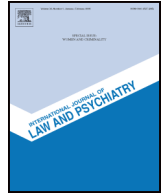




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# The use of computed tomography scans and the Bender Gestalt Test in the assessment of competency to stand trial and criminal responsibility in the field of mental health and law

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## ABSTRACT

computed tomography and the Bender Gestalt Test are some of the tests used routinely for the assessment of alleged offenders referred under Sections 77 and 78 of the Criminal Procedure Act 51 of 1977. An exploratory retrospective study was conducted at the Free State Psychiatric Complex. The aim of this study was to identify the extent to which the Bender Gestalt Test results and the computed tomography scans are associated with outcomes in the assessment of competency to stand trial and criminal responsibility in individuals referred to the Free State Psychiatric Complex (FSPC) observation unit. This was a cross-sectional study and the entire population of patients admitted in 2013 was included in the study. The clinical and demographic data were obtained from patient files. The majority of participants were black, males, single and unemployed. The most common diagnosis was schizophrenia. The current study showed no statistically significant association between the Bender Gestalt Test Hain's scores and the outcome of criminal responsibility and competency to stand trial. Similarly, the study also showed no statistically significant association between the presence of a brain lesion and the outcome of criminal responsibility and competency to stand trial. It was also concluded that as CT scans are expensive, patients should be referred for that service only when there is a clear clinical indication to do so.

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## 1. Introduction

South African criminal law is based on the general principles of liability, specific offence, criminal procedure and sentencing. Criminal liability is divided into three elements, namely, criminal capacity, unlawful conduct and fault. [Snyman \(2008\)](#) writes about criminal capacity, which refers to the mental ability to differentiate between right and wrong; the alleged offender must be able to conduct himself or herself in accordance with this appreciation. These elements of criminal liability originate from the Roman Dutch Law and the element of criminal capacity may at times require expert testimony from a mental healthcare practitioner. According to South African criminal law, all persons are presumed to be sane and able to control their actions. The defence of mental illness in the South African criminal justice system derives from the English M'Naghten Rules passed by the House of Lords in 1843 ([Louw, 2006](#)). The principle is that a person may not be held liable if he/she is not able to appreciate the nature and quality of his/her act due to mental illness.

In South Africa, the defence of mental illness is dealt with in the Criminal Procedure Act 51 of 1977. However, this act does not define what a mental illness is. The definition of mental illness as defined in

the Mental Healthcare Act 17 of 2002 is not binding on a criminal trial. In *State v Stellmacher (1983)*, the court made a finding that basically defines the criteria for a mental illness: it must be pathological, and it must be endogenous, that is, not as a result of external stimuli ([Louw, 2006](#)). Section 77(1) of the Criminal Procedure Act 51 of 1977 deals with the capacity of the accused to understand court proceedings and the ability to participate meaningfully in those proceedings ([Department of Justice and Constitutional Development, 1997](#)). Section 77(1) also states that if it appears to the court at any stage of the proceedings that the accused is, by reason of mental illness or mental defect, not capable of understanding the court proceedings so as to make a proper defence, and lacks the knowledge, appreciation and voluntariness of the human rights, and appreciation of the future consequences of committing a crime ([Strathman, Gleicher, Boninger, & Edwards, 1994](#)), the court orders that the alleged offender be forensically assessed, and the matter be reported in accordance with the provisions of section 79. [Pillay \(2014\)](#) explains that Section 77 of the Criminal Procedure Act 51 of 1977(1) is centred around the accused's current mental condition which is examined in order to determine whether the said individual is suffering from any mental disorder or defect that has the potential to affect his or her ability to understand court proceedings, and the ability to participate in those proceedings in a meaningful manner. This phenomenon is termed competency to stand trial or adjudicative competence ([Fogel, Schiffman, Mumley, Tillbrook, & Grisso, 2013](#)). The

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competency to stand trial is carefully taken into consideration by courts of law after mental health professionals present their findings following neuropsychological, physiological, psychiatric and psychological evaluation and investigations (Grisso, 2005). Nonetheless, the courts may use their discretion on whether to accept or reject the findings and recommendations by health professionals.

Section 78(2) of the Criminal Procedure Act 51 of 1977 deals with mental illness or mental defect and criminal responsibility (Strydom, Pienaar, Dreyer, van der Merwe, & Jansen van Rensburg, 2011). This section states that if it is alleged at criminal proceedings that the accused is by reason of mental illness or mental defect or for any other reason not criminally responsible for the offence committed, or if it appears to the court at criminal proceedings that the accused might for such a reason not be so responsible, the court shall in the case of an allegation or appearance of mental illness or mental defect, direct that the matter be enquired into and be reported on in accordance with the provisions of Section 79 (Pillay, 2014). Section 79 deals with the role played by mental health experts who are ordered by courts to assess the alleged offenders. Thereafter, the mental health practitioners are required to provide a full and detailed report that includes full diagnosis of the offender's mental state, indication of possible symptoms if any, and level of functioning of the accused. Kois, Chauhan, Pearson, Goni, and Saraydarian (2013) argue that individuals with psychotic disorders are more likely to be declared unfit to stand trial than those without psychotic disorders. It is significant to note that the term mental defect (previously referring to mental retardation and dementia) is no longer used in the current contemporary literature. It is now termed intellectual disability according to DSM-V (American Psychiatric Association, 2013). The mental healthcare professional becomes involved as an expert witness regarding the pathological basis of mental illness. The healthcare professional is required to use the scientific evidence at his or her disposal to prove or disprove the pathological basis of mental illness.

There is a wide variety of tests and procedures for this purpose that may vary from institution to institution. Two of the test methods used at the Free State Psychiatric Complex, Bloemfontein, South Africa are computed tomography (CT) scans and the Bender Gestalt Test (BGT). The computed tomography scan was introduced in 1972 as a major revolution in the medical field that allowed the visualization of brain matter in living patients. In 1982, Magnetic Resonance Imaging (MRI) was introduced with a greater ability to differentiate between white and grey matter, enabling the clinicians to localize lesions with much greater precision (Kertesz, 1994). Nevertheless, these researchers argue that the relationship between functional brain anatomy and psychological function should be defined in a clearly articulated algorithm that seeks to connect multiple levels of human behaviour. Haque and Guyer (2010) mention that the current knowledge implies that neuroimaging studies can be considered in making diagnoses, but should not be relied on by themselves. The use of computed tomography scans within the legal context has limitations. Computed tomography only provides structural images and not functional images or interpretations. It is these structural images that should be connected in a meaningful way to the legal issues at hand (Biddle & Chamberlain, 2013). Another limitation is the unavailability of brain images before the criminal incident. This means that whereas the social and occupational functioning of the subject before and after the incident can be obtained from history, there is usually no before and after images of the same brain.

Besides the MRI, a wide range of neuroimaging techniques are used to evaluate changes in the brain function. The close link that exists between the structure and function of the brain makes it imperative for clinicians to use both functional and structural neuroimaging methods (Irimia & Van Horn, 2015). The use of both imaging modalities can provide essential information, and useful indications of the status of the brain's structure and function at the given time.

Neuropsychological disorders that may be of legal interest require a basic understanding of neuro-imaging studies. The use of neuroimaging

to demonstrate brain function is not admissible scientific knowledge but can be used to create hypotheses (Biddle & Chamberlain, 2013). This is because neuroscience can offer very little to the understanding of criminal responsibility or otherwise. Responsibility is a human construct that exists only in the social world, involving more than one person (Silva, 2007).

There are also lesions which are benign and whose presence cannot be used to justify functional impairment. It is difficult to detect whether a certain function of the brain is impaired or not without administration of relevant tests. It is within the scope of neuropsychology field that clinical neuropsychologists assess a broader range of behavioural, cognitive, emotional, physical capabilities and symptoms of patients (Zillmer, Spiers, & Culbertson, 2008). Neuropsychological evaluation is mainly centred around the functioning of the individual, together with their potentials and limitations which are holistically measured in relation to their environmental, social and emotional status (Punzi, 2015). Methods and techniques of neuropsychological evaluation need to be dynamic and adaptive (Lezak, Howieson, Bigler, & Tranel, 2012). This evaluation also focuses on a person's intellectual level and personality makeup. The process of assessing individuals by means of neuropsychological methods and techniques ought to be integrated with other assessment and neurodiagnostic methods in the field of neuroscience. Anderson (2013) asserts that neuroimaging is an integral part of neuropsychological evaluation. The argument is that there is a marked advancement of neuroimaging methods and technologies. Neuropsychologists need to substantially understand these developments that assist the clinicians to comprehend dynamic relations between structure and function of the brain. These techniques are jointly utilized for the diagnoses of clinical conditions and brain pathology.

The quality of life of people suffering from any form of brain damage/injury is highly influenced by the degree and extent of neuropsychological impairment (Dwan, Ownsworth, Chambers, Walker, & Shum, 2015). The viewpoint is that appropriate information on patient's neuropsychological state is key to deciding and planning of rehabilitation and care programmes. Neuropsychological testing can therefore be used in the assessment of neurological injuries and the detection of malingering (Gronwall, 1989). Neuropsychological assessment may be used to assist in the legal decision-making. Some of the functions include evaluation of the extent and nature of brain injury, opinion about the alleged offender's competency to stand trial and criminal responsibility (LaDuke, DeMatteo, & Heilbrun, 2012). Individuals with neurological impairment have poor concentration and tire easily. It is therefore not advisable to use a long battery of tests in their assessment. The BGT serves this purpose well. The reason why this test is extensively used is because it is quick to administer and easy to score. A simple paper and pencil drawing test is used for the assessment, identification and screening of neuropsychological impairment (Hain, 1964). In essence, BGT is a visual-motor Gestalt Test which measures visual-motor integration. This test consists of nine cards each displaying an abstract design. When administering the test, the psychologist presents the cards one at a time to the subject who is asked to copy each design as accurately as possible. No time limit is applied for completion of any drawing. Standard administration requires the design to be copied on a blank sheet of paper with an HB pencil (Bender, 1938). Although there have been some marked adjustments and changes in the administration and interpretation of BGT, plus some concerns regarding its validity in terms of neuropsychological assessment, the test is still widely used in South Africa (Makhele, Walker, & Esterhuysen, 2006). Practically, when using the Global Scoring System, moderate to severe deviation in the drawings, including characteristics such as rotations, reduction or increase of elements, omission of elements, overlapping of drawings, simplification of elements, substitution of elements and lack of integration of elements are normally scored in the 0 to 2 range, taking into consideration the extent of severity and overall intactness and integration of the drawings (Brannigan, Decker, & Madson, 2004). In general terms, 3 or fewer errors indicate an absence of visuoconstructive deficits or

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