicle accident claims in South Africa

In reflecting on the second aim, frustration and concern were evident due to novice psychologists entering the field as quasi-specialists which left the more experienced psychologists feeling exposed as they try to compensate for these colleagues' lack of experience. Hom (2003) and Roos et al. (2016) explain that the field of forensic neuropsychology is new and rapidly evolving and the newly trained South African psychologist enters the field qualified, but with little to no experience. The primary responsibility of the forensic neuropsychologist is to provide expert information to the court based on scientifically validated neuropsychological principles and clinical methodology pertinent to the forensic question at hand, as indicated in article 1. However, it seems that newly qualified psychologists who enter the field of forensic neuropsychology can get confused because they do not realise that it is not just whether the client has a dysfunction, but whether the dysfunction results from the event under consideration, such as a motor vehicle accident (Sweet, Moberg, & Suchy, 2000; Sweet, Peck, Abramowitz, & Etzweiler, 2003). Furthermore, the results show that the experienced psychologists have the challenge to do joint minutes for the court with novice colleagues and subsequently agree with their inexperienced and at times unsubstantiated neuropsychological conclusions to avoid postponing a trial date (Swanepoel & van Rensburg, 2020b). This tendency creates a retrospective concern because the question arises of how many claimants were then possibly exposed to court rulings which were based on inaccurate neuropsychological evaluations. However, it is still unclear as to what extent these forensic neuropsychological "expert" reports are being challenged in court (Sweet et al., 2000; Sweet et al., 2003). The study identified a need for standardised training, consensus regarding methodology, trained use of psychometric tests, and a decision whether forensic neuropsychology falls within the scope of practice of all exiting practitioners. In this regard, a primary theme that emerged from the study was the significant

lack of training of forensic neuropsychological professionals resulting in a poor quality of work that does not serve the claimant's interests.

Furthermore, the psychologist participants unilaterally reported that, in South Africa, the decision on the format of neuropsychological evaluation is made by the clinician, based on their level of experience and generic training, which was a significant finding. Also, the need for a regulating body was identified as a noteworthy theme that can address and prevent the production of poor evaluations and reports. However, this issue does not seem to be an exclusively South African challenge, because Hom (2003) reported that no formal training programs, licensure requirements, or professional organizations devoted specifically to forensic neuropsychology exists in the USA, despite the expectation of appropriate training in the legal arena. The results also indicated a dire need for the regulation and standardization of forensic neuropsychological evaluations along with the need for specialised tertiary training in forensic neuropsychology. As if on cue, the registration of neuropsychologists in South Africa was promulgated on 15 November 2019 in terms of The Health Professions Act 1974, Act 56 of 1974. Therefore, South African registration for neuropsychologists is in progress in terms of a grandfather clause or for newly graduates. In this regard, individuals qualify under this clause if they have worked in the neuropsychology field for a minimum period of five (5) years prior to the date of the promulgation. This long-awaited development is certainly very welcome, but it applies only to neuropsychology as a whole and not to forensic neuropsychological evaluations. The former generally adds to the clinical expansion and recognition in the field of psychology, but not for the latter. Hopefully, this study can assist with a step into the specific training and acknowledgment of forensic neuropsychologists.

3.4. Reflections on the exploration of the current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as applied by psychologists

Fifty (50) forensic neuropsychological reports were analysed, which proved a beneficial and interesting process. As Grisso (1988) and Harvey (2012) report, the evaluation process has multiple purposes, including summarising and communicating the neuropsychological information and helping the reader understand the findings and conclusions. Hebben and Milberg (2002), supported by Melton, Petrila, Poythress, and Slobogin (2007), reiterated the obvious that the forensic neuropsychological report must contain significant and demonstrable information bearing on the matter at hand organized in a format that a court can understand. However, in the analysed forensic neuropsychological reports, it seems that South African psychologists who conduct forensic neuropsychological evaluations compiled substandard reports in certain respects. This group of psychologists did not adhere to APA (2010) standards of best practice as reports were not titled as a “neuropsychological report”; the content was not systematically and identified; the reason for referral was not explained or defined, and the testing was not clearly outlined or explained. Therefore, apart from APA (2010) standards of best practice, it seems that South African psychologists prefer to follow an individualistically chosen format which often fell short of the legal directive under the South African Court Rules 36(9) (South Africa. Office of the Judge President, 2019) which stipulates that reports must be written in a format that reflects comprehensiveness and brevity. Sadly often, the analysed reports did not meet this directive, probably due to the individualistically chosen format which was often found to be too long. Griffith, Stankovic, and Baranoski (2010) stated that well-written forensic neuropsychological reports must be written in plain language to reflect clarity and simplicity. Based on best practice guidelines (APA, 2010) the conclusion of the report must answer the referral question or address the reason for the report but, on investigation, the findings in several reports did not convey this essential precondition. Referencing was also

incomplete, and, in some reports, omitted. It was also found that some reports were not appropriately edited before delivery, which is of great concern because eventually reports become public knowledge; therefore, questionable evaluations can devalue the credibility of the profession. Another concern was that psychologists did not always consult collateral information as part of the background history. APA guidelines (2010) stipulate applying multiple data collection methods during a forensic neuropsychological evaluation. Explanations lacked definition or explanation of the tests applied, or incorrect tests are referenced in a report raising questions about ethical awareness of report authors. Based on best practice standards, the psychologist is required to keep the reader of the report in mind, and a contextual explanation will enhance their reading experience (APA, 2010; Grisso, 2010; Institute of Medicine, 2015). In reflecting on the findings of the fifty (50) perused reports, it becomes apparent that South African psychologists who conduct forensic neuropsychological evaluation require additional training about legal procedures and contextually relevant methodology, and authenticate the need for a regulating body that can address the issue of poor evaluations and reports.

On reflection of professional registration categories, a thought-provoking finding stood out: Presently the South African psychological community is embroiled in a dispute regarding registration categories with one group advocating for a clear distinction between the categories and the other striving towards a generalist registration. On reflection of this group educational psychologists were found to be dominant in numbers in the field of forensic neuropsychological evaluations, this study also determined that, regardless of category, most practitioners in different categories conduct forensic neuropsychological evaluations. It would seemingly be rather more advisable that the forensic neuropsychological field must be categorised as a specialist field. However, the official acceptance for registering as a neuropsychologist in South Africa as from 15 November 2019, is a step in the right direction.

3.5. Reflections on the proposed forensic neuropsychological evaluation guideline

Based on the results of the three separate studies which did a critical analysis of neuropsychological evaluations in motor vehicle accident claims as perceived by legal practitioners and psychologists in South Africa, the overall conclusion is that it is imperative for further training either on tertiary level or CPD level. A critical reflection on the data showed that a rigid and set method for forensic neuropsychological evaluation is not possible because brain injury is a multi-faceted phenomenon, and, depending on the nature and extent of the injury, it requires an individualised, case-related investigation. Such investigation is confirmed by Lezak et al. (2012) who reports that it has long been recognised that there is no single and formalised model for neuropsychological evaluations. Therefore, based on the results, a three-phase guideline for forensic neuropsychological evaluation is proposed. Table 2 lists the three suggested evaluation phases, as well as the procedures associated with each phase.

Table 2: Proposed guidelines for forensic neuropsychological evaluation

Phase 1: Pre-evaluation phase	<ul style="list-style-type: none"> • Having the necessary competence • Clarifying roles and relationships • Meeting contractual arrangements
Phase 2: Evaluation phase	<ul style="list-style-type: none"> • Observation • The clinical interview • Psychometry • Collateral resources
Phase 3: Post-evaluation phase	<ul style="list-style-type: none"> • Integration and triangulation • Report writing • Expert court testimony

Phase 1: Pre-evaluation phase

In this phase the practitioner must make the decision whether he/she is professionally competent enough to conduct a forensic neuropsychological evaluation. Thus, the question must be asked does he/she have a comprehensive understanding of neuroscience, neurological development, central nervous system functioning, and of different physical and mental pathologies which can affect brain function (Bush, 2007). Furthermore, the forensic neuropsychologist practitioner must be able to determine if neurological and/or psychiatric disorders are present, and if so clearly indicate if a causal relationship exists with the specific event or injury (Bush & Morgan, 2017). The practitioner must also have sufficient knowledge regarding legal role definitions and understand that the exclusive purpose is to assist the court with an objective opinion. Therefore, the forensic neuropsychologist's primary goal must be to objectively determine the examinee's neuropsychological status (Bush, Barth, Pliskin, Arffa, Axelrod, Blackburn, 2005). Also, it is essential to have a policy statement where, at a minimum, the following is outlined: informed consent, confidentiality limits, the evaluation procedures, an explanation of how information will be provided to the examinee following the examination, how records are kept and dispersed as well as fee structures (Bush et al., 2005; Halikias, 1994).

Phase 2: Evaluation phase

During this phase the client's non-verbal reaction to the evaluation context is observed (Fink, 2017). The Mental Status Examination (MSE) is not viewed as a fully appropriate tool for neuropsychologists, but rather to use a preliminary Neuropsychological Examination (preliminary NPE) which include observation of psychomotor speed, orientation, attention, insight, prefrontal functions, language, and memory (Abbate & Trimarchi, 2013). The clinical interview also forms part of this phase where the client's experience related to the injury is explored. Fink (2017) advises open-ended questioning before proceeding to more specific and directive

questions. The forensic neuropsychologist also decides on test selection which includes accredited neuropsychological psychometry and testing of performance validity (Bush et al., 2005; Larrabee, 2017). As part of the objective evaluation, collateral sources are included which entail record review, interviews with professionals and interviews with significant others (APA, 2013).

Phase 3: Post-evaluation phase

During this final phase all information is integrated and triangulated. The forensic neuropsychologist then provides a written report which should be prepared with the greatest of professionalism and care as it could be legally scrutinized (Halikias, 1994). Therefore, the forensic neuropsychologist must guard against using jargon, technical terms or writing too long reports (Swanepoel & Van Rensburg, 2020a). Expert court testimony can also form parts of this final phase which requires the forensic neuropsychologist to explain the findings in court (Martindale, 2007).

3.6. Personal reflections of the researcher on the execution of the study

Analysing the transcripts was interesting and beneficial to the researcher because the intrinsic and versatile importance of the field of psychology was emphasised. In conducting a critical analysis of neuropsychological evaluations in motor vehicle accident claims as perceived by legal practitioners and psychologists in South Africa, the researcher once more became aware of the valuable contribution of the field of psychology. Analysis requires constant reciprocity of perspective between individual involvement in forensic neuropsychological evaluations and the results of the research project. It proved to be a cognitively absorbing process trying to answer the research questions and attain the research goals. Nevertheless, this process of re-

search and analysis was greatly beneficial to the researcher practically, professionally and personally. Also, it was realised that research is not linear and is continuously progressive as status changes occurred more than once during this study. Dedication and endurance to this process are required to eventually reach a point of significant results. The time-consuming nature of data analysis and the extended period of data collection was occasionally thought to delay the continuation of this research project. Reporting on the results was challenging and reflective because the pivotal aim was to make a constructive contribution to the dynamic field of psychology. The willingness and truthfulness of the participants encouraged the researcher to report on all aspects of the findings and to incorporate the results into the forensic neuropsychological evaluation.

3.7. Strengths of the study

Researching eliciting phenomena associated with forensic neuropsychological evaluations was central to this study. Through the detailed accounts of participants and analysis of many forensic neuropsychological reports, rich data was obtained. The succinct and detailed responses of the participants enhanced the authenticity of the data collected. The analysis of the data reflected the emphasis on the current state of forensic neuropsychological evaluation in South Africa, where after common overarching themes were developed. Multiple verbatim and noted extracts grounded the themes, which supported the general arguments that were made (Smith, Flowers & Larkin, 2009).

There strengths were as follows:

- This study addressed a sensitive and controversial topic on the present quality of forensic neuropsychological evaluations in South Africa. Even though significant concerns regarding the professional standard of reports were raised from both participant psychologists as well

as legal professionals, the study demonstrated that, in South Africa the country's psychological community is gradually moving towards international standards in acknowledging the necessity for the field of forensic neuropsychology.

- The study demonstrated the need for close relations between the legal professional and psychologist and provided some clarity on how legal expectations can be satisfied. This can narrow the gap between legal misunderstanding and psychological opinion, but also enhance relationships between professionals.
- The fact that professional reports were analysed critically provided important feedback to the practitioner who works in the field of forensic neuropsychology.
- The dissemination of the results is not only a strength of the study, but also an ethical duty (Taylor, 2019). This can also be seen in the very encouraging reaction from legal representatives who actually requested to form part of the study. This reaction, which in the view of the researchers is very rare in research, shows that need for the dissemination of the results. Therefore, the findings will be provided to all the participants, but will be shared with the academic community by means of publication in peer reviewed journals. In fact, one article has already been published and the other three are awaiting approval for publication in peer reviewed journals.
- As the researcher is a senior lecturer at several universities and an accredited CPD provider, the results will also be incorporated into the curricula of local tertiary institutions and will also be shared in CPD courses and workshops.
- The applied qualitative approach is also a strength as it captured the subjective needs of the professional participants. This will go a long way to equip aspiring forensic neuropsychologists in South Africa.

- The field of forensic psychology lies bare because while it awaits curriculum approval, this study's findings can add to local university course planning. Furthermore, the South African research base pertaining to neuropsychology can also benefit from recent studies to grow and develop local professionals. In this regard this study provided a unique contribution to both categories of forensic psychology as well as neuropsychology.

3.8. Limitations of the study

The following limitations were present in the study:

- The nature of a qualitative study is to use small and homogeneous groups. As such, the data does not allow for within-group comparisons. The focus of this study was on the experience of a group of legal professionals and psychologists, and the results should be generalised with due caution to other similar professional categories. Generalisation, which is an act of reasoning that involves drawing broad inferences from observations, is widely acknowledged as a quality standard in quantitative research. Due to the diversity of neuropsychological evaluations, the generalisability of the study conducted is limited.
- Retrospective and self-report studies have limitations of subjectivity expected from qualitative studies. These studies may, however, still be useful to elicit the individual and distinctive experiences that allowed for a detailed description prompting the essential phenomena.
- Only legal professionals in Gauteng and the North-West Provinces of South Africa were included. Inferences could be substantiated if all nine provinces in South Africa formed part of the study to confirm the opinions of legal practitioners. Also, South African courts do not function uniformly when dealing with claims; therefore, opinion of this study can only be limited to Gauteng and the North-West Provinces.

- The input of more experienced forensic neuropsychologists (of which there is a shortage) will prove a further valuable addition to any further investigations. Therefore, country-wide participation from experienced psychologists in the deliberation on the career path of forensic neuropsychologists can only augment the desired outcome.

3.9. Recommendations

Recommendations for this study follows from the reflections above and the recommendations made in each of the separate chapters or articles.

- Due to South Africa's high motor vehicle accident rate and the increasing number of practitioners who enter the field on forensic neuropsychology, the dire need for specialised training is clear. It is suggested that psychology practitioners who are working in the field of forensic neuropsychology be exposed to CPD programmes with specific reference to the legalities of claim processes in the South African context. In this regard, it would be beneficial if some of the CPD courses can be presented, or at least facilitated, by claim-experienced legal practitioners. During these programs, specific emphasis can be placed on report-writing style and information management given that reports are perceived as too long, are unnecessarily repetitive and need more structure with less jargon and technical terms. This additional specialised training can also assist with the structuring of the report to make it more court friendly.
- Considering active training programs for training neuropsychologists, an additional module in tertiary curricula in forensic neuropsychology can be considered where the focus is pertinent on the differentiation between clinical and forensic neuropsychological evaluation. It requires an emphasis on additional training in legal processes and procedures, as well as expert testimony.

- Based on the findings of this study, it is recommended that forensic neuropsychology as a speciality field be acknowledged and receives the independent status it deserves. It is thus recommended that forensic neuropsychology be established as a separate specialisation from neuropsychology training, given the legal nature and legal expectations of the field.
- It is also recommended that a forensic neuropsychology regulating body be appointed to address the need for training and monitoring of sound, ethical and scientific methodology as well as scientific report writing.
- Given that the sub speciality of forensic neuropsychology is rapidly growing in South Africa as well as internationally more empirical research is required.

3.10. Conclusion

Psychology is a wide and dynamic field generally applied on all levels of society. In the context of this study, psychology is integral to legal proceedings and as such welcomed by legal professionals. The researcher realised anew the responsibility of the psychologist, especially in the forensic neuropsychological field where the professional becomes part of the healing process of a client as part of a team of expert professionals and not via the psychotherapeutic process by itself. It became very apparent that the legal system relies on accurate expert forensic neuropsychological inputs. Ultimately, it was this demonstrated respect for and reliance on accurate forensic neuropsychological input that made the study worthwhile to the research question.

“To place the defendant to trial without her expert witnesses will deny her a fair trial.”

– Wendell Odom (in Denno, 2017)

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Appendix A: Participant brochure



DR. HENK J. SWANEPOEL
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Date

Name

Address

Email

Dear Sir / Madam

PARTICIPANT BROCHURE

I hereby confirm my appointment with you on the _____ at _____ regarding a PhD research project.

The project is entitled: *A Critical Analysis of Neuropsychological Evaluations in Motor Vehicle Accident Claims as Perceived by Legal Practitioners and Psychologists in South Africa*

This study has been approved by The Health Research Ethics Committee (HREC) of the North-West University, Faculty of Health Sciences (Potchefstroom campus) (NWU-00197-14-S1).

What is this research study all about?

The objectives of this research are:

- Exploring current expectations of the Court (as viewed by advocates and lawyers) with regards to neuropsychological evaluations in motor vehicle accident claims.
- Exploring current neuropsychological evaluation methods in South Africa in motor vehicle accident claims as employed by psychologists.
- Exploring shortfalls as seen by psychologists, advocates and lawyers in psychological reports of neuropsychological evaluations in motor vehicle accident claims.
- To develop a model for neuropsychological evaluations in motor vehicle accident claims.

Why have you been invited to participate?

➤ *You have been invited to participate because you are experienced and directly involved in motor vehicle accident (MVA) claim matters.*

➤ *You have also complied with the following inclusion criteria:*

- Qualified attorneys, qualified advocates as well as South African trained registered psychologists with at least 10 year experience in MVA claim matters and who are proficient in English or Afrikaans.

➤ *You will be excluded if:*

- Attorneys, advocates as well as registered psychologists who do not primarily work in the context of motor vehicle accident claims will not be included in the study. Also psychologists trained abroad, but practicing in South Africa will be excluded.

What will your responsibilities be?

- Participants will be requested to be individually interviewed by the researcher. The interview should not last longer than 30 minutes to 1 hour. The interviews will be recorded.
- Your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

Will you benefit from taking part in this research?

- *The direct benefits for you as a participant will be the following:*
- **Advantages for the court:** *The study will indicate to the court which present methods are employed in neuropsychological evaluations in motor vehicle accident claims by South African psychologists. The shortfalls in psychological reports of neuropsychological evaluations in motor vehicle accident claims as compared to literature guidelines will be clearly identified. This will be provided in printed and electronic format which will be sent to all the participants.*
- **Advantages for the psychologist:** *The findings of this Ph.D. study will provide the psychologist with clear categorised expectations of the Court with regards to neuropsychological evaluations in motor vehicle accident claims as perceived by attorneys and*

advocates. This will be provided in printed and electronic format which will be sent to all the participants. Furthermore the researcher aims to present Continued Professional Development (CPD) courses after completion of the study to train psychologists in scientific methodology in the investigation of neuropsychological matters in motor accident vehicle claims.

- *The indirect benefit will be to determine specific method expectations of the Court with regards to neuropsychological evaluations in motor vehicle accident claims; to describe current South African formats of neuropsychological evaluations in motor vehicle accident claims and to identify shortfalls in reports of neuropsychological evaluations in motor vehicle accident claims*

Are there risks involved in your taking part in this research?

- *Ethically this study poses a low risk due to the fact that only professionals will be included as well as existing psychological reports which are public information.*
- *The benefits outweighs the risk*

What will happen in the unlikely event of some form of discomfort occurring as a direct result of your taking part in this research study?

- *Should you have the need for further discussions after the semi-structured interviews an opportunity will be arranged for you to have a further interview with the researcher. Participation in the study will be completely voluntary and participants will have the option not to participate after they have been thoroughly informed about the research, or if they participated, the interview could be stopped at any point if they so wished.*

Who will have access to the data?

- No identifying information will be used in articles; all information will be kept in safe storage at the office of the researcher. Electronic data will be password protected. All questionnaires, notes and recordings will be locked away in a cabinet. In audio material participants will only be addressed using their first name. The use of audio-tapes in CPD presentations afterwards will be based on statistical findings and the literature study. After completion of the study and publishing of the articles, all documents and confidential material will be stored in a secure office at Northwest University Potchefstroom campus as per ethical requirements for a period of six (6) years. As soon as the data has been transcribed it will be deleted from the recorders.

Will you be paid to take part in this study and are there any costs involved?

- You /will not be paid to take part in the study. There will thus be no costs involved for you, if you do take part.

Is there anything else that you should know or do?

- You can contact Dr Henk Swanepoel at 0835517097 / 0126533196 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 2089; carolien.vanzyl@nwu.ac.za if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

How will you know about the findings?

- The results will be published in article format in academic journals. Anonymity will be ensured in the reporting of data. Even though the project head will be familiar with the names of participants, names will not be used in publications.

The researcher will explain the project objectives at length during the interview.

Looking forward meeting with you.

Very truly yours,

Dr. H.J Swanepoel

Clinical Psychologist

MSc (Clin. Psych), PhD (Psych.), ABIME (CAMAG)

Appendix B: Consent form



PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM FOR ADVOCATES, ATTORNEYS AND PSYCHOLOGISTS

TITLE OF THE RESEARCH PROJECT: A Critical Analysis of Neuropsychological Evaluations in Motor Vehicle Accident Claims in South Africa

REFERENCE NUMBERS: NWU-00197-14-S1

PRINCIPAL INVESTIGATOR: HENK JOHAN SWANEPOEL

ADDRESS: @HEALTH MEDICAL CENTER, 258 JEAN AVENUE, CENTURION

CONTACT NUMBER: 0835517097 / 0126533196

You are being invited to take part in a research project that forms part of my Ph.D. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU-00197-14-S1)** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki and the ethical guidelines of the National Health Research Ethics Council. It might be necessary for the research ethics committee members or relevant authorities to inspect the research records.

What is this research study all about?

- *This study will be conducted in Gauteng and the North-West Province and will involve semi-structured interviews with experienced health researchers trained in Psychology*
20 participants will be included in this study.

- *The objectives of this research are:*

- To investigate and determine specific expectations of the Court with regards to neuropsychological evaluations in motor vehicle accident claims.
- To investigate current South African structures of neuropsychological evaluations in motor vehicle accident claims.
- To investigate shortfalls in reports of neuropsychological evaluations in motor vehicle accident claims.

Why have you been invited to participate?

➤ *You have been invited to participate because you are experienced and directly involved in motor vehicle accident (MVA) claim matters.*

➤ *You have also complied with the following inclusion criteria:*

- Qualified attorneys, qualified advocates as well as South African trained registered psychologists with at least 10 year experience in MVA claim matters and who are proficient in English or Afrikaans.

➤ *You will be excluded if:*

- Attorneys, advocates as well as registered psychologists who do not primarily work in the context of motor vehicle accident claims will not be included in the study. Also psychologists trained abroad, but practicing in South Africa will be excluded.

What will your responsibilities be?

➤ Participants will be requested to be individually interviewed by the researcher. The interviews will be recorded.

Will you benefit from taking part in this research?

- *The direct benefits for you as a participant will be the following:*
- ***Advantages for the court:*** *The study will indicate to the court which present methods are employed in neuropsychological evaluations in motor vehicle accident claims by South African psychologists. The shortfalls in psychological reports of neuropsychological evaluations in motor vehicle accident claims as compared to literature guidelines will be clearly identified. This will be provided in printed and electronic format which will be sent to all the participants.*
- ***Advantages for the psychologist:*** *The findings of this Ph.D. study will provide the psychologist with clear categorised expectations of the Court with regards to neuropsychological evaluations in motor vehicle accident claims as perceived by attorneys and advocates. This will be provided in printed and electronic format which will be sent to all the participants. Furthermore the researcher aims to present Continued Professional Development (CPD) courses after completion of the study to train psychologists in scientific methodology in the investigation of neuropsychological matters in motor accident vehicle claims.*
- *The indirect benefit will be to determine specific method expectations of the Court with regards to neuropsychological evaluations in motor vehicle accident claims; to describe current South African formats of neuropsychological evaluations in motor vehicle accident claims and to identify shortfalls in reports of neuropsychological evaluations in motor vehicle accident claims*

Are there risks involved in your taking part in this research?

- *Ethically this study poses a low risk due to the fact that only professionals will be included as well as existing psychological reports which are public information.*
- *The benefits outweighs the risk*

What will happen in the unlikely event of some form of discomfort occurring as a direct result of your taking part in this research study?

- *Should you have the need for further discussions after the semi-structured interviews an opportunity will be arranged for you to have a further interview with the researcher. Participation in the study will be completely voluntary and participants will have the option not to participate after they have been thoroughly informed about the research, or if they participated, the interview could be stopped at any point if they so wished.*

Who will have access to the data?

- No identifying information will be used in articles; all information will be kept in safe storage at the office of the researcher. Electronic data will be password protected. All questionnaires, notes and recordings will be locked away in a cabinet. In audio material participants will only be addressed using their first name. The use of audio-tapes in CPD presentations afterwards will be based on statistical findings and the literature study. After completion of the study and publishing of the articles, all documents and confidential material will be stored in a secure office at Northwest University Potchefstroom campus as per ethical requirements for a period of six (6) years. As soon as the data has been transcribed, it will be deleted from the recorders.

Will you be paid to take part in this study and are there any costs involved?

- You will/will not be paid to take part in the study. There will thus be no costs involved for you, if you do take part.

Is there anything else that you should know or do?

- You can contact Dr Henk Swanepoel at 0835517097 / 0126533196 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 2089; carolien.vanzyl@nwu.ac.za if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

How will you know about the findings?

- The results will be published in article format in academic journals. Anonymity will be ensured in the reporting of data. Even though the project head will be familiar with the names of participants, names will not be used in publications.

Declaration by participant

By signing below, I agree to take part in a research study titled: A Critical Analysis of Neuropsychological Evaluations in Motor Vehicle Accident Claims as perceived by legal practitioners and psychologists in South Africa

I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions to both the person obtaining consent, as well as the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) on (*date*) 20....

.....

Signature of participant

.....

Signature of witness

Declaration by person obtaining consent

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a interpreter.

Signed at (*place*) on (*date*) 20....

.....

.....

Signature of person obtaining consent

Signature of witness

Declaration by researcher

I (*name*) declare that:

- I explained the information in this document to
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a interpreter.

Signed at (*place*) on (*date*) 20....

.....

.....

Signature of researcher

Signature of witness

Appendix C: Interview schedule

Interview Schedule

1. Establish Rapport. Greeting, thanking the person for being willing to participate.
2. Explain the purpose and aims of the research and what will be expected.
3. Questions
4. Closing, thanking the people for participating and leaving the contact number. Explaining that the results of the research will be sent to them.

Appendix D: Questions to legal representatives

Interview questions to legal representatives

What is your expectations of neuropsychological evaluation and reports in motor vehicle accident claims? Therefore what would you like to see to make it relevant to the court procedure?

To what extent are your expectations of neuropsychological evaluation and reports currently being met? Please explain your answer.

What problems have you experienced in dealing with neuro-psychological reports?

If there are any changes or recommendations regarding to neuropsychological report, what would it be?

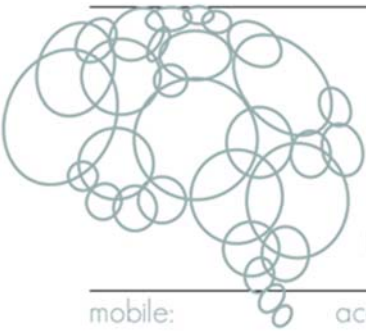
Appendix E: Questions to psychologists

Interview questions to psychologists

What methods do you currently employ in neuropsychological evaluations?

What problems have you experienced in dealing with neuropsychological reports?

Appendix F: Letter to the National Archives



DR. HENK J. SWANEPOEL
CLINICAL PSYCHOLOGIST

M.Sc. (Clin. Psych), Ph.D., CAMAG

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10 March 2014

The National Archivist
Private Bag X236, PRETORIA 0001
24 Hamilton Street, Arcadia, Pretoria
Tel: (012) 441 3200 Fax: (012) 323 5287
Archives@dac.gov.za

Dear sir / madam,

**RE: ACCESS TO ACHIEVED PSYCHOLOGY REPORTS PERTAINING TO THE
ROAD ACCIDENT FUND**

I am a Ph.D. student at the University of the North-West under supervision of Prof Esme van Rensburg. The title of the study is the following:

**A Critical Analysis Of Neuropsychological Evaluations In Motor Vehicle Accident
Claims as Perceived by Legal Practitioners and Psychologists in South Africa**

In this light I want to investigate what shortfalls are present in reports of neuropsychological evaluations in motor vehicle accident claims? In order to determine the following I need to

access previously court case archives to gain access to such reports and I require written consent from the National Archives to proceed with the study. If possible can you provide a letter stating that I have consent in this regard as the Ethical and Research Committee will not grant me permission to proceed if I do not prove access to the archives.

Awaiting your response,

Very truly yours.

A handwritten signature in black ink, consisting of several overlapping, sweeping lines that form a stylized, somewhat abstract shape.

Dr Henk Swanepoel

Clinical Psychologist

MSc (Clin. Psych), PhD (Psych.), ABIME (CAMAG)

Appendix G: Letter from the National Archives

From: Gerrit Wagener [mailto:GerritW@dac.gov.za]

Sent: 10 March 2014 04:02 PM

To: Henk Swanepoel

Subject: RE: ACCESS TO ACHIEVED PSYCHOLOGY REPORTS PERTAINING TO
THE ROAD ACCIDENT FUND



Dear Mr Swanepoel,

As the court cases are open for access I would suggest that you visit the National Archives Reading Room at a date and time suitable to you. We can then retrieve the cases for you to enable you to ascertain whether the information that you are interested in are on file or not. If it is not we can further discuss what to do, for example: to contact the Department of Justice, fill in PAIA request forms, etc.

The Reading Room of the National Archives is open from Monday to Friday from 08:00 to 16:00 each day. We are situated at 24 Hamilton Street just south of Soutpansberg Road on the left hand side. The building itself is quite a distance from Hamilton Road, but there is a wall with the name “National Archives of South Africa” next to the road.

regards

Mr Gerrit Wagener

Head: Client Services and Sensitive Records

T: +2712 441 3208

M: 082 906 6301

F: 012 323 5287

E: GerritW@dac.gov.za

W: www.dac.gov.za



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