PSYCHOMETRIC PROPERTIES OF THE PRISON ADJUSTMENT QUESTIONNAIRE (PAQ) AMONGST MALE INCARCERATED OFFENDERS IN SOUTH AFRICAN CORRECTIONAL CENTRES

by

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Abstract

Correctional adjustment is crucial for incarcerated offenders. Effective adjustment within a correctional environment is essential for rehabilitation, managing emotional outbursts and withdrawal, and reducing violent conflicts and disciplinary infractions. Additionally, successful adjustment is critical in facilitating a smooth transition back into society, serving as a predictive factor for reducing recidivism after release. Traditionally, classification has been vital in the initial placement of offenders into correctional centres and the assessment of transfers. Through his research, Wright (1983) aimed to develop innovative classification procedures to help administrators accurately assign incarcerated offenders to appropriate correctional centres. The knowledge derived from understanding adjustment patterns enabled Wright to propose new approaches for placing incarcerated offenders in the correctional environment and led to the development of the Prison Adjustment Questionnaire (PAQ). The PAQ was developed to evaluate the comparative correctional adjustment of incarcerated offenders within the correctional environment contrary to the public while also evaluating discomfort with incarceration across several dimensions. This study aimed to investigate the psychometric properties of the PAQ on a sample of South African incarcerated male and female offenders. The study also aimed to investigate the validity, factor structure, and reliability of the PAQ on a sample of South African incarcerated offenders. Within this research study, 814 South African incarcerated offenders were randomly selected using the systematic random sampling technique, which is a probability sampling method. The sample of this study included 787 literate male incarcerated offenders and 27 literate female offenders. However, due to the challenges faced by the researcher in obtaining sufficient participation from female offenders, the sample of female offenders was excluded from the study. Thus, the sample of this research study included participants who were proficient in English, could read and write, were over the age of 21 years, had a literacy level above Grade

6 and were not waiting on parole. The results of the Exploratory Factor Analysis (EFA) through SPSS and Mplus, as well as the Confirmatory Factor Analysis through Mplus, indicated that an alternative two-factor model for South African male incarcerated offenders had an acceptable model fit. This two-factor model included two subscales, Behavioural Adjustment and Emotional Adjustment, offering valuable insights into the underlying structure of the PAQ within this specific population. The model provided a robust framework for analysing the PAQ within this sample, offering a nuanced understanding of the psychological profiles of male offenders and enhancing the utility of the measurement scale in applied settings. Additionally, the study provided strong evidence for both the concurrent and discriminant validity of the PAQ, reinforcing its robustness and reliability as a measurement scale for measuring correctional adjustment. Cronbach's alpha coefficient (α) and McDonald's omega coefficient (ω) were calculated to indicate the internal consistencies of the two identified factors. The PAQ displayed an acceptable level of internal consistency within this research study.

Keywords: adjustment, correctional adjustment, incarcerated offenders, literate, psychometric properties, validity, reliability, correctional centre, maximum-security correctional centre, private maximum-security correctional centre

Opsomming

Korrektiewe aanpassing is van kardinale belang vir gevangenes. Doeltreffende aanpassing binne ’n korrektiewe omgewing is noodsaaklik vir rehabilitasie, die bestuur van emosionele uitbarstings en onttrekking, en die vermindering van gewelddadige konflikte en dissiplinêre oortredings. Daarbenewens is suksesvolle aanpassing van kritieke belang om ’n egalige oorgang terug na die samelewing te fasiliteer, wat dien as ’n voorspellende faktor vir die vermindering van heroortreding na vrylating. Tradisioneel was klassifikasie noodsaaklik in die aanvanklike plasing van oortreders in korrektiewe instellings en die beoordeling van oorplasings. Deur sy navorsing het Wright (1983) ten doel gehad om innoverende klassifikasieprosedures te ontwikkel om administrateurs te help om gevangenes akkuraat aan toepaslike korrektiewe instellings toe te wys. Die kennis wat verkry is uit die begrip van aanpassingspatrone het Wright in staat gestel om nuwe benaderings voor te stel om gevangenes in die korrektiewe omgewing te plaas en het gelei tot die ontwikkeling van die “Prison Adjustment Questionnaire” (PAQ). Die PAQ is ontwikkel om die vergelykende korrektiewe aanpassing van ingeslote oortreders binne die korrektiewe omgewing, in teenstelling met die publiek, te evalueer, terwyl dit ook ongemak met inhegtenisneming oor verskeie dimensies evalueer. Hierdie studie het ten doel gehad om die psigometriese eienskappe van die PAQ op ’n steekproef van Suid-Afrikaanse manlike en vroulike gevangenes te ondersoek. Die studie het ook ten doel gehad om die geldigheid, faktorstruktuur en betroubaarheid van die PAQ op ’n steekproef van Suid-Afrikaanse gevangenes te ondersoek. Binne hierdie navorsingstudie is 814 Suid-Afrikaanse gevangenes lukraak gekies met behulp van die sistematiese ewekansige steekproeftegniek, wat ‘n waarskynlikheidsteekproefnemingsmetode is. Die steekproef van hierdie studie het 787 geletterde manlike gevangenes en 27 geletterde vroulike oortreders ingesluit. As gevolg van die uitdagings wat die navorser in die gesig gestaar het om voldoende deelname van vroulike

gevangenes te verkry, is die steekproef van vroulike oortreders egter van die studie uitgesluit. Die steekproef van hierdie navorsingstudie het dus deelnemers ingesluit wat Engels magtig was, kon lees en skryf, ouer as 21 jaar was, ’n geletterdheidsvlak bo Graad 6 gehad het en nie paroolafwagtend was nie. Die resultate van die Verkennende Faktoranalise (VFA) deur SPSS en Mplus, asook die Bevestigende Faktoranalise deur Mplus, het aangedui dat ’n alternatiewe tweefaktormodel vir Suid-Afrikaanse manlike gevangenes ’n aanvaarbare model was. Hierdie tweefaktormodel het twee subskale, Gedragsaanpassing en Emosionele Aanpassing, ingesluit, wat waardevolle insigte bied in die onderliggende struktuur van die PAQ binne hierdie spesifieke bevolking. Die model bied ’n kragtige raamwerk vir die ontleding van die PAQ binne hierdie steekproef, wat ’n genuanseerde begrip bied van die sielkundige profiele van manlike oortreders en die verbetering van die bruikbaarheid van die meetinstrument in toegepaste instellings. Daarbenewens het die studie sterk bewyse gelewer vir beide die gelyktydige en diskriminante geldigheid van die PAQ, wat die kragtigheid en betroubaarheid daarvan versterk as ’n meetinstrument vir die meting van korrektiewe aanpassing. Cronbach se alfakoëffisiënt (α) en McDonald’s omega-koëffisiënt (ω) is bereken om die interne ooreenstemming van die twee geïdentifiseerde faktore aan te dui. Die PAQ het ’n aanvaarbare vlak van interne konsekwentheid in hierdie navorsingstudie getoon.

Sleutelterme: aanpassing, korrektiewe aanpassing, gevangenes, geletterde, psigometriese eienskappe, geldigheid, betroubaarheid, korrektiewe instelling, maksimum-sekuriteit korrektiewe sentrum, privaat maksimum-sekuriteit korrektiewe sentrum

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1.1 Introduction

Chapter 1 briefly discusses the problem statement, research aim, research goal, research questions, research design, research methodology, research participants and sampling technique, data collection, data analysis, ethical considerations, value, and clarifications of the key concepts. An outline of the structure of the manuscript follows this.

1.2 Problem Statement and Aim of the Study

Effective adjustment in a correctional environment is essential for incarcerated offenders, as it directly impacts their rehabilitation, emotional regulation, and ability to avoid violent conflicts and disciplinary infractions (Adams, 1992; Blevins et al., 2010; Condon et al., 2008; Gonçalves, 2014; Hochstetler et al., 2010; Kerbs & Jolley, 2009; Picken, 2012). Furthermore, successful adjustment is critical for easing the transition back into society and reducing the risk of recidivism (Canda et al., 2015; Crank, 2010). The Prison Adjustment Questionnaire (PAQ; Wright, 1983) was developed to measure self-perceptions of adjustment among incarcerated offenders, encompassing external, internal, and physical aspects (Cook, 2018; Wright, 1985b, 1986a). Traditionally, classification has played a vital role in the initial placement of offenders into correctional centres and the assessment of transfers (Department of Correctional Services [DCS], 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). Wright (1983) sought to develop innovative classification procedures through his research to assist administrators in accurately assigning incarcerated offenders to suitable correctional centres. The knowledge derived from comprehending adjustment patterns was employed by Wright (1983) to suggest innovative approaches for placing incarcerated offenders in correctional environments (Wright, 1983, 1985b).

While the PAQ has been utilised internationally and has shown acceptable reliability in South African studies (Duba, 2022; Langenhoven, 2023; Rogers, 2019), its validity within the South African correctional context remains untested. As the importance of correctional adjustment becomes increasingly evident, evaluating the PAQ's psychometric properties is crucial to ensure it is a valid and reliable measurement scale for assessing adjustment among South African offenders.

This study aimed to investigate the psychometric properties of the Prison Adjustment Questionnaire (PAQ) among a sample of South African incarcerated male and female offenders. This evaluation will help determine whether the PAQ is an appropriate measurement scale for measuring correctional adjustment in this specific population.

1.3 Research Aim and Questions

This study aimed to investigate the psychometric properties of the PAQ on a sample of South African incarcerated male and female offenders. The current study also aimed to explore the validity, factor structure, and reliability of the PAQ on a sample of South African incarcerated offenders. The following research questions were explored:

- How does the factor structure of Wright's (1983) PAQ that was conducted on a New York sample of male incarcerated offenders compare to a South African sample of incarcerated offenders?
- Is the Prison Adjustment Questionnaire (PAQ), developed by Wright (1983), a valid and reliable measurement scale for evaluating South African incarcerated offenders' correctional adjustment?

1.4 Research Design and Method

In this study, the researcher employed a cross-sectional survey design, which is consistent with the non-experimental, ex-post-facto approach (Creswell, 2014; Stangor, 2011). This design involves collecting data from participants at a single point in time,

allowing for the assessment of relationships between variables without any manipulation or intervention (Creswell, 2014). The study used structured questionnaires, specifically the Prison Adjustment Questionnaire (PAQ; Wright, 1983), to gather quantitative data from a representative sample of incarcerated male and female offenders. The sample was selected using random sampling to adequately represent the population's demographic characteristics (Maree, 2007). This methodological approach is well-suited for evaluating the current state of correctional adjustment among offenders without introducing any experimental interventions or environmental changes (Creswell, 2014).

1.5 Research Participants and Sampling

Within this research study, approximately 1000 South African incarcerated offenders were randomly selected using the systematic random sampling technique (Stangor, 2011, 2015), a probability sampling method. Probability sampling is necessary to ensure that a sample is representative of a population. Within probability sampling, procedures are used to ensure that each person in the population has an equal chance of being selected to form part of the sample (Stangor, 2015). A representative sample makes it possible to draw inferences about the whole population. Systematic random sampling entails a sampling method in which the first case is selected randomly from a list of population members, and subsequent cases are selected at prescribed intervals (Irwing et al., 2018). To create the systematic sample, the researcher chooses a random number (e.g., *n*) and then samples the person corresponding to the random number (e.g., person number *n*) from the sampling frame; the rest of the sample is then selected as every nth person after the first selected person (Stangor, 2015). In the current study, the researcher obtained a complete list of the incarcerated offenders from the selected correctional centres and then randomly selected participants from the sampling frames that fulfilled the characteristics needed for the research study. In order to obtain a systematic sample from a population, the population needs to be divided into groups and all units of each

group (Irwing et al., 2018). In this case, the population of incarcerated offenders were divided into different correctional centres in different provinces, and different numbers of incarcerated offenders were randomly selected from each correctional centre as the units of analysis. Sampling frames were obtained by contacting the correctional centres and relevant staff at these correctional centres and explaining the number of participants needed and the inclusion and exclusion criteria. Meetings were scheduled between the researcher and the relevant staff members of each correctional centre to obtain the needed research sample from each correctional centre. The researcher also informed the incarcerated offenders about the research study's nature and objectives and gave them free will to participate. The advantages of systematic random sampling include saving time and effort in obtaining the research sample (Irwing et al., 2018). However, a disadvantage of systematic random sampling is that when the list of participants is arranged in some periodic or cyclical order, the resulting sample might not be representative (Irwing et al., 2018). Therefore, caution needs to be taken when examining the list. Participants were included in this study if they (i) were proficient in English, (ii) could read and write, (iii) were over the age of 21 years, (iv) had a literacy level above Grade 6, and (v) if they were incarcerated and not awaiting parole. No participant was excluded from the study based on their ethnic group.

1.6 Measuring Instruments

The following measurement scales were utilised in this study:

- Biographical Questionnaire
- The Prison Adjustment Questionnaire (PAQ)
- The Scale of Experience in Prison (SEP)
- The Depression, Anxiety and Stress Scale (DASS)
- The Prison Adjustment Scale (PAS)

These measurement scales are briefly discussed below.

1.6.1. Biographical Questionnaire

A biographical questionnaire was administered to collect background information on the South African incarcerated offenders. The questions of this questionnaire focused on (i) age, (ii) ethnicity, (iii) home language, (iv) marital status, (v) employment status at the time of arrest, (vi) level of education, (vii) type of sentence, (viii) sentence length, (ix) number of years already incarcerated, (x) programme involvement, (xi) gang involvement, and (xii) gang affiliation.

1.6.2 The Prison Adjustment Questionnaire (PAQ)

The Prison Adjustment Questionnaire (PAQ; Wright, 1983) was used to measure the self-perceptions of correctional adjustment of the offenders. The PAQ was developed by Wright (1983) to evaluate the comparative correctional adjustment of incarcerated offenders within the correctional environment contrary to the public while also evaluating discomfort with incarceration across several dimensions (Rogers, 2019; Warren, 2003). The PAQ comprises 30 items and three subscales, namely Internal Adjustment, External Adjustment and Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright, 1983, 1985b). The PAQ focuses on incarcerated offenders' quality of life within the correctional environment (Duba, 2022; Duba & Jordaan, 2023) and is utilised in research studies to determine distress levels of incarcerated offenders within the correctional environment (Thompson & Loper, 2005) by examining incarcerated offenders' perceptions of (a) whether life within a correctional centre is worse than life in the free world, (b) the frequency of specific stressors, and (c) satisfactory correctional provisions (e.g., receiving enough food and having enough privacy) (Loper, 2002). The PAQ's 30 items focus on nine problems that incarcerated offenders may experience. These problems include the following: the uncomfortableness offenders feel around others; the fear, illness, anger and

injury that offenders experience while incarcerated; trouble sleeping; arguments and physical fights they are involved in, as well as being taken advantage of by other offenders (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2002; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright, 1983). The responses are rated on a five-point Likert-type scale ranging from 0 ("*never*") to 4 ("*always*"). Adequate internal consistencies (Cronbach's alpha) for the PAQ subscales have been identified as ranging from .67 to .73 for Internal Adjustment, .74 to .76 for External Adjustment, and .50 to .71 for Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Van Tongeren & Klebe, 2010; Wright, 1985a). A higher score indicates that incarcerated offenders encounter more significant challenges in adjusting to incarceration. Conversely, lower scores on the PAQ suggest fewer adjustment issues and more successful adjustment within the correctional centre (Wright, 1983).

1.6.3 The Scale of Experience in Prison (SEP)

The Scale of Experience in Prison (SEP; Liu & Chui, 2014) measured the incarcerated offenders' experience of the correctional environment. The SEP was administered to study the concurrent validity of the PAQ. The SEP consists of 12 items, and the responses are rated on a five-point Likert-type scale ranging from 1 ("*strongly disagree*") to 5 ("*strongly agree*"). Higher scores indicate positive correctional centre adjustment (Liu & Chui, 2014). An exceptional internal consistency (Cronbach's alpha) of .91 has been identified for the SEP (Liu & Chui, 2014).

1.6.4 The Prison Adjustment Scale (PAS)

The Prison Adjustment Scale (PAS; Dye & Aday, 2013) was used to measure the overall correctional adjustment of incarcerated offenders. The PAS was administered to study the concurrent validity of the PAQ. The PAS has five subscales: Outside Deprivations, Lack

of Autonomy and Control, Psychological Adjustment, Physical Prison Adjustment, and Inside Social Life. The PAS has 21 items, and the responses are rated on a three-point Likert-type scale ranging from 0 to 4, where 0 is "*never*", 1 is "*rarely"*, 2 is "*sometimes*", 3 is "*often*", and 4 is "*always*". Lower scores indicate better correctional adjustment (Dye et al, 2014). Adequate internal consistencies (Cronbach's alpha coefficients) have been reported for the PAS subscales, namely .761 for Psychological Adjustment, .743 for Outside Deprivations, .649 for Lack of Autonomy and Control, .699 for Physical Prison Adjustment, and .629 for Inside Social Life (Cook, 2018). Animasahun (2008) and Dye et al. (2014) also reported good to exceptional internal consistencies for the total PAS ranging from .85 to .93.

1.6.5 The Depression, Anxiety and Stress Scale (DASS)

The Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995) was used to measure the emotional distress (negative emotional states) of the incarcerated offenders. The DASS was administered to study the discriminant validity of the PAQ. This scale consists of 42 items that assess negative emotional states on three subscales, namely (i) Depression, (ii) Anxiety, and (iii) Stress (Lovibond & Lovibond, 1995; Page et al., 2007). The three subscales relate to the reactive symptoms within a stressful environment, such as irritability, tension, or the inclination to overreact (Grennan & Woodhams, 2007; Steyn & Hall, 2015). The responses are rated on a four-point Likert-type scale ranging from 1 ("*did not apply to me at all*") to 4 ("*applied to me very much*") (Page et al., 2007). Scores for each subscale are calculated by summing the responses (Steyn & Hall, 2015). Higher scores indicate higher levels of depression, anxiety and stress among incarcerated offenders (Lovibond & Lovibond, 1995). Good to exceptional internal consistencies (Cronbach's alpha coefficients) have been determined for the DASS subscales, respectively ranging from .85 to .97 for the Depression subscale, .81 to 92 for the Anxiety subscale, and .80 to .95 for the

Stress subscale (Antony et al., 1998; Basha & Kaya, 2016; Brown et al., 1997; Lovibond & Lovibond, 1995).

1.7 Data Collection Procedures

Data was collected from South African incarcerated offenders through the administration of the Biographical Questionnaire, The Prison Adjustment Questionnaire (PAQ), The Scale of Experience in Prison (SEP), The Depression, Anxiety and Stress Scale (DASS), and The Prison Adjustment Scale (PAS). The questionnaires were administered in booklet form and returned to the researcher after completion. The researcher was present while administering the questionnaires and available to answer any questions the research participants might have.

The questionnaires, detailed information, and informed consent forms were distributed as hard copies to the participants before the data collection sessions started. The researcher read the information regarding the research study and the informed consent form to the participants and gave them time to complete the informed consent form when they indicated their willingness to participate in the research study. Afterwards, a hard copy of the questionnaires, in booklet form, was distributed for them to complete during an hour-long session within the correctional centre. It was handed to the researcher and relevant staff, who assisted the researcher upon completion. Participation was purely voluntary because any individual who did not wish to participate was not coerced. In order to ensure anonymity and to minimise anxiety, participants did not have to provide any form of identifying details of themselves that could be linked back to them (e.g., names, contact numbers, offender numbers).

1.8 Data Analysis

Data collected from the participants was analysed using SPSS (Version 30; IBM Corporation, 2024) and MPlus (Muthén & Muthén, 2015). Descriptive statistics of the sample

were compiled. Exploratory Factor Analysis (EFA) was done to analyse the underlying pattern of correlations between a set of measured variables and to explore the possible factors (subscales) of the PAQ (Stangor, 2015). Confirmatory Factor Analysis (CFA) was done to confirm the factors (subscales) of the PAQ. CFA was done via the MPlus modelling framework.

Furthermore, Cronbach's alpha and Coefficient omega were used to measure the reliability of the PAQ. Pearson correlation coefficients were used to investigate the concurrent and discriminant validity of the PAQ. One data set was utilised; however, the data set was divided into two parts to conduct EFA and CFA independently.

1.9 Ethical Considerations

Due to the coercive nature of the correctional environment, incarcerated offenders are susceptible to harm and exploitation by researchers (Ayamba et al., 2017). Consequently, strict adherence to the Ethical Code of Conduct established by the Professional Board of Psychology in South Africa was crucial for this study (Allan, 2016). The study received ethical clearance from the General and Human Research Ethics Committee (GHREC) at the University of the Free State (Ethical clearance number: UFS-HSD2020/2083/21) and approval from the Department of Correctional Services (DCS). After acquiring all necessary permissions, the researcher began collecting data by visiting the approved correctional centres. Participants were verbally invited to participate in the study, and those who agreed received information sheets outlining the inclusion and exclusion criteria, emphasising that participation was entirely voluntary and without reimbursement. The information sheets also provided an overview of potential risks and benefits associated with the study. To address any emotional or psychological distress that might arise, a psychologist and/or social worker was available to provide debriefing and counselling services. In line with ethical guidelines, written informed consent was obtained from participants at the start of the study (Flick,

2011). The researcher consistently reminded participants that they had the right to withdraw from the study at any time without facing any negative consequences (Gravetter & Forzano, 2018). This approach ensured that participation remained voluntary throughout the research process. Participants' identifying information was not required to complete the questionnaire, and coding systems were employed to maintain anonymity. Additionally, data obtained from the study was securely stored to further protect participants' anonymity and confidentiality.

1.10 Value of the Study

Offenders encounter difficulties when they are unable to adjust while being incarcerated in a correctional centre. This study aimed to determine whether the PAQ can be utilised to measure the adjustment of South African male and female incarcerated offenders as well as to determine the psychometric properties of the PAQ. The findings could contribute to future research about male and female incarcerated offenders in a South African context. Also, if the Department of Correctional Services can measure the adjustment of incarcerated offenders successfully, it can lead to meaningful interventions that can aid in recognising and solving adjustment problems of incarcerated offenders.

1.11 Clarification of Concepts

The main concepts used in this study are explained next.

1.11.1 Adjustment

Adjustment refers to offenders' behavioural and psychological modifications, or reactions, to incarceration. This involves how an offender reacts to the punitive correctional centre subculture and how this modification influences the offender's life during incarceration and his/her transition back into the community post-release (Cook, 2018).

1.11.2 Correctional Adjustment

Correctional adjustment encompasses how an incarcerated offender can cope with the unique demands, challenges, frustrations and deprivations of the correctional environment (Picken, 2012; Sykes, 1958; Weiten et al., 2018).

1.11.3 Incarcerated Offenders

Incarcerated offenders in this study refer to offenders held in a South African correctional centre aged 21 years and older.

1.11.4 Literate

Literate in this study refers to offenders with a Grade 6 or above literacy level.

1.11.5 Psychometric Properties

Psychometric properties refer to the measurement characteristics of a psychological test or assessment tool that evaluate its reliability, validity, and various other aspects of its quality and usefulness. These properties ensure the assessment tool provides accurate and meaningful results (DeVellis, 2017).

1.11.6 Validity

Validity refers to the extent to which a test or instrument accurately measures what it is intended to measure. It encompasses various forms, including content, construct, and criterion-related validity, each addressing different aspects of the measurement's accuracy and relevance to the assessed construct (Cohen et al, 2018).

1.11.7 Reliability

Reliability refers to the consistency and stability of the scores obtained from a test or measurement instrument. It indicates the extent to which the instrument produces the same results under consistent conditions over time, ensuring the measurement is dependable and repeatable (Kline, 2015).

1.11.8 Correctional Centre

A correctional centre is a facility designed for the incarceration and rehabilitation of individuals who have been convicted of crimes. These centres aim to provide secure confinement while offering programmes and services to reform and reintegrate offenders into society (Seiter, 2020).

1.11.9 Maximum-Security Correctional Centre

A maximum-security correctional centre is a type of correctional facility designed to house incarcerated offenders who pose the highest security risks due to the severity of their offences, their history of violence, or their potential for escape. These centres have stringent security measures, including high walls, reinforced fences, extensive surveillance, and controlled movement of incarcerated offenders to prevent escapes and ensure the safety of staff and other incarcerated offenders (Seiter, 2020).

1.11.10 Private Maximum-Security Correctional Centre

A private maximum-security correctional centre is a high-security correctional facility operated by a private corporation under contract with a government entity. These facilities are designed to house the most dangerous and high-risk offenders, providing enhanced security measures such as reinforced structures, extensive surveillance, and controlled incarcerated offender movement. The primary distinction is that management and operational responsibilities are handled by a private company rather than a government agency (Clear et al., 2018).

1.12 Structure of Manuscript

Chapter 1 presented the problem statement and clarified numerous concepts, including the aim of the study. Chapter 2 focuses on the extensive literature on adjustment among incarcerated offenders and related concepts. Chapter 3 encompasses an extensive literature review of the Prison Adjustment Questionnaire (PAQ), emphasising the

development and uses of the PAQ. Chapter 4 thoroughly explores factor analysis, and reliability and validity. Chapter 5 discusses the research methodology, and Chapter 6 presents the results. The dissertation concludes in Chapter 7 with the study's conclusions, limitations, and recommendations for future research.

1.13 Summary

Chapter 1 briefly discussed the problem statement, the aim of the study, the research objectives and the research questions. It included a discussion on the research methodology, the research participants and the sampling technique, the data collection procedures and data analysis. The ethical considerations, value of the study, clarification of the concepts used in this study, and an outline of the structure of the manuscript were also included in this chapter.

Chapter 2: Adjustment in the Correctional Environment

2.1 Introduction

This chapter aims to theorise the various concepts of correctional centres: correctional centres in South Africa; incarceration; incarceration and correctional experiences, challenges, and consequences; adjustment to the correctional environment; what correctional adjustment is; internal, external, and physical adjustment; predictors of correctional adjustment and maladjustment; the deprivation and importation model; female correctional adjustment; and the importance of adjustment within the correctional environment.

2.2 Correctional Centres

Correctional centres are complex systems where offenders from diverse psychological, social, and cultural backgrounds are detained and interact within a highly restricted and deprived environment (Langenhoven, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024; Wenk & Moos, 1972). How individuals interact and relate within the correctional environment differs from a typical environment (Presley et al., 2023). The atmosphere within the correctional environment tends to push incarcerated offenders toward uncivil and unprincipled behaviour (Johnson, 2002). These environments are often characterised as stressful (Maschi et al., 2015). The rules and regulations within the correctional environment can be overly restrictive, prohibiting incarcerated offenders' behaviours that are usually considered legal and acceptable in other contexts (Camp et al., 2003). Deviating from prescribed rules within the correctional environment and regulating behaviour is viewed as misconduct (Eichenthal & Jacobs, 1991; Irwin, 2005; Wooldredge, 1994, 1998). Functioning within the correctional environment can be challenging, especially for a population that has had difficulties abiding by the rules of society in the past (Bosma et al., 2020). Furthermore, correctional centres are characterised by a limited connection to the outside world, where daily activities are restricted through a strict and unchanging schedule

and fixed routines (Burns, 1982; Gillespie, 2004; Stanko, 2004). Goffman's (1968) concept of total institutions suggests that the locked doors, high walls, correctional officers, and surveillance cameras in correctional centres serve as barriers to the outside world. Additionally, these physical features constantly remind incarcerated offenders of their powerlessness (Crewe, 2007). Although these physical features are intended to ensure safety, they also create elements of confinement, control, and routine (Mortimer, 2017). Correctional centres operate under a bureaucratic, authoritarian system that maintains a clear division between staff and offenders, employing a robust disciplinary management system (Ross et al., 2011). Maintaining order is essential for correctional administrations because misconduct poses a safety risk and threatens the well-being of correctional personnel and incarcerated offenders (Bosma et al., 2020). Furthermore, institutional misconduct can lead to less effective organisation of correctional centres and increased institutional costs (Goetting & Howsen, 1986).

Logan (1993) proposed that a correctional centre's primary role is to discipline incarcerated offenders through sentence lengths that align with their offences according to the confinement model. However, recent research contends that the focus of a correctional centre should instead be to facilitate incarcerated offenders' rehabilitation and reintegration back into society while maintaining a safe and stimulating environment (Bosma et al., 2020; Snacken, 2010; Van Zyl Smit & Snacken, 2009). Another critical aspect regarding confinement is to guarantee the safety of the public and the incarcerated offenders by detaining them inside secure correctional centres (Bolger, 2005; Daggett & Camp, 2009). The South African Department of Correctional Services (DCS) is responsible for guaranteeing that correctional centres are safe and secure for incarcerated offenders, correctional staff members, visitors, and community members. The safety and security of incarcerated offenders can be best ensured through a well-ordered and fair-administered system that treats

offenders with dignity and humanity. Security and order are preserved through attention to physical and procedural matters, security intelligence, and positive relationships between incarcerated offenders and correctional staff (DCS, 2020, 2022; Langenhoven, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024). The daily routines, interactions, and correctional staff presence are crucial to maintaining a safe, humane, and secure correctional environment. The rules and regulations of correctional centres direct incarcerated offenders' daily lives, and established routines aim to foster a sense of safety and security. By following these rules and routines, incarcerated offenders become more cooperative within the correctional environment (DCS, 2022; Duba, 2022; Duba & Jordaan, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019). Correctional centres limit the personal control of incarcerated offenders by sustaining a static and well-ordered environment (Goffman, 1968; Hensley et al., 2003). Within the correctional environment, the control and power of the environment may have an immense impact on the incarcerated offenders' behaviours and levels of participation (Mortimer, 2017). In addition, a lack of personal control over an offender's environment may also lead to depression, stress, and anxiety (Wooldredge, 1999, 2006).

Additionally, correctional centres must meet the essential requirements of incarcerated offenders by delivering basic services; they are also a last resort for institutionalisation (Cropsey et al., 2007). The most significant task, however, is to identify and address the incarcerated offenders' basic needs to ensure they are more productive (Cropsey et al., 2007). Even though these individuals are exposed to others with malicious backgrounds, a correctional centre remains the best environment for rehabilitation or development to become citizens who obey the law (Cropsey et al., 2007).

2.2.1 Correctional Centres in South Africa

There are 237 active correctional centres in South Africa, housing approximately 143,223 incarcerated offenders (DCS, 2022). Six correctional centres are temporarily closed due to dilapidation or infrastructure upgrading (DCS, 2022). The total bed space capacity for incarcerated offenders reduced from 110,836 during 2020/2021 to 108,804 during 2021/22, while the number of incarcerated offenders increased from 140,948 to 143,223 between 2020/21 and 2021/22. Additionally, 758 bed spaces were lost due to correctional centres' partial or complete closure (DCS, 2022). The management of these correctional centres in South Africa is entrusted to approximately 42,061 staff members of the Department of Correctional Services (DCS, 2020). In the current study, four correctional centres were sampled. The initial sample consisted of 814 participants, However, only 787 male offenders were used for the analysis due to the inadequate amount of female offenders that participated in the study.

South African correctional centres are grouped into three categories: maximum-security, medium-security, and minimum-security centres (Jordaan, 2014; Langenhoven, 2023; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024). Maximum-security correctional centres house incarcerated offenders considered a danger to society and themselves and who pose a significant risk to other individuals. Therefore, their privileges, movement, and association rights are severely restricted (Jordaan, 2014; Neser, 1993; Pretorius et al., 2024). Maximum-security correctional centres are consistently fortified and regulated, with incarcerated offenders subject to rigorous and direct oversight to limit their mobility and interactions (Matshaba, 2007). In medium-security correctional centres, offenders serving sentences represent a moderate risk to community safety, and their entitlements to privileges, movement, and associations are moderately restricted. Minimum-security correctional centres cater to incarcerated offenders with minimal threat to society,

and their rights are minimally constrained (Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Rogers, 2019).

In South Africa, there are two types of maximum-security correctional centres, namely (i) governmentally operated maximum-security correctional centres and (ii) private maximum-security correctional centres. Private maximum-security correctional centres, also known as public-private partnership correctional centres, differ from government-operated correctional centres with regard to facilities, staff-to-offender ratio, and rehabilitation efforts (Du Preez & Luyt, 2006; Jordaan & Hesselink, 2022). Private maximum-security correctional centres are corporations that the government engages through contractual agreements to manage and oversee correctional centres on its behalf (Du Preez & Luyt, 2006; Hesselink-Louw, 2004; Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Seiter, 2008). The DCS has contracted two privately operated maximum-security correctional centres: Mangaung Correctional Centre (MCC) and Kutama Sinthumule Correctional Centre (KSCC) (Jordaan & Hesselink, 2022; Rogers et al., 2024). These two private correctional centres are both maximum-security correctional centres that house incarcerated offenders who received a maximum-security classification by the DCS (DCS, 2022; Matshaba, 2007). These two private maximum-security correctional centres in South Africa had bed capacities of 2928 and 3024, respectively, and they are subject to stringent regulations to prevent overcrowding (DCS, 2022; Maqhina, 2022). The two private maximum-security correctional centres were initially contracted out in 2001 and 2002, respectively, each with 25-year agreements with the DCS. The DCS is obligated to assume control of these two correctional centres after their contracts expire on June 30, 2026, and February 15, 2027, respectively (DCS, 2022). The key benefit of correctional centres established through public-private partnerships lies in the quicker development and initiation of these centres. This is attributed to privately owned companies handling such centres'

design, construction, financing, and management without immediate financial burden on the state (Hodge & Greve, 2017; Sekhonyane, 2003). Moreover, on a global level, privately-run correctional centres generally offer higher quality centres and enhanced services, including customised rehabilitation programmes, compared to government-operated correctional centres (Maqhina, 2022; Sekhonyane, 2003). These correctional centres that are privately managed also ensure the absence of overcrowding, with incarcerated offenders adhering to stringent rules, schedules, and daily programmes to facilitate the implementation of various interventions and developmental initiatives (Du Preez & Luyt, 2006; Jordaan, 2014; Loots, 2010; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Sekonyane, 2003). In South Africa, private correctional centres are seen as an implied upgrade compared to government-run correctional centres, given the challenging conditions often observed in DCS-controlled centres (Maqhina, 2022; Ntsobi, 2005). In 2018, following the annual evaluation of one of these private maximum-security correctional centres, a report authored by a judge from the Constitutional Court of South Africa praised the centre for its cleanliness, a wide range of vocational training programmes, and numerous recreational activities (Constitutional Court of South Africa, 2018). However, even with these enhanced conditions, incarcerated offenders serving sentences in privately operated maximum-security correctional centres still encounter extremely rigid and punitive situations (Jordaan, 2014; Matshaba, 2007), making them more susceptible to experiencing and enduring mental health concerns (Bedaso et al., 2020).

To ensure the successful reintegration of incarcerated offenders into society, correctional centres furnish each offender with an individualised case management plan, subject to regular assessments, enabling these individuals to acquire the essential skills and undergo development (Gover et al., 2000; Hill et al., 2016; Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Seiter, 2008; Wolff et al., 2012). The DCS has

effectively provided correctional programmes to 78,148 incarcerated offenders with Correctional Sentence Plans (CSPs) to enhance their life skills by addressing their offending behaviour (DCS, 2022). Recognising worldwide acknowledgement of life skills as crucial for economic and social success, the DCS ensures offenders have access to skills development programmes, including occupational and vocational training (DCS, 2022). In the fiscal year 2021/22, the DCS successfully implemented skills development initiatives, training offenders in vocations to enhance their employability and provide better work or entrepreneurial prospects (DCS, 2022). A total of 11,334 offenders participated in Short Occupational Skills programmes, while 39,560 engaged in Long Occupational Skills Programmes. Additionally, 6,922 offenders participated in TVET College programmes through partnerships with community colleges, representing an improvement from the previous fiscal year's 5,560 participants in 2020/21 (DCS, 2022). The DCS facilitated the integration of e-learning in DCS TVET Colleges. Notably, during the 2021/22 fiscal year, 2,200 offenders acquired skills such as bricklaying, plastering, painting, and vegetable production (DCS, 2022). Given the country's relatively high unemployment rate, currently estimated at around 34.5%, the prospect of job opportunities will positively impact the overall rehabilitation and social reintegration process (DCS, 2022).

According to the Correctional Services Act (Act 111 of 1998), private maximum-security correctional centres may not:

1. "Take corrective action against incarcerated offenders nor impose penalties on them,
2. Be immersed in determining calculating sentences,
3. Decide at which correctional centre an incarcerated offender must be detained,
4. Determine placement or release of an incarcerated offender,
5. Be involved in the enactment of community corrections,
6. Grant temporary leave, and

7. Subcontract, yield, allocate or delegate any of the affairs under the contract unless under authorisation given in the contract" (Republic of South Africa, 1998, p. 65).

As a result, private maximum-security correctional centres lack the jurisdiction to decide the placement of incarcerated offenders or to select which specific offender they will admit and accommodate within their correctional centres. The Department of Correctional Services (DCS) categorises incarcerated offenders and assigns a suitable correctional centre for these categorised offenders according to this classification. However, incarcerated offenders can request a transfer to or from a private maximum-security correctional centre, subject to the DCS's review and approval/disapproval (Jordaan, 2014; Matshaba, 2007; Pretorius, 2019). Recommendations have been made to encourage public maximum-security correctional centres to adopt the strategies employed by private maximum-security correctional centres for the optimal development and treatment of incarcerated offenders (Gover et al., 2000; Hill et al., 2016; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Seiter, 2008; Wolff et al., 2012).

2.3 Incarceration

Incarceration implies that individuals are removed from society, their families, and friends and are detained in correctional centres where restricted resources and structure exist and security is implemented (Berg et al., 2022; Hofmeister & Soprych, 2017; Jordaan, 2014; Mandell, 2006; Petersilia, 2003; Rocheleau, 2011; Rogers, 2019). Regarding the legal system, incarceration is seen as a form of punishment (Newman, 2008). This usage of the term has two meanings. The initial interpretation suggests societal retribution, suggesting that offenders who inflicted suffering on others for fairness should also experience suffering. The second interpretation highlights rehabilitation, focusing on reducing the likelihood of offenders engaging in future criminal behaviour. According to Apel and Diller (2016), the purpose of incarceration is to serve as operant punishment, reducing the likelihood of

offending behaviour. For Ross (2012, p. 1), incarceration is comparable to a “death sentence” because of insufficient healthcare, unhygienic living conditions, and pervasive violence. Additionally, incarceration contributes to increased poverty, causes behavioural problems in the children of those incarcerated offenders, causes substance abuse, and exacerbates the physical and mental health of incarcerated offenders (Boen, 2020; Chen et al., 2015; DCS, 2022; Hammett et al., 2002; Hofmeister & Soprych, 2018; Huebner, 2005; Langenhoven, 2023; Lugalia-Hollon & Cooper, 2018; Massoglia, 2008a; Massoglia & Remster, 2019; Morenoff & Harding, 2014; Powel-Wiley et al., 2017; Pretorius et al., 2024; Rogers et al., 2024; Schnittker & John, 2007; Simes, 2019; Tyler & Brockmann, 2017; Western, 2002, 2006; Western et al., 2001; Wildeman & Wang, 2017). Incarceration is considered a means of reducing offending behaviour, either through deterring potential offenders by incarcerating and reducing their ability to perform further offences or by placing them under correctional supervision and reforming them into citizens who obey the law (Barbarino & Mastrobuoni, 2007; DCS, 2022; Giffard & Muntingh, 2006).

There is a clear distinction between passive and active incarceration in the context of correctional services. Passive incarceration involves the rehabilitation and development of offenders through the utilisation of passive supervision methods. Examples include locking up incarcerated offenders, reasonably handcuffing them, and keeping them under active custody to avoid possible escapes (Hesselink-Louw, 2004). However, active incarceration involves developing offenders through active methods, such as intervention and prevention programmes (Hesselink-Louw, 2004). These programmes are congruent with the aim of the DCS (2022) to use active management, where correctional officers would engage with incarcerated offenders rather than use violence when it comes to the management of and interaction with incarcerated offenders. According to the DCS (2022), abandoning violence as a means of control by correctional officers would foster positive relationships between

correctional staff members and incarcerated offenders. However, for Liebling et al. (2011), relationships between correctional staff members and incarcerated offenders are usually artificial and have limits.

Prevention is designed to teach incarcerated offenders to adjust to the correctional environment and equip them with practical social skills. These skills aim to empower them to effectively navigate problems and challenges throughout their sentences (DCS, 2022; Duba, 2022; Duba & Jordaan, 2023; Jordaan, 2014; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019). Many re-entry programmes are designed to help incarcerated offenders transition back into society with ease and provide them with alternative forms of reinforcement, which is very beneficial (Apel & Diller, 2016; Jensen & Reed, 2006; Tripodi et al., 2011; Vacca, 2004; Wright et al., 2014) after rehabilitation and development occurred (DCS, 2022). These re-entry programmes can involve various services, including employment assistance and drug counselling, which allow offenders to participate in non-offending behaviours that lead to positive reinforcement (Apel & Diller, 2016). The majority of programmes demonstrate at least some effectiveness in diminishing the rates of reoffending and the revocation of previously incarcerated offenders (Apel & Diller, 2016). Programmes that have been shown to reduce offenders' reincarceration rates include housing assistance (Wright et al., 2014), vocational programmes (Jensen & Reed, 2006; Tripodi et al., 2011), educational programmes (Jensen & Reed, 2006; Vacca, 2004), cognitive behavioural programmes (Chandler et al., 2009; Pearson et al., 2002), and drug rehabilitation programmes (Tripodi et al., 2011). The following section provides a detailed discussion of experiences, challenges, and consequences of incarceration and correctional centres.

2.3.1 Incarceration and Correctional Centre Experiences, Challenges, and Consequences

2.3.1.1 Experiences. Incarcerated offenders are among the most marginalised groups in society (Clements, 2004), experiencing a sense of helplessness and rejection (Condon et

al., 2008). They are often seen as lonely individuals (Morgan & Flora, 2002) who are undereducated, disproportionately poor, uninsured, homeless, and more likely to be people of colour (Tyler & Brockmann, 2017), with higher rates of mental illness, infectious diseases, and substance use disorders (Carcedo et al., 2008; Tyler & Brockmann, 2017). Unfortunately, due to their dissatisfied sense of belonging, social rejection, and feelings of failure, suicide is a significant risk factor among incarcerated offenders (Cramer et al., 2017; Van Orden et al., 2010).

A wide range of factors may influence incarcerated offenders' experience of the correctional environment and act as stressors, such as the physical (Sykes, 1958) and cultural characteristics of the correctional centre, academic resources, life skills training, correctional staff, and recreational time (Umbach et al., 2018). While incarcerated, offenders serving sentences step into a markedly distinct social realm characterised by values, rituals, and regulations designed to control, monitor, disempower, and assimilate them into the system in a submissive manner (Baldry et al., 2003; De Vigianni, 2007; Grunseit et al., 2008; Johns, 2018). Research has shown that offenders serving sentences undergo considerably elevated levels of trauma before, during, and after incarceration compared to the general population (DeVeaux, 2013; Gueta et al., 2021a; Liebling & Ludlow, 2016; Miller & Najavits, 2012; Muntingh, 2009a; Picken, 2012; Rogers, 2019; Wright, 1983). Incarcerated offenders also encounter social trauma and stress as a consequence of being separated from their families and the broader community (Maschi et al., 2015). While correctional centres present an opportunity for rehabilitation and some physical health benefits (Baćak & Wildeman, 2015; Spaulding et al., 2011), incarcerated offenders experience the correctional environment as violent, unsafe, degrading, challenging, stigmatising, stressful, traumatising, and dangerous (Adshead & Ferrito, 2015; Anderson et al., 2016; Ferrito et al., 2017; Lahm, 2008; Massoglia, 2008b; Piper & Berle, 2019; Pretorius, 2019; Pretorius et al., 2024; Wolff & Shi,

2009a, 2009b, 2009c). Additionally, incarcerated offenders may experience different forms of trauma during incarceration, such as physical, psychological, or sexual abuse, denial of food, and prolonged exposure to solitary confinement (Dierkhising et al., 2014; Haney, 2006; Kubiak et al., 2018; Maschi et al., 2015; Ross et al., 2008). Isolation (solitary confinement) is imposed as a penalty for institutional violations like fighting or displaying disrespect towards correctional staff, aiming to address conflicts and promptly guarantee the physical safety of vulnerable incarcerated offenders (Western et al., 2021). However, solitary confinement often results in psychological distress, self-harm, post-traumatic stress, and heightened concerns about violence (Western et al., 2021). Solitary confinement tends to lead to psychological distress, self-harm, post-traumatic stress, and fears of violence (Western et al., 2021).

In line with the Trauma-Oriented Recovery Framework (TORF) for offenders, trauma impacts incarcerated offenders on three dimensions—personal, social, and spiritual. Consequently, these repercussions raise the probability of initiating and continuing offending behaviour (Kewley et al., 2020; Ronel, 2015; Ronel & Elisha, 2011). At the personal level, trauma impairs individual psychological functioning and may contribute to offending behaviour (e.g., childhood abuse has lingering effects and can contribute to future involvement in offending behaviours caused by psychological problems such as PTSD) (Craig, Baglivio, et al., 2017; Sansone et al., 2012; Tripodi et al., 2019; Widom, 1989). In addition to past trauma, incarcerated offenders may also undergo another type of trauma resulting from their own violent actions, referred to as perpetrator trauma. This can lead to psychiatric challenges, including complex grief, post-traumatic stress disorder (PTSD), and clinical depression (Gueta et al., 2021a; Mahlako, 2022). Perpetrator trauma is defined as the psychological reactions experienced by perpetrators following their own violent offending (Mohamed, 2015). These psychological reactions encompass symptoms such as hallucinations, disorientation, inexplicable physical ailments, autonomic responses, memory

lapses, flashbacks, nightmares, heightened vigilance, outbursts of anger, and personality changes (Chung et al., 2016; Karam, 2019; MacNair, 1999, 2001, 2002a, 2002b, 2002c, 2008, 2015; Mahlako, 2022; McGlothlin, 2020; Mohamed, 2015; Roldan-Sevillano, 2021). Rachel MacNair initiated her investigation into this phenomenon in the early 2000s and coined the term "Perpetration-Induced Traumatic Stress (PITS)," which is synonymous with perpetrator trauma. Her research focused on the psychological aftermath of taking another person's life, with a primary focus on combat veterans who killed during warfare. MacNair's studies from 2001 to 2015 revealed that these individuals experienced symptoms of stress reactions directly linked to their acts of killing (MacNair, 2001, 2002a, 2002b, 2002c, 2007, 2015). Over time, the concept of violent offending leading to trauma has expanded beyond combat veterans to encompass various groups such as police officers, animal slaughterers, abortionists, and those responsible for mass murders, genocides, and holocausts (Anderson, 2018; Dillard, 2008; Karam, 2019; Kerig et al., 2016; Komarovskaya et al., 2011; MacNair, 2012; Mohamed, 2015; Morag, 2012; Rohlf & Bennett, 2005; Travis, 2009; Tsutsui, 2009; Vice, 2014), concluding that perpetrating acts of violence or causing trauma can leave psychological scars on the perpetrators, possibly being as traumatic as being a victim themselves (Robinson, 2018). If unaddressed, untreated perpetrator trauma can result in substance abuse (Grossman, 1995; MacNair, 2001; Seal et al., 2009), heightened chances of re-offending (Morgan et al., 2012), and recurring cycles of violence, mainly directed towards significant others (Dutton, 1995). When incarcerated offenders are reintegrated into society without addressing their trauma, this trauma transcends personal experience, detrimentally impacting their immediate surroundings through increased aggression and violence directed toward others (Mohamed, 2015). In addition, high guilt levels and avoidance of the traumatic event's stimuli may hinder incarcerated offenders' rehabilitation progress (Papanastassiou et al., 2004; Ternes et al., 2020) and reintegration (Mahlako, 2022).

At the social level, trauma assumes a criminogenic risk factor related to gender construction (Gueta et al., 2021a). Trauma has been recognised as a pivotal pathway to females' involvement in offending behaviour (Salisbury & Van Voorhis, 2009) that demands the introduction of gender-responsive treatment programmes and interventions for incarcerated female offenders (Covington, 2014). In contrast, trauma-informed interventions among male incarcerated offenders are still limited, causing alarm. Vitopoulus et al. (2019) conducted a study among male and female incarcerated offenders where childhood neglect and abuse emerged as a predictor of reoffending in both genders. Being victimised frequently catalyses offending behaviour, and individuals who have experienced offences often struggle to manage their emotional distress (Siegel, 2016). Research illustrates a clear connection between childhood victimisation and the propensity to engage in offending behaviours (Amato, 2017; Hesselink & Jordaan, 2018; Rocque et al., 2017; Siegel, 2016; Zurbriggen et al., 2010). In this context, the pathways taken by research participants towards perpetrating sexual assault and other forms of offending behaviour can be attributed to their experiences of victimisation during childhood within their family environments, characterised by absent or distant parents and weak parent-child bonds (Hesselink & Jordaan, 2018).

Furthermore, being raised in high-risk neighbourhoods characterised by disorganisation, elevated crime rates, poverty, and unemployment plays a role in young offenders adopting maladaptive coping strategies as they seek to navigate and endure their experiences of childhood victimisation (Hesselink & Jordaan, 2018). Furthermore, victimised children often exhibit underdeveloped moral judgement, deficient problem-solving and decision-making abilities, ineffective self-regulation strategies, and resort to antisocial coping mechanisms, such as engaging in aggressive sexual behaviour, pornography consumption, and substance abuse (Booyens & Bezuidenhout, 2018; Finkelhor et al., 2009; Hanson et al., 2015; Hempel et al., 2013; Lanterman et al., 2014; Seto & Lalumière, 2010). When crime-

related trauma remains unaddressed, it can result in a reduced capacity for empathy, compassion, and understanding when it comes to the pain and suffering of other victims (Strong, 2018). To combat feelings of helplessness and to release their frustration and anguish, individuals who have been mistreated or victims may transition into the role of perpetrators, becoming those who commit offences (Strong, 2018). Essentially, this implies that victims might respond to their victimisation by retaliating and becoming offenders themselves (Siegel, 2016; Smith & Ecob, 2007; Strong, 2018). Thus, encountering abuse, neglect, or maltreatment could be a criminogenic need that is not influenced by gender, making it a suitable focus for correctional rehabilitation intervention programmes for both male and female incarcerated offenders (Gueta et al., 2021a). Male incarcerated offenders who undergo trauma and employ concepts of masculinity, such as stoicism and toughness, might be prone to adopting maladaptive coping mechanisms, such as engaging in aggressive behaviour (Ellis et al., 2017). Equally, resisting to admit vulnerability may hinder the effectiveness of correctional centre interventions (Gueta et al., 2021b).

At a spiritual level, adverse life events like trauma can confront the beliefs or overall comprehension of themselves, others, and the world of an incarcerated offender, frequently triggering an existential crisis (Park, 2010). This existential crisis may result in self-centredness, a cognitive bias associated with engaging in offending behaviour (Ben Yair, 2021; Dambrun & Richard, 2011; Jang et al., 2018). Research asserted that some abuse victims display lower scores in several spiritual dimensions, such as perception of productivity, the reason for living, or feelings of peace after surviving a traumatic experience or event (Walker et al., 2009). Moreover, certain incarcerated offenders perceive the correctional centre as socially deprived, and the imperative to contend for personal control and security may heighten self-centredness (Dambrun & Richard, 2011; Jang et al., 2018; Kewley et al., 2020). This escalation of self-centredness can exacerbate the sense of an

existential crisis, resulting in mental health issues, suicide, violence, and distress (Maruna et al., 2006; Vanhooren et al., 2017). If incarcerated offenders' spiritual beliefs are weakened or absent, and no other coping mechanisms are utilised to address their addictions, violence and offending behaviour can transform into a strategy for attaining momentary advantages and upholding a misguided perception of security (Gueta et al., 2021a).

Although there is a general recognition that incidents of violence and victimisation within correctional centres are significantly underreported due to the environment's nature and assessment challenges, published figures for physical victimisation are approximately 20%. Some studies have found that the rates of physical violence in correctional centres are approximately 27 times higher than those reported in the general population (Fazel et al., 2016; Maschi et al., 2015; Rogers et al., 2024; Wolff et al., 2007). Research studies have discovered that a significant proportion of South African offenders, ranging from 25% to 68%, have reported experiencing some form of victimisation, either from fellow incarcerated offenders or correctional staff, during their incarceration (Booyens & Bezuidenhout, 2014; Cronje, 2017; Gear, 2007b, 2010; Peacock, 2008b). This translates to an annual report of approximately 5,714 to 7,474 assaults (equivalent to 15.7 and 20.5 incidents per day, respectively) (DCS, 2018, 2020; Muntingh, 2009b; Rogers et al., 2024). However, Gear (2007b) highlighted that as many as 20% of offenders choose not to report instances of victimisation due to their fear of experiencing further victimisation. Consequently, the correctional environment's distinct contextual characteristics, frustrations, deprivations, and challenges significantly affect an individual's ability to adjust to incarceration (Crank, 2010; DeVeaux, 2013). Research literature surrounding incarceration and socialisation in the correctional environment suggests that incarcerated offenders develop coping mechanisms to adjust to the informal code practised in correctional centres (Umbach et al., 2018). Some incarcerated offenders tend to project a *tough persona* despite being confined while

continually striving to suppress and refute any signs of fear, weakness, or suffering. They also try to avoid collaborating with correctional staff members (Camp et al., 2003; De Vigianni, 2007; Gover et al., 2000; Trulson, 2007). King and Elliot (1977) found that when incarcerated offenders initially struggle to assimilate into the correctional environment, it results in isolation and social withdrawal. However, they become fully immersed in the correctional environment's culture and adjust to it over time. Unfortunately, this adjustment is frequently marked by a recurrence of offending behaviour (Camp & Gaes, 2005; De Vigianni, 2007; Trulson, 2007). Sykes (1958) referred to these adaptations as survival strategies, enabling incarcerated offenders to fit into the correctional centre's community. Nevertheless, such adaptations reinforce a social hierarchy based on the exploitation and victimisation of other offenders. Incarcerated offenders often confront and physically fight to establish dominance, gain recognition, and conceal signs of weakness or subordination (Camp et al., 2003; De Vigianni, 2007; Gilligan, 2009; Johns, 2018; Trulson, 2007). Persisting in violent, intimidating, and bullying behaviours towards fellow incarcerated offenders represents the efforts of those serving sentences to establish legitimacy and build a reputation (Camp & Gaes, 2005; Gover et al., 2000). Sim (1990) asserted that violence is a central element in establishing a social life within the correctional environment. Physical altercations, victimisation, and bullying are prevalent; institutionalisation and participation in symbolic rituals are commonly observed in such an intimidating environment (Camp et al., 2003; De Vigianni, 2007; Pretorius, 2019; Trulson, 2007). However, it is also contended that correctional centres do not uniformly offer a negative experience for all incarcerated offenders, especially those possessing strengths and the ability to maintain some level of self-control over their circumstances (Caulfield et al., 2016; Cohen & Taylor, 1981; Ross & Auty, 2018).

2.3.1.2 Challenges. Challenges entail the obstacles that incarcerated offenders are confronted with during incarceration. Incarcerated offenders are confronted with the harsh reality of losing their freedom, enduring punitive conditions of confinement, adjusting to a new environment, experiencing separation from loved ones, and grappling with various fears related to personal safety and victimisation (Blevins et al., 2010; Carr, 2013; Casey et al., 2016; Crank, 2010; De Viggiani, 2007; Delaney, 2019; DeVeaux, 2013; Jordaan & Hesselink, 2022; Novisky & Peralta, 2020). In some instances, these distinctive stressors can contribute to a decline in the mental well-being of incarcerated offenders (Asberg & Renk, 2012; DeVeaux, 2013; Duba & Jordaan, 2023; Jordaan, 2014; Jordaan & Hesselink, 2022; Langenhoven, 2023; Newhard, 2014; Picken, 2012; Pretorius et al., 2024; Rogers et al., 2024; Stoliker & Galli, 2019). Challenges that incarcerated offenders tend to deal with include bullying, emotional flattening, violence (Jordaan & Hesselink, 2022; Pretorius, 2019; Pretorius et al., 2024; Rideau & Wikberg, 1992; Rogers et al., 2024; Steptoe & Whitehead, 2010), assault on fellow offenders, assault on correctional employees, deprivation of bodily autonomy, gang participation, increased material needs, corruption, inadequate food intake, no privacy, a monotonous environment, overcrowding, homicide, self-isolation, deprivation of socialisation, injury (Belcher & Al Yaman, 2007; De Vigianni, 2007; Duba & Jordaan, 2022; Fitzgerald O'Reilley, 2014; Gear, 2007a, 2007b, 2008, 2010; Gear & Ngubeni, 2002; Ireland & Qualter, 2008; Lahm, 2008, 2009; Langenhoven, 2023; Morash et al., 2010; Perez et al., 2009; Petersilia, 2003; Pretorius et al., 2024; Rogers et al., 2024; Wolff et al., 2007), sexual assault, insignificant health care services, substance abuse (Indig et al., 2010), victimisation, the strain on social bonds, psychological distress, physical and mental health concerns (Ashkar & Kenny, 2008; Blevins et al., 2010; Blitz et al., 2008; Bonta & Gendreau, 1990; Colvin, 2000; Condon et al., 2008; Deloitte Consulting, 2003; Fazel et al., 2016; Haney, 2012; Johns, 2018; Lim et al., 2012; Morin, 2016; Schnittker & John, 2007; Teplin et

al., 2005; Wolff & Shi, 2009c; Wolff et al., 2007; World Health Organization [WHO], 1998; Yang et al., 2009). Safety concerns cause many offenders to develop anxiety that, in turn, causes depression, heart disease, hypervigilance, isolation, obesity, overeating, poor immune functioning, sleep disturbances, sleep deprivation, smoking, and substance abuse (Porter, 2019). Incarcerated offenders tend to experience a sense of threat, necessitating hypervigilance and undermining their ability to adjust to the correctional centre's environment, resulting in adverse health consequences (Margolin & Gordis, 2000; Pretorius et al., 2024). Furthermore, both direct and indirect exposure to victimisation within the correctional environment, including observing the victimisation of others, have been recognised as predictors of poor physical and mental health (Turner et al., 2006). Separation from loved ones, such as friends and family, is another crucial challenge for incarcerated offenders that can worsen social isolation (Comfort, 2007; Novisky & Peralta, 2020).

Researchers commonly note that the difficulties associated with incarceration go beyond the deprivation of freedom (Western et al., 2021). Classic studies focused on the following three challenges: material deprivation (Goffman, 1961; Sykes, 1958), social isolation (Cohen & Taylor, 1981; Ross et al., 2008; Toch, 1977), and psychological distress (Haney, 2006). Material deprivation is a key focus of classic studies on correctional centre challenges that incarcerated offenders face (Western et al., 2021). Incarcerated offenders wear identical uniforms, consume meals from a restricted menu, adhere to hygiene practices with limited approved products, and reside in uniform small cells (Western et al., 2021). Moreover, there has been a reduction in education and work programmes (Phelps, 2011), and overcrowding escalated during the 1980s and 1990s (Pitts et al., 2014). Overcrowding in South African correctional centres continues to have an indirect and direct impact on the available bed space, maintenance of infrastructure, offenders' health conditions, security management, safety of correctional staff, and the capacity of the DCS to provide

development and rehabilitation programmes (DCS, 2022; Duba, 2022; Duba & Jordaan, 2023; Jordaan & Hesselink, 2022; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019). Thus, overcrowding in the correctional environment hinders a safe, healthy, humane environment for offenders and hampers the rehabilitation of offenders. Exceeding the designed capacity of the correctional centre can have detrimental effects on the quality of nutrition, sanitation, and hygiene, including health services, daily activities and programmes, the care for vulnerable groups, and the management of those offenders assessed as high-risk (DCS, 2022; Duba, 2022; Duba & Jordaan, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019). Access to educational programmes, vocational training, and other rehabilitation and developmental programmes is also affected by overcrowding, leading to reduced prospects of successful reintegration into society after incarceration (DCS, 2022; Duba, 2022; Duba & Jordaan, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019). The second challenge, social isolation, is refusing intimate, supportive relationships that promote well-being. Two main risks to correctional centre relationships have been identified as a risk to personal safety and a disruption in the relationship between incarcerated offenders and their families (Western et al., 2021). Social isolation is caused by feeling unsafe during incarceration, as victimisation and sexual violence rates in the correctional environment are five to ten times higher than in the general population (Morgan & Kena, 2018). The potential for violence is isolating as it results in reduced trust in both correctional staff members and fellow incarcerated offenders, ultimately leading to social withdrawal (Walker, 2016). Social isolation is further compounded by disrupting relationships with friends and family (Braman, 2004). While phone calls to friends and family can maintain regular contact, they often incur high costs and are subject to monitoring by correctional staff members (Western et al., 2021). According to Western et al. (2021), visiting correctional centres may require family and friends to travel long distances and is frequently viewed as a privilege that correctional staff

can take away. Separation from family and friends and fear of safety can lead to withdrawal from social interaction and isolation (Haney, 2006). The third challenge, psychological distress, entails that incarceration may lead to hypervigilance, flat affect, and tough personas as incarcerated offenders deal with challenges such as victimisation and conflict (Haney, 2006). Furthermore, in addition to adjusting to the conditions of the correctional environment, researchers found that incarceration can be psychologically damaging, specifically in the short term (Cohen & Taylor, 1981; Haney, 2006). Empirical studies found a correlation between incarceration and depression, lethargy, and serious mental illness (Armour, 2012; Asberg & Renk, 2014; Bantjes et al., 2017; Bisri et al., 2020; Chen et al., 2014; Dixey et al., 2015; Duba & Jordaan, 2023; Dye, 2010; Fazel & Danesh, 2002; Haney, 2017; Jordaan & Hesselink, 2022; Nakato, 2017; Pinheiro et al., 2021; Qhogwana, 2017; Rogers, 2019; Slotboom et al., 2011; Steyn & Hall, 2015; Van Tongeren & Klebe, 2010). A recent meta-analysis conducted by Bedaso et al. (2020) revealed that the worldwide occurrence of depression within the offender population in developing nations stands at 39.2%. Earlier research conducted in South Africa indicated that the prevalence of major depressive disorders among incarcerated individuals was notably higher compared to the general population. Lifetime prevalence rates of 27.5% were discovered in a study conducted by Prinsloo (2013), while Naidoo and Mkize (2012) reported a lifetime prevalence rate of 24.9% among their respective samples of incarcerated offenders. Furthermore, a study by Modupi et al. (2020) found that 8% of offenders who sought care in health facilities were diagnosed with major depressive disorder. Additionally, incarceration is also linked with depression post-release (Schnittker et al., 2012). Incarcerated offenders, compared to the general population, have higher morbidity and mortality (Binswanger et al., 2007; Patterson, 2010), more stress-related and infectious diseases (Massoglia, 2008b), severe health impairments (Kariminia et al., 2007; Schnittker & John, 2007), decreased mental health

(Beyen et al., 2017; Butler & Allnut, 2003; Deloitte Consulting, 2003; Langenhoven, 2023; Ogloff et al., 2007; Porter & Novisky, 2017; Schnittker et al., 2012; Turney et al., 2012), psychological concerns (e.g., impaired attention and loss of self-control) (Haney, 2003; Morgan & Lilienfeld, 2000; Ogilvie et al., 2011), and a decline in cognitive functioning (Umbach et al, 2018). Incarcerated offenders within correctional centres are subject to stringent rules and regulations, facing numerous challenges as a result (Jordaan, 2014; Kerley et al., 2009; Listwan et al., 2010; Matshaba, 2007; Piper & Berle, 2019). These can adversely affect their physical and mental well-being both during their time in incarceration and following their release from the correctional centre (Bedaso et al., 2020; Colvin, 2000; Piper & Berle, 2019; Tadros et al., 2021). Several research studies have emphasised the impact of incarceration on the mental well-being of offenders after being released and how mental health factors play a role in the reintegration process into society. This connection has been explored by different authors, including Chang et al. (2015), Mowen et al. (2020), Schroeder et al. (2022), and Shinkfield and Graffam (2010). A recent study by Shishane et al. (2023) discovered that mental health issues are predictive of higher rates of reoffending among South African offenders. Therefore, it is essential to investigate the variables that predict feelings of depression, considering the prevalence and negative impact of depression on incarcerated offenders both during their time being incarcerated and after their release.

Previous studies also found that most correctional centres do not provide systematic therapeutic services to incarcerated offenders (Bowen et al., 2009; Tadros & Finney, 2018; Tadros & Ogden, 2020; Tadros et al., 2019; Tadros et al., 2020).

2.3.1.3 Consequences. The consequences of incarceration entail the lingering aftereffects resulting from incarceration and what the correctional environment can cause during and after incarceration. Incarceration is the most significant consequence of criminal justice involvement and significantly impacts incarcerated offenders' physical and mental

health (Schnittker & John, 2007; Schnittker et al., 2012). Research has established that a history of incarceration is associated with various health challenges (Baćak et al., 2019). The effects of incarceration on offenders' health are prominent from the beginning of their arrest until release (Berg et al., 2022; Tyler & Brockmann, 2017). During each phase of confinement, incarcerated offenders encounter numerous stressful events. Due to a depressed lifestyle and poor choices before incarceration and during incarceration, incarcerated offenders succumb to a higher incidence of chronic diseases or illnesses that shorten their lifespan (Massoglia, 2008b; Pazart et al., 2018; Schnittker et al., 2012; Western, 2002; Wildeman & Muller, 2012) and result in a decline in mental health (Baćak et al., 2019; Bedaso et al., 2020; Beyen et al., 2017; Boen, 2020; Chang et al., 2015; Jordaan, 2014; Fazel & Baillargeon, 2011; Fernandes, 2020; Haney, 2017; Langenhoven, 2023; Massoglia, 2008b; Massoglia & Pridemore, 2015; Matshaba, 2007; Modupi et al., 2020; Mowen et al., 2020; Naidoo & Mkize, 2012; Porter & DeMarco, 2019; Porter & Novisky, 2017; Powell, 2022; Prinsloo, 2013; Schnittker et al., 2012; Schroeder et al., 2022; Shinkfield & Graffam, 2010; Shishane et al., 2023; Sugie & Turney, 2017). Incarceration has been found to have significant associations with various mental health concerns, such as increased rates of mood disorders (Schnittker et al., 2012), anxiety (Barnert et al., 2017; Boen, 2020; Esposito et al., 2017; Fernandes, 2020; Lanctôt et al., 2007; Porter & DeMarco, 2019; Porter & Novisky, 2017; Ziegler, 2014), and a heightened need for psychiatric disorder treatment (Baćak et al., 2019; Verbruggen et al., 2018). Some consequences of not having access to therapeutic services include increased recidivism, decreased public protection and safety (Duwe & Clark, 2017; Hagos et al., 2021; Olson & Lorigio, 2014; Tadros et al., 2019), poorer coping skills and trauma processing abilities (Levine et al., 2018), higher probability of having a mental illness (Tadros et al., 2019; Yesuf et al., 2021), poorer self-esteem (McWilliam et al., 2013), increased self-harm and overdose (Brinkley-Rubenstein et al., 2017; Olson & Lurigio, 2014),

increased anger, substance abuse disorders and higher HIV risk post-release (Chaple et al., 2016; Fischer et al., 2017; McWilliam et al., 2013), weaker family ties (Tadros & Finney, 2018; Tadros et al., 2019), poorer overall health, psychological and physical well-being (McWilliam et al., 2013), and adjustment problems (Duba, 2022; Duba & Jordaan, 2023; Jordaan, 2014; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024). Additionally, exposure to traumatic events during incarceration can lead to post-traumatic stress disorder (PTSD) amongst incarcerated offenders, which tends to be costly for such offenders (Piper & Berle, 2019). People exposed to potentially traumatic events may develop PTSD, characterised by avoidance, hypervigilance, substantial mood disturbance, and persistent intrusive thoughts and memories following exposure to threatened or actual death, sexual violence, or serious injuries, as defined in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) and the Diagnostic and Statistical Manual of Mental Disorders, Text Revision (American Psychiatric Association, 2013). Post-traumatic stress disorder (PTSD) is also more common in incarcerated offenders than in the general population (Akyuz et al., 2007; Allely & Allely, 2020; Anderson et al., 2016; Ardino, 2012; Blonigen et al., 2012; Briere et al., 2016; Browne et al., 1999; Choe et al., 2008; Cima et al., 2008; Cusack et al., 2013; Flatt et al., 2017; Gibson et al., 1999; Gosein et al., 2016; Henrichs & Bogaerts, 2012; Huang et al., 2006; Jordan et al., 1996; Komarovskaya et al., 2011; Maxfield & Widom, 1996; Mueser et al., 2004; Novisky & Peralta, 2020; Ruzich et al., 2014; Teplin et al., 1996; Teplin et al., 2005; Warren et al., 2009) because more than 75% of incarcerated offenders tend to have been exposed to a significant amount of traumatic events throughout their lives (Boşgelmez et al., 2010; Huang et al., 2006; Payne et al., 2008). PTSD can arise from different experiences, such as being a victim of violence, witnessing violence, or engaging in a violent offence (Ternes et al., 2020). Within offender populations, PTSD and its related symptoms are often linked to experiences of physical and sexual abuse in

childhood, family dysfunction, and exposure to intrafamilial violence (Briere et al., 2016; Burton et al., 1994; Collins & Bailey, 1990; Fondacaro et al., 1999; Gray et al., 2003; Harry & Resnick, 1986; Kruppa et al., 1995; McMackin et al., 2002; Moore et al., 2021; Papanastassiou et al., 2004; Payne et al., 2008; Pham & Willocq, 2013; Pollock, 1999; Spitzer et al., 2001; Steiner et al., 1997). Recent research highlighted that the repercussions of traumatic experiences have extensive implications, adversely impacting the mental and physical well-being of incarcerated offenders. This, in turn, elevates the incidence of victimisation, aggression, and violence (Ardino, 2012; Berg et al., 2021; Boch & Ford, 2015; Boen, 2020; Connors et al., 2020; Del Toro et al., 2022; Elbogen et al., 2014; Esposito et al., 2017; Howell et al., 2016; Massoglia & Pridemore, 2015; Pretorius, 2019; Pretorius et al., 2024; Roth et al., 1997; Semenza et al., 2021; Tyler & Brockmann, 2017). Incarcerated offenders typically have limited social contacts, putting them at a higher risk of social isolation (Kyprianides & Easterbrook, 2020). Incarceration causes limited fulfilment of an offender's relational self. Individuals possess an inherent need and inclination to form interpersonal connections and safeguard existing social ties, and when these urges are hindered or severed, individuals typically experience distress (Baumeister & Leary, 1995; Zajenkowska et al., 2021). The mental illnesses of offenders are worsened by the trauma and stress resulting from incarceration (Boxer et al., 2009; Briere et al., 2016; Haney, 2003; Kucirka & Ramirez, 2019). This is particularly true for those who do not receive appropriate treatment for symptoms such as paranoia and agitation (Kucirka & Ramirez, 2019). Incarcerated offenders' mental and physical health is also affected by their socioeconomic backgrounds, adverse experiences within correctional centres, and victimisation inside and outside these institutions. These factors have been linked to various health problems, including asthma, coronary heart disease, epilepsy, infectious diseases, neurotic disorders, self-harm, and suicide (Binswanger et al., 2009; Camp & Gaes, 2005; Contractor et al., 2018;

De Vigianni, 2007; Fazel & Danesh, 2002; Haney, 2017; Massoglia, 2008b; Piper & Berle, 2019; Schnittker et al., 2012; Sugie & Turney, 2017; Trulson, 2007). Sim (1990) argued that incarceration causes significant physical and psychological distress (Turney et al., 2013), depriving offenders of their liberty (De Vigianni, 2007). Correctional centres are viewed as detrimental to offenders, depriving them of fundamental human rights and needs, causing physical, mental, and social harm, and leading to institutionalisation and disempowerment (Pretorius, 2019). These health problems result from the negative circumstances that incarcerated offenders face, including overcrowding, violence, drug abuse, lack of activities, separation from family and friends, and emotional deprivation (Camp & Gaes, 2005; De Vigianni, 2007; Trulson, 2007). Experiencing victimisation within the correctional centre is associated with poor emotional and social functioning after release. The outcomes of being subjected to abuse during incarceration encompass post-traumatic stress reactions, depression, and a higher likelihood of reoffending (Baćak et al., 2019; Dierkhising et al., 2014; Pager, 2003; Western, 2002). Incarceration also profoundly affects society, individuals, families, and communities (Tyler & Brockmann, 2017; Vogel & Porter, 2016). Individuals who report having a family member or friend incarcerated also tend to report mental health problems, increased stress, and a significant risk factor for deteriorated health (Tyler & Brockmann, 2017).

According to Dumont et al. (2013), incarceration can affect community health through three pathways. First, incarceration fosters social environments that contribute to the transmission of sexually transmitted diseases and HIV. This is partially attributed to a heightened involvement in high-risk behaviours, such as injection drug use and risky sexual activities, among numerous individuals involved in the justice system (Tyler & Brockmann, 2017). Removing young men out of their communities tends to raise the prevalence of concurrent sexual partnerships. This occurs as it disrupts stable relationships and modifies the

male-female ratio in the community (Dumont et al., 2013; Johnson & Raphael, 2009; Khan et al., 2011; Thomas et al., 2008). Moreover, treatment is often discontinued upon release, occurring in as much as 90% of HIV cases. This interruption increases the risk of heightened infectiousness and resistance to drugs (Baillargeon et al., 2009; Binswanger et al., 2007; Kerr et al., 2005; Milloy et al., 2012; Small et al., 2009; Solomon et al., 2014; Springer et al., 2012; Wakeman et al., 2009; Wickersham et al., 2013). Because the risk of transmission is caused by individual risk behaviours and the social networks in which individuals are surrounded, the restricted social networks of formerly incarcerated offenders increase the impact of that potential (Clear, 2007; El-Sadr et al., 2010). Second, incarceration mediates primary social determinants of health (e.g., homelessness, unemployment, and lack of health insurance), impacting community social conditions. Third, its subsequent repercussions may transform into criminogenic factors rather than serve as a deterrent. This transformation can render communities unsafe by heightening stressors and risks within their neighbourhoods (Clear, 2007; Pew Research Center, 2008; Roberts, 2004; Sampson & Loeffler, 2010). As deterioration occurs within communities, less investment in social capital occurs. These factors directly impact public health within communities (Dumont et al., 2013). Employment possibilities and marriage prospects for formerly incarcerated offenders are lower than for those who have not been incarcerated (DCS, 2022; Fitzgerald O'Reilley, 2014; Hofmeister & Soprych, 2018; Lugalia-Hollon & Cooper, 2018; Raphael, 2011; Western, 2006; Visher & Travis, 2011). Incarceration aims to protect society against further offences, rehabilitate and develop incarcerated offenders, reduce recidivism, and guarantee that offenders successfully reintegrate into society upon release and lead law-abiding and self-supporting lives (DCS, 2022; Nagin, 2022).

Despite the efforts by correctional centres to help incarcerated offenders with rehabilitation and re-entry back into society, correctional centres remain an overwhelmingly

negative experience for most offenders (Caraher et al., 2002; De Viggiani, 2007; Irwin & Owen, 2005; Johns, 2018; Umbach et al., 2018). However, correctional centres vary from one another and have different effects on incarcerated offenders (Haney, 2012; Liebling, 2011). Some correctional centres are viewed and experienced as violent and destructive, while others are seen as serving rehabilitative functions. De Viggiani (2007), for example, stated that incarceration "is not a wretched experience for everyone" (p. 119). Correctional centres have the potential to promote restoration and enhance stability by separating male offenders with a history of violence from their families, disrupting or overcoming addictive behaviours, and delivering healthcare services (Wacquant, 2002). Some incarcerated offenders appreciate being in a correctional environment because they can address specific health needs and stop their cycle of offending, which is often linked with mental illness and substance abuse (Sheen, 2002). Male incarcerated offenders, in particular, experience that a regular diet, routines, exercise, and restricted access to substances lead to the maintenance of their general health (Irwin & Owen, 2005).

2.4 Adjustment to the Correctional Environment

The following sections discuss adjustment to the correctional environment and its importance.

2.4.1 What is Correctional Adjustment?

Adjustment is individuals' active attempts to cope with everyday life's demands and challenges (Weiten et al., 2018). Correctional adjustment refers to the degree to which an incarcerated offender copes with the correctional centre's distinctive demands, frustrations, challenges, and deprivations (Picken, 2012; Sykes, 1958; Weiten et al., 2018). It is expected that incarcerated offenders (Crank, 2010; Picken, 2012) will adjust to the correctional environment despite potentially facing significant stress caused by personal circumstances and the conditions of confinement (Asberg & Renk, 2012; DeVeaux, 2013; Peacock, 2008a;

Picken, 2012; Tomar, 2013). According to Wright (1983), incarcerated offenders who have effectively adjusted to their circumstances generally do not encounter psychological trauma or illness and face a reduced likelihood of being exploited by their fellow incarcerated peers. They also tend to have minimal disciplinary infractions (Dye, 2010; Picken, 2012) and are more likely to accept the length of their sentence (Casey et al., 2016). Additionally, well-adjusted offenders often maintain an optimistic outlook on reintegration into the community following their release (Canda et al., 2015). Nevertheless, although certain incarcerated offenders adjust reasonably well to the correctional centre's challenges, a significant number find it challenging to handle the demands of being incarcerated (Casey et al., 2016; Crank, 2010; DeVeaux, 2013; Dye, 2010; Tomar, 2013; Wright, 1985a, 1991).

In some cases, the correctional environment might not provide offenders with the necessary resources or capabilities to adjust effectively, causing maladjusted offenders who tend to respond to incarceration with aggression, violence, and engaging in institutional misconduct. They may join gangs and form alliances to challenge or resist correctional administration (De Viggiani, 2007; Dhami et al., 2007; Gear, 2010; Logan, 2015; Rocheleau, 2013). Some researchers argue that the dysfunctional adjustment of incarcerated offenders to the correctional environment is a typical or anticipated response, given the pathological nature of the correctional environment (Gear, 2010; Peacock & Theron, 2007). Correctional centres often lack adequate mental health programmes and trained mental health professionals (Cramer et al., 2017). However, correctional centres can provide interventions to screen for diseases, improve overall health, teach offenders to avoid risky behaviours, address physical and mental health issues, and promote healthier behaviours and better health outcomes (Ross et al., 2011). Some researchers argue that correctional centres should be a space that facilitates adjustment and deliver rehabilitation and offender development opportunities (Hochstetler et al., 2010; Kerbs & Jolley, 2009).

Moreover, the public expects the correctional system not just to punish but also to correct and rehabilitate offenders (Cullen, 2022), deeming rehabilitation as a central objective of correctional services (Burton, Cullen, Burton, et al., 2020; Burton, Cullen, Pickett, et al., 2021; Butler, 2020; Butler et al., 2020; Hannan et al., 2023; Sundt et al., 2015; Thielo, Cullen, Burton, et al., 2019; Thielo, Cullen, Cohen, et al., 2016). The next section explains internal, external, and physical adjustment.

2.4.2 Internal, External, and Physical Adjustment

Wright (1985a) developed a multidimensional measure of incarcerated offenders' perception of correctional adjustment, which measures correctional adjustment caused by adverse emotional states such as anger, discomfort, and sleeping problems (Cook, 2018; Gonçalves et al., 2017). Wright (1985a, 1991) distinguished between Internal, External, and Physical adjustment within the correctional environment. Internal adjustment (internalising issues) refers to difficulties manifested by discomfort around fellow offenders and correctional staff members, anger, fear, and sleep disturbances (Duba, 2022; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Wright, 1985a). Incarcerated offenders' internal adjustment difficulties are caused by negative emotional states such as anger, insomnia, and discomfort, which can be accounted for by their age, perceived social support, stress levels, and coping skills (Duba, 2022). External adjustment (externalising issues) pertains to challenges characterised by frequent arguments and physical altercations with other offenders and correctional officials (Duba, 2022; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2002; Rogers, 2019; Rogers et al., 2024; Wright 1985a). Also, the lack of frequent family visitations tends to negatively affect incarcerated offenders' external adjustment (Duba, 2022; Huey, 2008; Jiang & Fisher-Giorlando, 2002). Physical adjustment (physical issues) involves difficulties evidenced by persistent fears of being attacked or taken advantage of and frequent feelings of illness or injury (Rogers, 2019; Wright, 1985a).

Therefore, it is crucial to thoroughly examine and comprehend the adjustment of incarcerated offenders to the correctional environment (Adams, 1992; Gonçalves, 2014; Hsieh et al., 2018; Nagin et al., 2009). The next sections provide an in-depth discussion of different predictors of correctional adjustment and maladjustment within correctional centres, starting with a detailed description of the Deprivation Model of Adjustment and the Importation Model of Adjustment.

2.4.3 The Deprivation Model of Adjustment and the Importation Model of Adjustment

The models of importation and deprivation in prisonisation offer valuable frameworks for understanding the experience of incarceration and the challenges related to mental health (Armour, 2012). These two models are the two main competing theoretical approaches frequently used to examine the correctional adjustment of incarcerated offenders (Cook, 2018; Dhami et al., 2007; Fedock, 2017; Slotboom et al., 2011).

2.4.3.1 The Importation Model. According to Irwin and Cressey's (1962) importation model, the adjustment and behaviour of offenders within the correctional environment are influenced by their individual characteristics (e.g., impulsivity) and social background (e.g., dysfunctional family and criminal associates) (DeLisi, 2003; Toman et al., 2015). Incarcerated offenders, predisposed by pre-correctional adversities such as abuse, unemployment, poverty, and substance abuse (Fedock, 2017; Shong et al., 2019; Souza & Dhami, 2010) are prone to developing mental health disorders (Armour, 2012; Wilton & Stewart, 2017). Previous research (Craig, Piquero, et al., 2017; Fox et al., 2015; Stensrud et al., 2019) indicated that incarcerated offenders consistently reported significantly higher levels of childhood trauma, including instances of physical, sexual, or emotional abuse, compared to the general population. This elevated prevalence of childhood trauma may contribute to their involvement in criminal activities (Hesselink & Jordaan, 2018). There is also a documented association between childhood trauma and heightened levels of

aggressiveness and impulsivity among offenders (Carli et al., 2014; Sarchiapone et al., 2009). As a result, the experience of incarceration is shaped by both the social background of offenders and the criminogenic traits they bring with them, which become intertwined in the correctional environment (Jordaan & Hesselink, 2018; Lai, 2019).

2.4.3.2 The Deprivation Model. In alignment with the importation model, Sykes (1958) introduced the deprivation model, which interprets the elevated rates of mental and physiological illnesses among offenders as influenced by environmental factors. These factors include overcrowding, a lack of privacy, exposure to violence, and limited access to health services (Fedock, 2017; Hesselink & Booyens, 2021; Simpson & Butler, 2020). According to the deprivation model, correctional centres are perceived as systems characterised by social, psychological, and physical deprivation (Huey, 2008; Jiang & Fisher-Giorlando, 2002; Pretorius et al., 2024; Rogers, 2019; Velarde, 2001), which exacerbates the sense of lost freedom (Crewe, 2021; Haney et al., 2016; Woo, Lu, et al., 2016). In 1958, Sykes introduced the *pains of imprisonment* concept to describe the various deprivations faced by individuals in correctional settings, encompassing essential needs such as connections with family and friends, freedom, romantic involvement, personal security, independence, and the absence of services and goods. In research conducted by Crewe (2021), an incarcerated individual, when reflecting on the imprisonment experience, expressed, “There is no freedom of choice... you can’t get anything you want, from a cup of tea to a cigarette to a chat with someone” (p. 341). This strictly regulated and authoritative setting, characterised by strict obedience at the cost of personal freedom, is frequently perceived as traumatic by offenders. In this environment, individuals often feel stifling of their freedom, relationships, and independence (Rogers et al., 2024). For many incarcerated offenders, the loss of independence and the limited access to information were identified as among the most challenging aspects of the incarceration experience (Muntingh, 2009a). The

consciousness of the world outside continuing its course while their own lives seemed to stand still was particularly distressing for those incarcerated (Muntingh, 2009a). In the case of individuals facing prolonged incarceration, the prospect of the time ahead could be perceived as overwhelming and difficult to bear (Crewe et al., 2020b). The duration spent in confinement is frequently perceived as seemingly endless, devoid of purpose, and surreal (Pretorius et al., 2024), intensified by a sense of detachment and isolation from significant others. Consequently, deprivation emerges as a central theme in the incarceration experience, as those in custody contend with highly restricted privacy, autonomy, social interactions, and access to resources, potentially leading to mental health challenges.

2.4.4 Predictors of Correctional Adjustment and Maladjustment

Adjusting to life in the correctional environment can be challenging for incarcerated offenders (Mandell, 2006; Rocheleau, 2011). Also, due to their lack of positive social skills, they may struggle to cope with life stressors and miss out on the benefits of a fulfilling life. While the impact of incarceration varies among individuals, and the effects are often reversible, adjusting to life behind bars remains a challenging process with significant post-release consequences (Gonçalves, 2014; Haney, 2003). How an individual offender responds to incarceration plays a crucial role in shaping their behaviour during confinement and their likelihood of reoffending (Hochstetler & DeLisi, 2005; Hsieh et al., 2018; Nagin et al., 2009). Successful adjustment to the correctional environment is necessary to prevent recidivism post-release (Marshall et al., 2008) and increase survival during incarceration (Blatier, 2000; Crawley & Sparks, 2006; Islam-Zwart & Vik, 2004; Jordaan & Hesselink, 2022; Leban et al., 2005). Research has shown that adverse experiences in the correctional environment, such as institutional misconduct (Nagin et al., 2009; Trulson, 2007) and ineffective correctional rehabilitation programmes, are significant predictors of recidivism after release (Hsieh et al., 2018). Studying and comprehending offender adjustment is essential for developing future

programmes that aid their adjustment to the correctional environment. This knowledge can support rehabilitation efforts and ultimately facilitate the successful reintegration of offenders into society.

Numerous variables have been identified as potential predictors of correctional adjustment. Some of these variables include offender coping strategies, levels of aggression, perceived social support, age, offender type classification (first-time or repeat offender), and sentence length (Crank, 2010; Duba, 2022; Duba & Jordaan, 2023; Dye, 2010; Picken, 2012; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024; Wright, 1985a).

2.4.4.1 Coping and Adjustment. Effective coping strategies are crucial in adjusting to an unfamiliar and highly restrictive environment (Carr, 2013). Among male offenders, coping strategies identified include seeking temporary relief, denial, avoidance, acceptance, or seeking alternative rewards, resignation, and aggression (Carr, 2013; Chahal et al., 2016; Gullone et al., 2000; Jordaan & Hesselink, 2022; Novo et al., 2017). However, maladaptive coping mechanisms such as aggression, avoidance, violence, and temporary escape from problems (Chubaty, 2001; Jordaan & Hesselink, 2022; Pretorius, 2019; Pretorius et al., 2024) tend to negatively impact adjustment to incarceration, increasing the risk of various consequences such as depression, anxiety, stress, suicide, panic, withdrawal, poor problem-solving skills, trauma, grief, loss of control, low self-esteem, hopelessness, hostility, low self-efficacy, suicidal thoughts, rage, misconduct, and violence (Asberg & Renk, 2012; Bouffard, 2015; Newhard, 2014; Picken, 2012; Renbarger et al., 2019; Wright et al., 2014). Incarcerated female offenders tend to have poorer external and physical adjustment when they experience more stress within the correctional environment (Asberg & Renk, 2014; Duba, 2022; Duba & Jordaan, 2023; Fedock, 2017; Houck & Loper, 2002; Loper et al., 2009; Moore et al., 2021).

On the other hand, international and South African studies (Biggam & Power, 1997; Hesselink-Louw, 2004; Jordaan, 2014; Picken, 2012; Rocheleau, 2011; Rogers et al., 2024) found that incarcerated offenders who employ more adaptive coping strategies, such as problem-solving and seeking social support, are better equipped to navigate the challenges within the correctional environment (Jordaan, 2014; Jordaan & Hesselink, 2022). Offenders who actively participate in problem-solving interventions typically improve their capacity to skillfully recognise and address the challenges and emotions they encounter (Biggam & Power, 2002; Hayward et al., 2008; LaPlant et al., 2021; Perry, Waterman, House, & Greenhalgh, 2019; Perry, Waterman, House, Wright-Hughes, et al., 2019). Rogers et al. (2024) also revealed that problem-solving and avoidance, as coping strategies, can predict Internal Adjustment. Furthermore, offenders who utilise problem-solving as their primary coping strategy tend to have more favourable and pragmatic experiences during incarceration (Biggam & Power, 1997; Hesselink-Louw, 2004; Jordaan, 2014; However, some studies have found that offenders view problem-solving, considered healthy and effective in the outside world, as frustrating and an ineffective coping strategy within the correctional context (Chahal et al., 2016; Picken, 2012). This perception is often attributed to their limited autonomy, lack of independence, and absence of control over problems within the correctional environment (Loots, 2010; Matshaba, 2007; Neser, 1993; Sykes, 1958), especially in the maximum-security correctional environment (Jordaan, 2014; Loots, 2010; Matshaba, 2007; Neser, 1993). Previous studies also found that avoidance as a coping strategy tends to be linked to mental health issues and adverse effects, including maladjustment (Abbott et al., 2016; Rogers et al., 2024). Offenders who show a reduced tendency to resort to avoidance as a coping strategy typically demonstrate greater vigilance in their decision-making, resulting in improved outcomes in coping and adjustment (Pretorius et al., 2024).

2.4.4.2 Aggression and Adjustment. Aggression is a maladaptive coping mechanism in the correctional environment and correlates closely with maladjustment within such environments (Dye, 2010; Picken, 2012). Offenders with higher levels of aggression are more likely to be involved in disciplinary infractions, experience greater feelings of loneliness and suicidality, and often face extended periods of solitary confinement (Picken, 2012) than their less aggressive counterparts (Carrizales, 2013). Male offenders frequently resort to aggression to adjust to and cope within the correctional environment. This aggression may be directed towards others, manifesting as attacks or threats of violence, or towards themselves, leading to self-harm or suicidal behaviour (Arbach-Lucioni et al., 2012; Dixon-Gordon et al., 2012; Jordaan & Hesselink, 2022; Moore et al., 2018; Pope, 2018; Reid & Listwan, 2018) when they feel overwhelmed or unable to escape the harsh reality of the correctional environment (Dixon-Gordon et al., 2012; Pope, 2018). This risk is particularly pronounced among offenders housed in maximum-security correctional centres who struggle with adjustment (Lohner & Konrad, 2006). However, contrasting perspectives exist regarding the adjustment of more aggressive and violent offenders. Some researchers posit that these offenders exhibit superior adjustment to the correctional environment as they can assert control and intimidate fellow offenders, reducing the likelihood of being targeted compared to non-violent offenders (Crank, 2010; HM Prison and Probation Service, 2018). In a 2018 analytical overview, it was emphasised that offenders who acknowledged engaging in bullying and aggression while incarcerated perceived advantages from their behaviour (HM Prison and Probation Service, 2018). Consequently, incarcerated offenders who are more aggressive, angry, and prone to violence might undergo a more favourable adjustment in correctional environments, attributed to the fear and avoidance they elicit from fellow offenders (Crank, 2010; HM Prison and Probation Service, 2018).

2.4.4.3 Perceived Social Support and Adjustment. Previous studies have suggested that the provision of active or expressive support to incarcerated offenders, whether from the correctional centre or significant individuals in their lives, can diminish involvement in criminal activities, foster better adjustment, and strengthen social connections (Cochran & Mears, 2013; Siennick et al., 2013; Woo, Stohr, et al., 2016). According to Duba and Jordaan (2023), incarcerated offenders who perceive more social support from a significant other tend to have better internal adjustment. Duba (2022) found that incarcerated female offenders' internal adjustment tends to be better when they experience social support from significant others. This may also indicate that incarcerated female offenders tend to experience more social support from their significant others when their internal adjustment is better. This finding is congruent with previous studies that indicated that regardless of the source, social support tends to have a positive influence on the adjustment of female offenders (Asberg & Renk, 2012; Chen et al., 2014; Clone & DeHart, 2014; Cook, 2018; Jang et al., 2021; Loper & Tuerk, 2011), as it promotes their psychological well-being (Huang et al., 2020; Sutatminingsih & Siregar, 2020). This finding aligns with the results of numerous studies that have similarly shown that any form of social support, including assistance from friends, family, or a significant other, contributes to enhancing the correctional adjustment of incarcerated offenders (Asberg & Renk, 2014; Butler, 2022; Duba, 2022; Liu & Chui, 2014; Mears et al., 2012; Moore et al., 2021; Van Tongeren & Klebe, 2010). Duba and Jordaan (2023) also found that offenders who perceive more social support from a significant other tend to have better physical adjustment. This is congruent with the findings of several studies that found that social support from significant others positively contributes to female offenders correctional adjustment (Asberg & Renk, 2014; Chen et al., 2014; Clone & DeHart, 2014; Duba, 2022; Jiang & Winfree, 2006; Liu & Chui, 2014). Social support during incarceration is crucial as it helps offenders meet their basic needs and establish security

within the correctional environment (Liu & Chui, 2014). It acts as a protective buffer against the daily stressors encountered in the correctional environment (Carr, 2013) and significantly promotes better adjustment among incarcerated offenders (Rogers, 2019). A noteworthy finding from a study by Rogers et al. (2024) is the presence of positive and statistically significant correlations between the perception of support from friends (as a form of social support) and both internal adjustment and physical adjustment. Thus, although the offender might receive support, it may not be perceived as particularly supportive. These outcomes contradict earlier research findings indicating that incarcerated offenders who perceive greater support from friends and significant others tend to adjust better in such environments (Adams, 1992; Asberg & Renk, 2012; Liu & Chui, 2014; Woo, Lu, et al., 2016). Research has additionally indicated that the social support offered by either the correctional centre or significant individuals can mitigate criminal engagement while incarcerated and promote stronger social connections (Cochran & Mears, 2013; Siennick et al., 2013; Woo, Stohr, et al., 2016). Conversely, inadequate social support among offenders has been associated with increased depression (Casey et al., 2016; Chahal et al., 2016; Rogers et al., 2024), hopelessness, and lower self-esteem (Asberg & Renk, 2012; Langenhoven, 2023; Rogers et al., 2024). It is evident that social support is not always beneficial (Hobbs, 2000). Its impact depends on how offenders perceive the support they receive, even if it is negative (Larson & Lee, 1996; McColl et al., 1995). Therefore, while offenders may receive support, it may not be perceived as helpful.

A study conducted on a group of incarcerated offenders in South Africa found that gestures of “friendship” from other offenders within the correctional centre could be employed as a method of exerting control and manipulation (Gear & Ngubeni, 2002). Additionally, the more offenders are exposed to fellow offenders with delinquent behaviours, the more negatively it can impact them (Gear & Ngubeni, 2002; Hesselink & Grobler, 2015;

Peacock & Theron, 2007). In essence, while offenders may perceive some degree of support from "friends" during incarceration, research has demonstrated that these seemingly friendly gestures are often reported as common forms of deception among incarcerated offenders (Gear & Ngubeni, 2002). Victims of such deceptive tactics are often unaware that they are being drawn into an exchange that creates a debt requiring repayment (Gear & Ngubeni, 2002). Offenders who receive support from incarcerated "friends" may be compelled or coerced into gang activities for protection and survival. They may also be required to participate in illegal activities, such as providing or selling contraband, which can significantly impact their adjustment (Dissel, 1996; Gear, 2007a, 2007b, 2008; Gear & Ngubeni, 2002). Furthermore, incarcerated offenders who depend exclusively on external social support from friends and family often encounter less favourable adjustment outcomes (Lindquist, 2000). Social support during incarceration is crucial in helping offenders meet their fundamental needs and establish a sense of security within the correctional environment (Liu & Chui, 2014).

2.4.4.4 Age and Adjustment. In terms of age, researchers noted that older offenders who have already served a part of their sentences typically possess more extensive experience with incarceration and have acquired the essential social and mental skills to adjust to life within the correctional centre (Casey et al., 2016; Crank, 2010; Logan, 2015; Scaggs, 2017; Toman et al., 2015). Moreover, individuals with more extensive incarceration experience tend to exhibit better adjustment (Akerstrom, 1985; Crank, 2010; Scaggs, 2017; Wolfgang, 1961) as they have become familiar with the norms and lifestyle within the correctional environment (Crank, 2010; Picken, 2012).

Scaggs (2017) added that older offenders admitted to the correctional environment at an older age were less likely to engage in institutional misconduct and more prone to adjusting to the correctional setting. However, older offenders facing their first-time

incarceration might still confront challenges in adjustment, often necessitating physical treatment and interventions to cope and adjust to the distinctive difficulties associated with incarceration later in life (Aday & Krabill, 2013; Gonçalves et al., 2014). Furthermore, as offenders grow older, they confront a heightened vulnerability to victimisation, encompassing instances of bullying, violence, and aggression, amplifying the impact on their adjustment to the correctional environment (Cervello, 2015; Codd, 2020; Kerbs & Jolley, 2007). Conversely, younger offenders frequently lack the emotional and psychological competence to navigate the challenges posed by the correctional environment proficiently. This deficiency contributes to difficulties in adjustment, elevated institutional misconduct, and increased levels of aggression and violence (Jordaan & Hesselink, 2022; Toch & Adams, 2002; Valentine, 2012; Valentine et al., 2015). Younger offenders are seemingly more prone to using aggression to respond to victimisation experiences within the correctional environment (Casey et al., 2016; Chahal et al., 2016; DeVeaux, 2013; Jordaan & Hesselink, 2022; McGuire, 2018; Moore et al., 2018; Reid & Listwan, 2018; Steiner et al., 2014; Tomar, 2013; Valentine et al., 2015), as they tend to be developmentally unprepared to adjust to the challenges of the correctional environment (Scott & Steinberg, 2008; Valentine et al., 2015). Younger offenders use violence and aggression to prove their toughness and gain a higher status within the correctional environment (Bishop & Frazier, 2000; Ricciardelli, 2014; Valentine et al., 2015). Before experiencing incarceration, most offenders harbour fear and anxiety about the prospect of being incarcerated (May et al., 2008). However, those with prior experience with incarceration have acquired coping mechanisms and strategies to adjust to the correctional environment (Crank, 2010; DeVeaux, 2013; Picken, 2012), reducing their fear of incarceration (May et al., 2008).

2.4.4.5 Sentence Length and Adjustment. According to Agbakwuru and Ibe-Godfrey (2017), the duration of a sentence significantly impacts how incarcerated offenders

cope with and adjust to incarceration. Offenders who have been incarcerated for more than five years tend to exhibit better coping strategies and adjustment than those with shorter incarceration periods (Agbakwuru & Ibe-Godfrey, 2017). Additionally, studies investigating offender adjustment to the correctional environment have shown that over time, offenders report a decline in feelings of hopelessness, lower rates of institutional misconduct, greater engagement in daily activities, improved ability to conceal vulnerabilities, and increased commitment to work and correctional activities (Smith et al., 2002; Wright, 1991a). Adams (1992) added that the passage of time can intensify common problems among offenders, impacting their psychological well-being and overall adjustment. This effect is especially pronounced for incarcerated offenders serving lengthy sentences, as they contend with distinct fears and challenges associated with extended periods of incarceration. Some researchers (Adams, 1992; Mears et al., 2016) posit that extended sentences might offer more significant opportunities for substantial acclimatisation and adjustment to the correctional culture, potentially influencing the probability of reoffending upon release. In contrast, alternative studies have discovered that longer sentences or more severe punishments are deterrents against subsequent offending behaviour (Du Preez & Muthaphuli, 2019; Seiter, 2013; Tonry, 2008).

2.4.4.6 Personal Control and Psychological Well-being and Adjustment. The distinct characteristics of the correctional environment, including the frustrations, deprivations, and challenges thereof, influence the process of adjusting to incarceration (Casey et al., 2010; Crank, 2010; DeVeaux, 2013; Dye, 2010; Tomar, 2013; Wright, 1985a, 1991a), and if incarcerated offenders lack personal control over their immediate environment or circumstances, they often experience difficulties in adjusting to the correctional environment (Islam-Zwart & Vik, 2004; Steiner & Wooldredge, 2008). Personal control is vital to incarcerated offenders' psychological well-being and adjustment (Condon et al.,

2008; Rivera et al., 2003). Psychological well-being comprises three perspectives, namely (i) efficiency to catalyse, (ii) the ability to select from various available alternatives, and (iii) predictability (Rivera et al., 2003). Thus, the outcomes of insufficient psychological well-being encompass how offenders perceive and navigate their insecurities, the stress they perceive, levels of depression and aggression, as well as issues related to low self-esteem and loneliness during their time in the correctional centre (Wooldredge, 1999).

Studying and comprehending offender adjustment is essential for developing future programmes that aid their adjustment to the correctional environment. This knowledge can aid rehabilitation initiatives and, ultimately, contribute to the effective reintegration of offenders back into society. The next section elaborates on how female correctional adjustment differs from their male counterparts and the general population.

2.4.5 Female Correctional Adjustment

In South Africa, female incarcerated offenders are considered the most economically and socially exposed members of society (Haffejee et al., 2005; Steyn & Booyens, 2018; Steyn & Hall, 2015). They face more significant challenges in adjusting to the correctional environment compared to male offenders (Krabbe & Van Kempen, 2017; Van Tongeren & Klebe, 2010), primarily due to the intensified loss of privacy and severed relationships with friends and family (Agboola, 2014; Loper & Tuerk, 2011; Moore et al., 2021; Pinheiro et al., 2021; Pogrebin & Dodge, 2001). Research has demonstrated that female incarcerated offenders adjust differently to the correctional environment than their male counterparts (Duba, 2022; Duba & Jordaan, 2023; Gover et al., 2008). For example, male offenders often engage in sexual relationships to gain respect from fellow offenders. In contrast, female offenders often engage in these relationships to seek companionship or create a sense of family within the correctional environment (Marcum et al., 2014). Studies revealed that female incarcerated offenders often seek connections and relationships with fellow offenders

to replace the loss of their relationships with friends and family outside the correctional environment (Pogrebin & Dodge, 2001; Sutatminingsih & Siregar, 2020).

2.4.5.1 Separation from Family and Social Support. Female incarcerated offenders experience the deprivation of connection with friends and families harshly (Claire, 2017; Sutatminingsih & Siregar, 2020). They must adjust to unfavourable conditions and tend to struggle with coping with separation from their children (Fedock, 2017; Ferszt & Clarke, 2012; Loper & Tuerk, 2011; Loper et al., 2009; Slotboom et al., 2011) and families because their lives before incarceration centred around nurturing roles (Claire, 2017; Fedock, 2017; Sutatminingsih & Siregar, 2020). The inability to fulfil their maternal role and nurture their children leads to significant stress and affects the adjustment of female offenders who are mothers (Claire, 2017; Loper et al., 2009). Female incarcerated offenders are reported to receive and value more social support from their families than male incarcerated offenders (Jiang & Winfree, 2006).

Previous studies have demonstrated that social support from family members has a positive effect on the external adjustment of incarcerated offenders by preventing deviant behaviour and reducing negative emotions such as hostility and depression, particularly among female offenders (Asberg & Renk, 2014; Clone & DeHart, 2014; De Claire & Dixon, 2017; Jiang & Winfree, 2006; Moore et al., 2021; Woo, Stohr, et al., 2016). Family support promotes prosocial behaviour among incarcerated female offenders (Chen et al., 2014; Jiang & Winfree, 2006; Moore et al., 2021); providing emotional support, contact, warmth, and encouragement from family members helps alleviate the frustrations experienced by incarcerated female offenders (Wright et al., 2007). Nonetheless, maintaining family connections can be beneficial and enable female incarcerated offenders to cope with and adjust to the correctional environment (Aborisade & Fayemi, 2006; Clone & DeHart, 2014; Woo, Lu, et al., 2016; Wright et al., 2007). Furthermore, relationships within the correctional

centre can also be beneficial for female offenders in coping with the challenges of incarceration and the separation from their families (De Claire & Dixon, 2017; Jiang & Winfree, 2006; Kruttschnitt & Gartner, 2003; Liu & Chui, 2014).

2.4.5.2 Physical Health. Due to the disparity in health status between incarcerated offenders and the public, female offenders' specific health and medical needs can be severely overlooked within a predominantly male-oriented correctional system (United Nations Office on Drugs and Crime, 2009). Female incarcerated offenders face a range of chronic and intricate diseases resulting from factors such as poverty, substance abuse, domestic violence, malnutrition, adolescent pregnancy, sexual assault, and inadequate healthcare (Acoca, 1998; Fearn & Parker, 2005; Lamb & Weinberger, 2001; Langan & Pelissier, 2001). Studies conducted with incarcerated female offenders have identified various health problems, including sexually transmitted diseases, obesity, gynaecological issues, dental problems, mental health disorders, kidney infections, and chronic illnesses such as hepatitis, HIV, hypertension, asthma, and emphysema (Maruschak et al., 2015; Mignon, 2016; Staton et al., 2003; Sufrin et al., 2015). Furthermore, heart problems, diabetes, and hypertension are notably prevalent among female offender minorities (Acoca & Austin, 1996). While limited research exists on the relationship between health and correctional adjustment, it is plausible to suggest that health issues within correctional centres impact the adjustment levels of female offenders, particularly in terms of depression (Chen et al., 2014; Kruttschnitt & Vuolo, 2007; Slotboom et al., 2011).

2.4.5.3 Mental Health. Alarmingly, incarcerated female offenders have higher rates of psychiatric issues, including exposure to traumatic events, anxiety, phobias, neurosis, self-harm, suicide, intrusive thoughts, and difficulties with their familial and social relationships, than incarcerated male offenders and the general population (Bronson & Berzofsky, 2017; Duba, 2022; Chen et al., 2014; Covington, 2007; Heilbrun et al., 2008; Hochstetler et al.,

2004; Kruttschnitt & Vuolo, 2007; Lindquist & Lindquist, 1997; Molnar et al., 2001; Pinheiro et al., 2021; Salisbury & Van Voorhis, 2009; Steiner & Wooldredge, 2009a; Sufrin et al., 2015; Trickett et al., 2011; Van Voorhis et al., 2010). Pre-incarceration factors, such as sexual abuse, trauma, mental disorders, and substance abuse, appear to have a more severe impact on female offenders than on their male counterparts (Reidy et al., 2017; Steiner & Wooldredge, 2009b). Studies, for example, indicated that there is a correlation between high stress levels upon entry into the correctional environment and increased depression (Fogel, 1993; Houck & Loper, 2002; James & Glaze, 2006). In this regard, Kruttschnitt et al. (2000) also found higher depressive symptoms among incarcerated female offenders. Stress is mostly experienced by incarcerated females who are pregnant or mothers. This presents distinct challenges for female offenders, making them more susceptible to adjustment difficulties while incarcerated (Asberg & Renk, 2014). Female incarcerated offenders exhibit poorer external adjustment and physical adjustment when faced with increased stress in the correctional environment (Duba, 2022; Duba & Jordaan, 2023; Fedock, 2017; Houck & Loper, 2002; Loper et al., 2009; Moore et al., 2021). Researchers have noted that female offenders perceive the correctional environment as stressful, primarily due to deprivations and encounters with harm or violence, which are prevalent characteristics of correctional centres (Bantjes et al., 2017; Fedock, 2017; Jules-Macquet, 2015; Valentine et al., 2015).

Passive and maladaptive coping strategies are frequently employed by female offenders (Asberg & Renk, 2012; Carr, 2013), leading to feelings of emotional distress and hopelessness (Bisri et al., 2020), exacerbating maladjustment to the correctional environment (Asberg & Renk, 2012). In response to stressful incidents within the correctional centre, they tend to internalise blame and avoid confrontation, frequently amplifying psychological distress and a sense of hopelessness (Aborisade & Fayemi, 2016; Asberg & Renk, 2012; MacKenzie et al., 1989). To evade problems, female offenders often rely on avoidance as a

coping strategy, including strategies such as reading, daydreaming, crying, or engaging in work activities, utilising humour as a means of relieving tension and shifting their attention away from the issues at hand (McDonald, 2006). It is worth noting that these avoidant coping strategies are often associated with difficulties in adjusting to the correctional environment (Asberg & Renk, 2012).

2.4.5.4 Treatment Programmes and Correctional Personnel. Correctional staff members play a critical role in helping female incarcerated offenders understand the norms and rules of correctional centres (Vuolo & Kruttschnitt, 2008). When female offenders perceive correctional staff as misusing their authority or being indifferent to their needs, it leads to more negative experiences within the correctional environment (Vuolo & Kruttschitt, 2008). Female incarcerated offenders tend to participate in rehabilitation programmes more frequently than their male counterparts (Jiang & Winfree, 2006). These rehabilitation programmes offer emotional support to female incarcerated offenders, aiding them in perceiving the correctional environment as conducive to prosocial behaviour (Collica, 2010). Studies exploring the connection between female offenders' engagement in treatment programmes and their adjustment within the correctional environment found that female offenders who actively participate in these programmes demonstrate better correctional adjustment than those who do not engage in therapy or treatment programmes (Negy et al., 1997; Sultan et al., 1985; Sultan et al., 1986).

2.4.5.5 Religion. McDonald (2006) reported that female offenders sought social support through engaging in religious practices, such as attending church. Van Tongeren and Klebe (2010) indicated that religious practices, such as faith in God and praying, were a coping strategy that female offenders employed and saw as valuable. These religious practices may be linked to better adjustment due to the sense of meaning that they provide (Jang et al., 2021; Van Tongeren & Klebe, 2010). Religious engagement mainly helps female

offenders cope with depression, provides stress relief, diminishes the sense of oppression (Dye et al., 2014), and facilitates positive interactions with correctional staff and fellow incarcerated offenders (Dye et al., 2014; Greer, 2000; Kerley et al., 2005; Levitt & Loper, 2009). However, female incarcerated offenders have reported difficulties in adjustment, including anger, when they perceive insufficient support from religious activities (Levitt & Loper, 2009).

2.4.5.6 Sentence Length. In terms of sentence length and adjustment, overcoming depression poses difficulties for female offenders serving life sentences, as they face prolonged incarceration and extended separation from their children and are less likely to be granted parole (Dhami et al., 2007; Leigey, 2010). Leigey and Reed (2010) noted that female offenders serving life sentences have a higher prevalence of physical and sexual abuse compared to non-life-sentenced female offenders and male offenders serving life sentences (Dye & Aday, 2013).

2.5 The Importance of Adjustment to the Correctional Environment

Incarcerated offenders must be able to adjust to the stressors of incarceration; otherwise, it will result in adjustment problems (Blevins et al., 2010; Bonta & Gendreau, 1990; Condon et al., 2008; De Vigianni, 2007; Mandell, 2006; Tasca et al., 2010; Trulson, 2007; Visher & Travis, 2003; Wolff & Shi, 2009c). Adjusting to the correctional environment is essential for treatment and rehabilitation (Adams, 1992). Correctional centres should facilitate adjustment and deliver rehabilitation opportunities (Hochstetler et al., 2010; Kerbs & Jolley, 2009). Adjustment is crucial in mitigating emotional outbursts and withdrawal (Picken, 2012) and minimising conflicts, violent behaviour, and disciplinary infractions during incarceration (Gonçalves, 2014). Furthermore, successful adjustment is vital for facilitating a smooth transition back into society (Canda et al., 2015). It can serve as a predictive factor for reducing the likelihood of recidivism after release (Crank, 2010).

2.6 Summary

Several aspects became clear after carefully considering the literature discussed in this chapter. Firstly, correctional centres are dangerous environments where incarcerated offenders have lost their free will and independence, adversely affecting their mental health. Offenders need to cope with all the stressors of incarceration; otherwise, it will result in maladaptive coping styles and lead to increased disciplinary disruptions. Secondly, correctional centres are characterised by rigid and strict rules and regulations and serve to house offenders as punishment for their offences. The correctional centre is often seen as lacking in care for offenders. However, the role of a correctional centre is to discipline and rehabilitate offenders to ensure a safer environment for the public. South African correctional centres are divided into three categories: maximum-security, medium-security, and minimum-security correctional centres. South Africa has a clear division between public- and privately-operated maximum-security correctional centres. Thirdly, incarcerated offenders are classified as lonely individuals who form part of a vulnerable and rejected population. Incarcerated offenders are also more likely to suffer poor psychological health due to exposure to stressors in the correctional centre. Fourthly, adjustment in correctional centres is crucial as maladjustment leads to antisocial behaviour and poor mental health. How incarcerated offenders adjust in a correctional centre has significant implications for themselves, the employees of the correctional centre, and members of the communities. Lastly, incarcerated offenders must adjust to a correctional centre; otherwise, they will encounter more problems post-release and while incarcerated.

Chapter 3: Prison Adjustment Questionnaire (PAQ)

3.1 Introduction

This chapter explores the Prison Adjustment Questionnaire (PAQ) and discusses the different factor structures in male and female incarcerated offender populations.

3.2 The Development of the Prison Adjustment Questionnaire (PAQ)

The following section provides insights into the development process of the Prison Adjustment Questionnaire by discussing correctional classification, Kevin N. Wright's research study objectives in 1983, the participants and recruitment procedures used by Wright (1983), the methodology utilised by Wright for the development of the PAQ, and the purposes for the development of the PAQ.

3.2.1 Purposes for the Development of the PAQ

Wright (1983) developed the PAQ to evaluate the comparative correctional adjustment of incarcerated offenders within the correctional environment contrary to the public while also evaluating discomfort with incarceration across several dimensions (Rogers, 2019; Warren, 2003). The 30-item self-report measurement scale focuses on incarcerated offenders' quality of life within the correctional environment (Duba, 2022; Duba & Jordaan, 2023) and is utilised in research studies to determine distress levels of incarcerated offenders within the correctional environment (Thompson & Loper, 2005) by examining an incarcerated offenders' perceptions of (a) whether life within a correctional centre is worse than life in the free world, (b) the frequency of specific stressors, and (c) satisfactory correctional provisions (e.g., receiving enough food and having enough privacy) (Loper, 2002).

3.2.2 Correctional Classification and Kevin N. Wright's (1983) Research Study Objectives

The primary goal of correctional classification is to provide insights to correctional personnel and programme administrators regarding the anticipated behaviour of incarcerated offenders, thereby facilitating efficient management (DCS, 2018, 2020, 2022; Pretorius,

2019; Pretorius et al., 2024; Wright, 1983). Traditionally, classification has played a vital role in the initial placement of offenders into correctional centres and the assessment of transfers (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). Wright (1983) sought to develop inventive classification procedures through his research, intending to assist administrators in accurately assigning incarcerated offenders to suitable correctional settings. The knowledge derived from comprehending adjustment patterns was employed by Wright (1983) to suggest innovative approaches for placing incarcerated offenders in correctional environments (Wright, 1983, 1985b).

Classification aims to systematically organise incarcerated offenders, especially within correctional centres where their expected likelihood of behavioural issues determines their categorisation. This information is of significance to correctional administrators, assisting them in making decisions related to the security, treatment, and allocation of limited resources (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). Wright's (1983) research suggests that improving the effectiveness of classification information could be enhanced by understanding how distinct groups respond to various environmental conditions. By understanding which incarcerated offenders adjust successfully to specific correctional conditions, placements can be customised to address various behavioural issues within the offender population (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983).

In pursuit of its objective, Wright's (1983) research project aimed to accomplish three key objectives. Firstly, Wright (1983) sought to compare various existing classification systems to identify the ones that most effectively differentiate incarcerated offenders experiencing different adjustment problems. This comparison aimed to reveal the most meaningful groupings. Three systems were singled to represent a spectrum of classification

techniques (Wright, 1983, 1985b). The first system was risk assessment, a method prevalent in 1983 that involved ranking incarcerated offenders based on their likelihood of posing security threats. The second system, Megargee and Dorhout's (1977) Minnesota Multiphasic Personality Inventory (MMPI) typology, classifies incarcerated offenders into ten distinct personality types, each type associated with distinct traits and probabilities of producing issues. Additionally, the third system, Toch's (1977) Prison Preference Inventory (PPI), stands out as a noteworthy tool for measuring the needs and concerns of incarcerated offenders.

Throughout the evaluation of these classification systems and subsequent analyses, the underlying assumption was that correctional centres operate to uphold security and minimise harm and deterioration experienced by offenders (Wright, 1983, 1985b). According to Wright (1983), none of the three systems demonstrated a distinct superiority. This was partly because each system exhibited varying degrees of effectiveness in identifying incarcerated offenders facing specific adjustment issues. For instance, risk assessment was proficient at distinguishing those with aggressive or assaultive disciplinary infractions or those seeking sick calls, while the MMPI and PPI were better at predicting offenders likely to report experiencing adjustment problems. Although none of the three systems fully met the empirical criteria of an ideal classification scheme, each exhibited its strengths and weaknesses (Wright, 1983).

A secondary objective of Wright's (1983) study was to elucidate the factors influencing adjustment problems within correctional centres. Individual background characteristics, preferences, personality traits, and the sentencing stage tend to have an impact on outcomes (Austin, 1983; Bohn, 1979; Duba, 2022; Duba & Jordaan, 2023; Langenhoven, 2023; Pretorius, 2019; Pretorius et al., 2024; Rogers, 2019; Rogers et al., 2024). Additionally, organisational factors such as population size, environmental climate, security level, and crowding have also been identified as significant (Aday & Dye, 2018; Agbakwuru & Awuyo,

2017; Agboola, 2016; Agboola et al., 2020; Bantjes et al., 2017; Butler, 2022; Casey et al., 2016; Claire, 2017; Cook, 2018; Fedock, 2017; Froneman, 2018; Gover et al., 2000; Haffejee et al., 2005; Huey, 2008; Jiang & Fisher-Giorlando, 2002; Jules-Macquet, 2015; Logan, 2015; Loper & Tuerk, 2011; Mohlakoana-Motopi et al., 2018; Murhula, 2019; Naidoo & Mkize, 2012; Nieuwoudt & Bantjes, 2019; Qhogwana, 2017; Robertson et al., 2011; South African Human Rights Commission, 1998; Scaggs, 2017; Singh, 2016; Slotboom et al., 2011; Steiner et al., 2014; Steyn & Hall, 2015; Tasca et al., 2010). While it has been theorised that the compatibility between an individual and their environmental conditions is crucial in determining whether an incarcerated offender faces problems, this hypothesis was not empirically examined at the time of the study (Wright, 1983). Wright's (1983) study incorporated all these factors into an adjustment model and investigated their correlation with poor correctional adjustment. Individual, organisational, and interaction effects were identified as crucial determinants. Given the role of person-environment fit, suggesting suitable settings for assigning specific types of incarcerated offenders seemed potentially valuable (Wright, 1983).

The third and final objective of Wright's (1983) research was to examine the feasibility of mitigating adjustment problems by strategically placing incarcerated offenders into suitable environments (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). Wright (1983) developed an alternative classification system by empirically studying the effects of interaction to reach this goal. The third goal was driven by the transactional variables in the overall elucidation of adjustment (Wright, 1983). Due to classification methods identifying groups meaningfully tied to a particular outcome variable, Wright (1983) categorised continuous variables by a two-way analysis of variance. By doing this, Wright (1983) assessed the main effects to comprehend if the groups of incarcerated offenders classified by individual or organisational

attributes differ and to evaluate the interaction effects of the two dimensions. Wright (1983) compiled two-way tables to examine the interactive effects for the pairs of variables where significant interactions were discovered. Wright (1983) mainly sought monotonically increasing or decreasing interactions because this would allow the development of classification schemes that place type 1 incarcerated offenders in correctional settings A and type 2 correctional offenders in correctional settings B. Numerous two-way classification schemes were assessed by Wright, where he compared the expected failure rate for the sample by placing all type 1 incarcerated offenders in correctional setting A and all type 2 incarcerated offenders in correctional setting B, with the actual failure rate (Wright, 1983). By subtracting the expected failure rate from the actual failure rate and dividing that number by the actual rate, Wright obtained proportional reduction in error (PRE) statistical indicators that can be compared (Wright, 1983).

After exploring various options, 13 two-way classification schemes with potential utility were identified (Wright, 1983). Wright (1983) referred to classification schemes as any instrument that can aid in placing incarcerated offenders into suitable correctional environments that best fit their needs, their behaviour or personality characteristics and the safety of correctional personnel and fellow offenders. Wright (1983) conducted a two-way analysis of variance amongst different groups of incarcerated offenders in different correctional environments. Wright identified the following two-way classification schemes: “Megargee groups in Emotional Feedback environments and External Adjustment (PAQ)”; “Megargee Groups in Safety Environments and External Adjustment (PAQ)”; “Megargee Groups in Safety Environments and Physical Adjustment (PAQ)”; “Megargee Groups in Social Environments and Physical Adjustment (PAQ)”; “Megargee Groups in Support Environments and Physical Adjustment (PAQ)”; “Groups with Different Concerns About Safety in Safety Environments and Physical Adjustment (PAQ)”; “Megargee Groups in

Support Environments and Assaultive Infractions"; "Megargee Groups in Structure Environments and Assaultive Infractions"; "Megargee Groups in Privacy Environments and Assaultive Infractions"; "Risk Level Groups in Activity Environments and Assaultive Infractions"; "Risk Level Groups in Structure Environments"; and "Risk Level Groups in Support Environments and Assaultive Infractions" (Wright, 1983, pp. 180-191). Wright (1983) used this two-way classification technique to demonstrate that placing specific incarcerated offenders with specific needs and personality traits into specific correctional environments can aid in reduced institutional misconduct and increased safety. Assessments of these identified schemes indicated a projected reduction of over 20% in the occurrence of aggressive and assaultive activities, as well as personal distress and victimisation (Wright, 1983). These findings were highly promising, suggesting that the two-way classification strategies identified by Wright could enhance institutional security and control while minimising individual functional disability (Wright, 1983, 1985b). Utilising the information gathered by numerous correctional centres to allocate offenders to specific correctional centres could significantly reduce the incidence of adjustment problems (DCS, 2018, 2020, 2022; Wright, 1983).

The following section discusses the participants and recruitment procedures Wright (1983) used.

3.2.3 Participants and Recruitment Procedures used by Wright (1983)

Kevin N. Wright initially developed the PAQ to measure male offenders' adjustment levels in medium- and maximum-security correctional centres (Wright, 1983, 1985b). Wright's (1983) research employed a two-tiered sampling approach, focusing on organisational and individual levels. For corporate sampling, ten correctional centres were chosen by randomly selecting five from all medium-security correctional centres in New York state and five from all maximum-security correctional centres in New York state,

excluding the special function units (Wright, 1983). Subsequently, individual-level sampling was conducted proportionally within each correctional centre. The estimated total sample size for the research ranged between 800 and 1200 incarcerated male offenders (Wright, 1983). An estimated target was a maximum sample size of 10% of the population at larger correctional centres and 20% at smaller correctional centres. Over-sampling at smaller correctional centres was necessary to ensure sufficiently large samples for within-unit analyses (Wright, 1983).

Approximately two weeks prior to arranged site visits, the New York Department of Correctional Services' research analyst, collaborating with the research personnel of the Department of Correctional Services in New York, randomly created and mailed a list of potential research participants to each correctional centre (Wright, 1983). This list was approximately two and a half times larger than the desired sample size. Correctional centre officials were directed to exclude offenders incarcerated for disciplinary infractions, hospitalised or discharged, or those with scheduled visits or other administrative issues precluding participation (Wright, 1983). Upon meeting the research team, incarcerated offenders participating in the research study were briefed about the research project, received informed consent forms, and provided written consent before participating in the research and completing the questionnaires (Wright, 1983).

A limitation of this sampling method is that it omitted three significant offender groups. If chronic troublemakers were disproportionately represented in the subset confined for disciplinary reasons, they would have been underrepresented in the sample (Wright, 1983). Additionally, those offenders in protective custody were absent from the sample (Wright, 1983). Lastly, the voluntary nature of study participation meant that offenders unwilling to participate were excluded, potentially introducing bias, especially if nonparticipants had distinct characteristics such as refusal to obey or illiteracy (Wright,

1983). Evaluating sample representativeness by comparing characteristics with the population helped somewhat, but it did not capture minor biases inherent in conducting applied research within a correctional centre's unique setting (Wright, 1983).

The intended number of participants allocated to each correctional centre for participation was not achieved. Between the formation of participant lists and the commencement of survey sessions, various factors such as disciplinary confinement, visits, illness reported during sick calls, scheduling confusion, and misinformation about the research contributed to the shortfall (Wright, 1983). Some incarcerated offenders deliberately avoided participating in the survey. However, nearly all those who attended participated in Wright's research study. The actual sample size for each correctional centre amounted to approximately 50% of the initially requested participation. Participation slightly dipped below 50% in larger maximum-security centres, while in smaller medium-security correctional centres, participation was marginally higher (Wright, 1983).

The study's ultimate sample, consisting of 942 participants, accounted for nearly 8% of the total population across the ten correctional centres selected. There was an overrepresentation of populations from the smaller medium-security correctional centres, with nearly 11% of their total population included in the sample. In contrast, the larger maximum-security correctional centres were underrepresented, as only 6% of their total population was sampled (Wright, 1983).

The subsequent section focuses on the methodology Wright (1983) utilised in developing the PAQ.

3.2.4 Wright's (1983) Methodology utilised to develop the PAQ

Wright (1983) extracted information from the Department of Correctional Services records based in New York. Variables within this dataset comprised birth date, ethnicity, religion, occupational history, educational background, drug and alcohol use, offence history,

and information regarding the current offence and sentence of the incarcerated offenders. Pre-incarceration characteristics encompassed demographic and social attributes, enabling the differentiation and description of various offender types. These characteristics were pivotal in formulating the risk assessment classification scheme (Wright, 1983).

While most of these variables pertain to individual characteristics, their validity relied on face validation. For instance, variables like age were measured to the nearest year or age upon reception, and their validity was not questioned. Although not empirically verified, Wright perceived the data set as reliable because these records were actively labelled as the working records of the Department, consistently used, and corrected when errors were identified (Wright, 1983). Wright (1983) utilised the data in computerised files to construct a measure of sentence phase. This measure was calculated as a ratio of the sentence served, determined by subtracting the reception date from the date that the study occurred (15 August 1983) and then divided by the incarcerated offender's minimum sentence. In essence, this measure signified the proportion of the minimum sentence that has been completed. The choice of the minimum sentence, rather than the maximum, was based on the New York practice where all incarcerated offenders must serve their minimum before becoming eligible for parole. The value of this measure ranged from a fraction close to 0.00 for incarcerated offenders at the beginning of their sentence to a figure exceeding 1.00 for incarcerated offenders who have served their minimum but have not yet been granted parole (Wright, 1983).

The crowding measure employed in Wright's (1983) study lacked the desired level of sophistication and precision. The purpose of the crowding measure was to determine if a correctional centre held the designed capacity of incarcerated offenders or if there were more incarcerated offenders than the designed housing capacity, to simplify, to see if there was overcrowding in a correctional centre. The Department of Correctional Services in New York

provided an exact count of the population and a figure representing the designed capacity for each correctional centre (Wright, 1983). The capacity estimate was derived from each correctional centre's original intended housing capacity, with adjustments made if modifications occurred since its initial construction (Wright, 1983). The crowding measure was calculated by dividing the population by the designed capacity. If the resulting proportion exceeded 1.0, it indicated that the correctional centre surpassed its intended capacity by that proportion. Conversely, if the proportion was below 1.0, the correctional centre operated below its capacity (Wright, 1983).

There were two limitations associated with the crowding measure. Firstly, when crowding is perceived as the density of the population or the actual living space available, it has been connected to adjustment issues (Wright, 1983). While the proportion of designed capacity is likely associated with these other measures, the extent of their similarity remained uncertain. Secondly, the crowding measure operated at the institutional level and did not provide insights into individual variations or differences among living units (Wright, 1983). Consequently, the single value assigned to each correctional centre was applied uniformly to all incarcerated offenders within that correctional centre, essentially serving as a statistical proxy for various correctional centre characteristics. Thus, if a relationship between crowding and adjustment is identified, it is unclear which aspects of the correctional centres contribute to the observed outcomes (Wright, 1983).

Two datasets used to generate measures for the dependent variable, adjustment, were sourced from official records. Disciplinary reports for each incarcerated offender at each correctional centre were meticulously maintained on a form known in New York as the Warden's Card (Wright, 1983). These cards documented every rule violation reported by staff, ranging from major to minor infractions, detailing the subsequent actions taken (e.g., dismissal, formal hearing) and the administered sanctions (e.g., loss of privileges, kept locked

up in cells, special housing). During site visits, the research team photocopied the cards of all participants and then coded information about offences, actions, and punishments recorded on each participant's card over the three years leading up to the research period from 15 August 1980 to 15 August 1983 (Wright, 1983). This dataset comprised a variable record of infractions for each participant, with some incarcerated offenders having no history of disciplinary issues while others had extensive records of disciplinary infractions (Wright, 1983).

A total of sixteen distinct rule infractions were identified, encompassing a range of behaviours such as incarcerated offender altercations, assaults on staff or other incarcerated offenders, possession of contraband, damage of property, disruptive behaviour, escape attempts, arson, self-inflicted injuries, engaging in sexual relations, refusal to obey rules, involvement in illegal enterprises, attempted suicide, theft, and provoking mass demonstrations (Wright, 1983). Seeking to organise this diverse array of infractions into meaningful groupings, Wright consulted other literature for guidance. Edinger (1979) categorised offences into five groups, namely (1) verbally aggressive incidents (e.g., threatening or audacious behaviour, refusal to follow orders, disruptive behaviour, and using abusive language), (2) group defiant infractions (e.g., participation in mass demonstrations, incitement to riot, and aiding in rule infractions), (3) evasive incidents (e.g., telling lies and entering an unauthorised area), (4) pilfering (e.g., stealing and possession of contraband), and (5) total infractions. Wright (1983) also introduced a sixth category, assaultive acts (encompassing attacks on correctional staff and other incarcerated offenders).

Upon classifying incarcerated offender offence records into the six groups, specific categories proved more valuable than others. The sample percentage with group defiant or evasive infractions was notably small, below 5% (Wright, 1983). Similarly, the percentage charged with theft was relatively low, eliminating these three categories. Additionally, given

the exceedingly high correlation (r=.98) between verbally aggressive incidents and the total amount of infractions, Wright eliminated the latter to focus on two key indicators of disciplinary problems, namely verbally aggressive and assaultive acts. Interestingly, there was substantial variation in the incidence of problems among participants for verbally aggressive and assaultive acts, although they were not significantly correlated (r=.01) (Wright, 1983).

The New York Department of Correctional Services' official records yielded a second source of adjustment information: the computerised sick-call data. Recognising that complaints of illness often signify stress and anxiety, this dataset emerged as a valuable supplementary resource for understanding incarcerated offenders facing adjustment challenges (Wright, 1983). The Department provided the research team with a computer tape containing a variable record of all sick calls made for each incarcerated offender over the same period as the disciplinary history, from 15 August 1980 to 15 August 1983 (Wright, 1983). Every time an incarcerated offender attended a sick call, the date and diagnosis, classified according to the International Classification of Health Care Problems in Primary Care (1983) (Bentsen, 1986), were documented. However, the Department noted that the reliability of these data fell short of desired standards. While some facilities consistently provided current and comprehensive data, others did not. The information submitted to the Central Office lacked scrutiny for accuracy (Wright, 1983).

While exploring methods to categorise this information, Wright (1983) assessed the five distinct groupings, namely, (1) verbally aggressive incidents (e.g., threatening or audacious behaviour, refusal to follow orders, disruptive behaviour, and using abusive language), (2) group defiant infractions (e.g., participation in mass demonstrations, incitement to riot, and aiding in rule infractions), (3) evasive incidents (e.g., telling lies and entering an unauthorised area), (4) pilfering (e.g., stealing and possession of contraband), and

(5) total infractions. However, he observed moderately high to high coefficients, ranging from r=.60 to .97, when correlating the frequency counts in the five categories. Given this high level of correlation, it was determined that any of the indicators would serve the purpose equally well. Consequently, the total number of sick calls was chosen as the best indicator in Wright's (1983) study.

There is a question about the validity of this indicator (total number of sick calls) as it does not directly measure emotional and psychological distress, as specific illness complaints may stem from physical pathologies or injuries (Wright, 1983). The correlation between this secondary and primary indicator of distress is unknown. Data collection for the remaining four variables, namely personality, preference, environment, and self-perceptions of adjustment, was directly obtained from research participants through questionnaires administered during site visits to the ten correctional centres selected for the study (Wright, 1983). Existing questionnaires were utilised for personality and preference, while new questionnaires were developed as the existing methods were deemed inadequate for collecting information on environment and adjustment (Wright, 1983).

During the site visits, incarcerated offenders were gathered in groups of 30 to 40, and the research team explained the project before administering the four measuring instruments. The entire survey session typically took two hours for research participants to complete all four questionnaires (Wright, 1983). In some correction centres, incarcerated offenders were assembled for both morning and afternoon sessions, while in others, the two sessions occurred on consecutive days during mornings, afternoons, or evenings. The preference, environment, and adjustment questionnaires were completed in the first session, while the extensive personality inventory was done in the second session. Incarcerated offenders did not receive financial compensation for their participation. However, they were informed that a letter of appreciation would be sent to the correctional centre and included in their files.

Questionnaires were administered in three ways: incarcerated offenders could read the questions in English and indicate their responses on a form, or if preferred, taped versions of the questionnaires were available in English and Spanish. The choice of method was left to the incarcerated offenders (Wright, 1983).

The following section discusses why the PAQ was developed.

3.3 The Layout of the PAQ

The subsequent section explores the layout of the PAQ by discussing the items on the PAQ, the subscales of the PAQ, the psychometric properties of the subscales reported by Wright, and the examples of the items of each subscale of the PAQ.

3.3.1 The Items on the PAQ

The PAQ comprises 30 items focusing on nine problems that incarcerated offenders may experience. These problems include the following: the uncomfortableness offenders feel around others; the fear, illness, anger and injury that offenders experience while incarcerated; trouble sleeping; arguments and physical fights they are involved in, as well as being taken advantage of by other offenders (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2002; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright, 1983). According to Wright (1986a, 1991a), 20 of the 30 items delve into three dimensions linked to offenders' incarceration experiences.

3.3.2 The Subscales of the PAQ and the Psychometric Properties of the Subscales reported by Wright

3.3.2.1 The Subscales of the PAQ. The PAQ includes three dimensions (subscales), namely Internal Adjustment, External Adjustment, and Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright,

1983, 1985b). The first subscale comprises items that suggest the offender faces challenges in interpersonal relations with others, labelled as “External” (Wright, 1983). The External Adjustment subscale consists of questions concerning heated arguments with fellow offenders and correctional personnel as well as frequency of fights (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright 1983, 1985b). The External Adjustment subscale also specifies whether the incarcerated offender experiences more problems relating to other individuals in the correctional centre than the free world (Wright, 1983, 1985b).

The second subscale focuses on problems that the incarcerated offender personally undergoes in adjusting to incarceration, termed “Internal” due to the distress occurring within the individual (Wright, 1983). The Internal Adjustment subscale comprises questions concerning uncomfortableness around fellow offenders and uncomfortableness around the correctional staff as well as anger and sleeping problems (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b). The Internal Adjustment subscale also focuses on problems that an offender may experience in coping with incarceration compared to the free world (Wright, 1983, 1985b).

The third subscale involves tangible physical problems that the offender may encounter (Wright, 1983). The Physical Adjustment subscale features questions regarding being injured, being sick, having a fear of being attacked, and having a fear of being taken advantage of (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b). The third

subscale also includes severe physical problems that the incarcerated offender may encounter in coping with incarceration in comparison to the free world (Wright, 1983, 1985b).

The following section presents the psychometric properties of the abovementioned subscales reported by Wright.

3.3.2.2 The Psychometric Properties of the PAQ Subscales Reported by Wright. Wright (1986a, 1991a) conducted studies regarding the psychometric properties of the PAQ. Wright (1985b) indicated that the internal consistency of the PAQ ranges from adequate to good. Specifically, in a sample of male incarcerated offenders, the internal consistencies (Cronbach alpha coefficients) were .67 for the Internal Adjustment subscale, .74 for the External Adjustment subscale, and .50 for the Physical Adjustment subscale (Wright, 1985b). Given the limited number of items constituting each dimension, these levels are deemed more than acceptable (Wright, 1983, 1985b). Cronbach's alpha is typically expected to range between .80 and .90, although values above .70 are generally deemed acceptable (Allen et al., 2019). Kline (2015) classifies reliability coefficients above .90 as excellent, between .80 and .90 as very good, and between .70 and .80 as adequate. However, Little et al. (1999) suggest that lower Cronbach's alpha values may be acceptable if the sample size is sufficiently large. Additionally, other researchers (Hair et al., 2010; Ponterotto & Ruckdeschel, 2007) have argued that internal consistency values above .60 are acceptable in psychological research.

Applying the three-factor model, a high PAQ score indicates that incarcerated offenders encounter more significant challenges in adjusting to incarceration. Conversely, lower scores on the PAQ suggest fewer adjustment issues and more successful adjustment within the correctional centre (Wright, 1983). Essentially, incarcerated offenders who adjust optimally receive lower scores on the PAQ (Rogers, 2019; Wright, 1983, 1985b). Thus, elevated scores on the PAQ indicate that offenders face difficulties adjusting to the correctional environment (Wright, 1983, 1985b). Previous studies reported adequate internal

consistencies for the PAQ subscales, ranging from .64 to .73 for Internal Adjustment, .74 to .79 for External Adjustment, and .50 to .71 for Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Van Tongeren & Klebe, 2010; Wright, 1985b).

Similar tests to those conducted on the Prison Environment Inventory (PEI, Wright, 1985a) were executed to evaluate the PAQ's psychometric characteristics and individual subscales. Exploratory factor analysis of the items revealed the PAQ's inherent structure, employing squared multiple correlation coefficients as estimates of commonalities. An orthogonal (Varimax) rotation of three factors was applied (Wright, 1983, 1985b). The factor loadings suggested that the PAQ exhibits a relatively good level of dimensionality (Wright, 1983, 1985b). Many loadings were notably high, and few items demonstrated high loadings on two dimensions. The item-to-subscale correlations reinforced this observation. The correlations between the items and their respective dimensions in the past ranged from moderate to high, while their correlations with other dimensions were relatively low. As anticipated, the subscales exhibited medium correlations (r=.28 between External Adjustment and Internal Adjustment, r=.38 between External Adjustment and Physical Adjustment, and r=.39 between Internal Adjustment and Physical Adjustment) (Wright, 1983, 1985b).

Regarding the validity testing of the PAQ, the ex post facto design of Wright's (1983) study examined the postdictive rather than the predictive power of the model and the model's variables. This allowed Wright (1983) to examine the relationship among variables for their chosen sample but restricted them in making a solid argument for the predictive validity of the PAQ. Wright (1983) could not determine the stability of the observed relationships across their samples. Their sample was too small to split in half, so they could not replicate the classification scheme in the second half. The approach was appropriate and adequate for the

initial study of the PAQ, but Wright (1983) suggested that additional studies should be done to ensure the generalisability and validity of the PAQ.

The following section focuses on the examples of items of each of the subscales of the PAQ.

3.3.3 Descriptions and Examples of Items of Each Subscale of the PAQ

The following section describes and gives examples of items of each subscale of the PAQ as worded on the Prison Adjustment Questionnaire (Wright, 1986b). Descriptions of items on the first factor (subscale), External Adjustment, include physical fights with other offenders (e.g., *"How often do you get into a fight in here?"*; *"How often do you have arguments with other offenders?"*; *"How often do you have a heated argument with another offender?"*; *"How often do you have arguments with staff?"*) (Duba, 2022; Duba & Jordaan, 2023; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Wright, 1983, 1985b, 1986a, 1986b). Examples of items on the second factor (subscale), Internal Adjustment, include discomfort experienced around other offenders (e.g., *"How often do you feel uncomfortable around the other offenders here?"*), anger (e.g., *"How often are you angry in here?"*), illness (e.g., *"Since you have been in the correctional centre, how often have you been sick here?"*), and discomfort experienced around staff (Duba, 2022; Duba & Jordaan, 2023; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Wright, 1983, 1985b, 1986a, 1986b). Examples of items on the third factor, Physical Adjustment, include having a fear of being attacked (e.g., *"How often are you afraid of being attacked in the correctional centre?"*), injury (e.g., *"How often are you injured or hurt here?"*; *"How often do you have arguments with staff?"*; *"Are you being taken advantage of by other offenders?"*; *"How often are taken advantage of by other offenders"*) (Duba, 2022; Duba & Jordaan, 2023; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Wright, 1983, 1985b, 1986a, 1986b).

3.4 The Administration, Scoring, Format of the PAQ and the Purpose of the remaining Items that are not Calculated

The following section discusses the administration, scoring, and format of the PAQ, including the purpose of the remaining items of the PAQ not calculated during data analysis.

3.4.1 The Administration of the PAQ

The PAQ is a self-administered questionnaire that needs to be filled in by each incarcerated offender. The following section discusses the format of the questionnaire.

A significant number of incarcerated offenders have experienced challenges in adjusting and coping throughout their life histories (Wright, 1986a, 1991b). To ensure that the PAQ accurately measures the adverse effects of incarceration on adjustment, it considers respondents' prior histories of adjustment issues (Wright, 1986a, 1991b). Initially, respondents were questioned whether a specific problem is more pronounced in the correctional centre than in the outside world (i.e., *"Do you have physical altercations within the correctional centre?"*). Subsequently, a follow-up question is posed to determine the frequency with which the problem occurs within the correctional environment (i.e., *"How often do you have physical altercations within the correctional centre?"*). The response options are rated on a five-point Likert-type scale: (a) *"Most of the time (several times a day)"*; (b) *"At least once a day"*; (c) *"Occasionally (every few days)"*; (d) *"Seldom"*; and (e) *"Never"* (Wright, 1986a, 1991a).

The following section explains how the subscales of the PAQ are formatted.

3.4.2 The Format of the PAQ Subscales

The PAQ employs multiple-choice response formats with three, four, and five options. Incarcerated offenders are questioned about their difficulties in interacting with fellow incarcerated offenders and correctional personnel, as well as their personal distress (Wright, 1983, 1985a, 1986b). Suppose an incarcerated offender asserts that their problems in the

correctional centre are no more severe than those in the outside world. In that case, they receive a score of 0. Conversely, if the incarcerated offender indicates that issues have worsened in a specific area, subsequent questions probe about the frequency of such occurrences. A response of *"never"* is also assigned a score of 0, while the remaining options are scored on a scale ranging from 1 to 4 (Wright, 1983, 1985a, 1986b). The following section explains how the items on the PAQ are scored.

3.4.3 The Scoring of the PAQ

The first 20 items in the PAQ assess 11 challenges that incarcerated offenders might experience (Wright, 1983, 1985a, 1986b). These challenges encompass discomfort in the presence of fellow incarcerated offenders and correctional personnel, feelings of anger, fear, illness, injury, sleep difficulties, physical altercations, disagreements with fellow incarcerated offenders and correctional personnel, and instances of being taken advantage of (Duba, 2022; Duba & Jordaan, 2023; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Wright, 1983, 1985b, 1986a, 1986b). These 11 issues are categorised into three dimensions (subscales): External Adjustment, Internal Adjustment, and Physical Adjustment (Wright, 1983, 1985a, 1986b).

The PAQ scoring process begins by examining the correctional centre/free world comparison item. If a respondent asserts that their problem is no more severe in the correctional centre (choosing responses b. more often in the free world, c. about the same in the correctional centre as in the free world, or d. very seldom in either place), they receive a score of 0 for that specific problem (Wright, 1983, 1985a, 1986b). Alternatively, suppose the respondent indicates that their situation is worse in the correctional centre (opting for response a. more often in the correctional centre), then the response to the subsequent questions in the sequence is utilised to determine the frequency of the problem (Wright, 1983, 1985a, 1986b). A response of *"never"* is assigned a score of 0, while the other four responses

(a. most of the time, b. at least once a day, c. occasionally, and d. seldom) are assigned scores of 4, 3, 2, or 1, respectively. The challenges are evident in the subsequent sets of items: (1) Discomfort around fellow incarcerated offenders (Items 1 & 2); (2) Discomfort around correctional personnel (Items 1 & 3); (3) Anger items (Items 4 & 5); (4) Fear of being attacked items (Items 6 & 7); (5) Illness items (Items 8 & 9); (6) Injury items (Items 10 & 11); (7) Sleeping difficulty items (Items 12 & 13); (8) Physical altercations with fellow incarcerated offenders items (Items 14 & 15); (9) Arguments with fellow incarcerated offenders items (Items 16 & 17); (10) Arguments with correctional personnel items (Items 16 & 18); and (11) Being taken advantage of by fellow incarcerated offenders items (Items 19 & 20) (Wright, 1983, 1985a, 1986b).

Subscale scores are computed by summing the responses to the following groups of problem areas: (A) External Problems, which include physical altercations with fellow incarcerated offenders (Item 8), arguments with fellow incarcerated offenders (Item 9), and arguments with correctional personnel (Item 10); (B) Internal Problems, which includes discomfort around fellow incarcerated offenders (Item 1), discomfort around correctional personnel (Item 2), anger (Item 3), and illness (Item 5); (C) Physical Problems, which includes fear of being attacked (Item 4), injury (Item 6), arguments with correctional personnel (Item 10), and being taken advantage of by fellow incarcerated offenders (Item 11) (Wright, 1983, 1986b).

The following section explains the purpose of the remaining ten items of the PAQ.

3.4.4 The Purpose of the Remaining Ten Items not Calculated in the Scoring of the PAQ

The PAQ also includes ten additional questions, comprising a survey of the incarcerated offender's satisfaction with items such as food, exercise, sleep, activity and privacy and queries about understanding correctional centre rules, having good friendships, and having better opportunities to find a job post-release (Wright,1983). Items 21 to 28 in the

PAQ assess how respondents adjust to different aspects of their incarceration. An overall adjustment scale is created by attributing a score of 0 to response A, 1 to response B, 2 to response C, and 3 to response D. The values for these eight items are then added to generate a scale score (Wright, 1986b).

The following section explores the process of the development of the PAQ and the current study.

3.5 Processes of Development of the PAQ

There are two basic approaches to the construction of psychological tests, namely the exploratory (e.g., the inductive) and the confirmatory (e.g., the deductive) approach (Poulsen & Simonsen, 2017). Inductive reasoning aims to develop a theory (Poulsen & Simonsen, 2017). Wright's (1983) study was based on the exploratory approach because he developed a new measuring instrument (measurement scale) to measure self-perceptions of adjustment among male incarcerated offenders. An inductive approach begins with empirical observations, seeking patterns in those observations and then theorising about those patterns (Poulsen & Simonsen, 2017). Wright's study made empirical observations of Megargee and Dorhout's (1977) and Toch's (1977) classification systems, including risk assessment, as well as studies to seek patterns of correctional placement techniques and the needs and concerns of incarcerated offenders and theorised about these patterns. Wright (1983) sought to expand existing knowledge about classification and correctional adjustment by exploring the institutional context's interactive effects on placing incarcerated offenders in suited correctional environments. To expand existing knowledge about the classification, Wright used the three existing classification methods, namely Megargee and Dorhout's (1977) Minnesota Multiphasic Personality Inventory (MMPI), Toch's (1977) Prison Preference Inventory (PPI), and risk assessment, which proved useful in differentiating incarcerated offenders. Wright (1983) stated that this research goal could have been approached by simply

selecting or developing a method to typologise correctional environments and then cross-validate the three classification systems (MMPI, PPI, and risk assessment) within those environments. However, Wright attempted to enhance the value of his research by selecting individual and environmental variables in accordance with some ordered and coherent image of correctional adjustment rather than simply selecting variables because they were used in the past. Adding to research that previously examined the predictors of correctional adjustment, Wright (1983) specified a theoretical model that includes an individual, a contextual, and a transactional dimension. The advantage of this theoretical specification is that it ascribes a broader scope and a more holistic description of individuals and the correctional environment when testing different classification strategies and provides a theoretical specification of the inter-relationships among the variables of interest (Wright, 1983). Wright (1983) maintained that the results of his research study would enable him to identify and describe both correctional adjustment and classification. However, Wright's (1983) approach was exploratory; to achieve a broader scope, he "sacrificed specificity" (Wright, 1983, p. 22). Wright (1983) claimed that evaluating the problem this way would enable him to identify the important person-environment relations that can be used to develop new ways of assigning incarcerated offenders to correctional environments.

Deductive reasoning tests an existing theory (Poulsen & Simonsen, 2017). The deductive approach begins with a theory, developing hypotheses from that theory, and then collecting and analysing data to test those hypotheses (Poulsen & Simonsen, 2017). As the empirical study presented in this dissertation was based on an established theoretical understanding of the construct, the current study was based on a confirmatory approach.

3.6 South African Studies that utilised the PAQ

A few South African studies utilised the PAQ. The following section presents the findings of these studies.

In 2019, the PAQ was utilised in a study in which the primary goal was to investigate which variables were the best predictors of correctional adjustment amongst male incarcerated offenders in a private maximum-security correctional centre in South Africa (Rogers, 2019). The subsequent aim of this research was to assess how male incarcerated offenders, with varying coping strategies, levels of aggression, perceived social support, ages, offender type classifications, and sentence lengths, adjust to incarceration in a private maximum-security correctional centre (Rogers, 2019; Rogers et al., 2024). The research sample comprised 418 male incarcerated offenders situated on the outskirts of Bloemfontein, Mangaung. The PAQ was utilised to measure the self-perceptions of adjustment to incarceration according to the selected sample. This study reported the following internal consistencies (Cronbach alpha coefficients): .713 for Physical Adjustment, .727 for Internal Adjustment, and .757 for External Adjustment. These internal consistencies are more favourable than those reported in previous studies (Warren et al., 2004; Wright, 1983).

In 2022, the PAQ was utilised in a study in which the primary goal was to determine which of the individual predictor variables or the combination(s) of predictor variables, namely, age, perceived social support, coping strategies, and stress, contribute to the variance of adjustment amongst incarcerated female offenders in South Africa (Duba, 2022). The study included a sample of 123 female incarcerated offenders residing in two correctional centres in the Gauteng Province, South Africa (Duba, 2022; Duba & Jordaan, 2023). The PAQ (Wright, 1985b) was employed to assess the subjective perceptions of female incarcerated offenders regarding their adjustment to incarceration. In terms of the PAQ, the study obtained acceptable internal consistencies: .679 for Internal Adjustment, .790 for External Adjustment, and .710 for Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023). The internal consistencies obtained align with those found in prior research studies done on male incarcerated offenders. For instance, internal consistencies for the PAQ subscales in

previous studies done on incarcerated male offenders have been identified as ranging from .64 to .73 for Internal Adjustment, .74 to .76 for External Adjustment, and .50 to .71 for Physical Adjustment (Islam-Zwart & Vik, 2004; Rogers, 2019; Wright, 1985b).

In 2023, the PAQ was employed in a study to assess the potential individual and combined influences of coping, adjustment, perceived social support, and age as predictors of depressed mood among adult male maximum-security incarcerated offenders (Langenhoven, 2023). The research incorporated 418 incarcerated male maximum-security offenders between the ages of 21 and 58 who were sampled using non-probability convenience sampling (Stangor, 2015). This study employed the PAQ to measure the participants' adjustment to the correctional centre. Substantial and meaningful negative correlations were observed between Internal Adjustment and Depressed Mood, as well as between Physical Adjustment and Depressed Mood. Notably, the External Adjustment subscale of the PAQ also exhibited a statistically significant correlation with Depressed Mood, although the effect size showed limited practical significance. Thus, as Internal, External, and Physical Adjustment enhance, offenders are more likely to experience a heightened sense of depressed mood (Langenhoven, 2023).

The following section aims to illustrate the appearance of the PAQ questionnaire in both 1983 and 1986.

3.7 Differences between Wright's (1983) PAQ and Wright's (1986) PAQ Questionnaires

This section explores the differences between the 1983 version of the PAQ questionnaire (Wright, 1983, pp. 150–154) and the 1986 version of the PAQ questionnaire (Wright, 1986b, pp. 1–5). For the 1983 version of the PAQ and the 1986 version of the PAQ, please consult Appendices A and B.

The 1983 version of the PAQ questionnaire comprises 30 items that incarcerated offenders need to complete, whereas the 1986 version only comprises 28 items. The 1986

version of the PAQ questionnaire does not include items 29 and 30 of the 1983 version, with item 28's responses differing from the 1986 version. For example, item 28, which queries about having good friends in the correctional centre, has the responses *"none", "some",* and *"many"*. In contrast, the 1986 version of the PAQ has responses *"never"*, *"seldom", "often",* and *"always".* The 1983 version of the PAQ questionnaire includes item 29, which queries the incarcerated offenders' belief that the correctional centre's programmes provide necessary training to improve their chances of getting a job post-release. The 1983 version of the PAQ also comprises item 30, which queries about preferred living conditions.

The following section presents studies where the PAQ has been used on samples of female incarcerated offenders. The studies were conducted on female incarcerated offenders to determine if Wright's (1983) PAQ is a valid instrument to measure female incarcerated offenders' self-perceptions of adjustment. In four cross-sectional studies (Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Warren et al., 2004), the PAQ was exclusively administered to female incarcerated offenders. Notably, in these four studies, the PAQ was subjected to a two-factor solution (Conflict and Distress) rather than the previously reported three-factor model (Internal Adjustment, External Adjustment, and Physical Adjustment) proposed by Wright (1985b). This shift was influenced by the distinct experiences of female and male offenders before and during incarceration (Carr, 2013; Warren, 2003).

The subsequent section provides a comprehensive discussion of the PAQ's two-factor solution.

3.8 Warren et al.'s Two-factor Structure of the PAQ

Given that the PAQ was initially developed by Wright (1983) to assess self-perceptions of adjustment among male incarcerated offenders, Warren et al. (2004) conducted a study involving 777 maximum-security female incarcerated offenders. The aim was to

ascertain the validity of the PAQ as an instrument for measuring self-perceptions of adjustment among female incarcerated offenders.

The PAQ was initially designed to explore differences in correctional adjustment between African American and Caucasian male incarcerated offenders (Wright, 1983, 1985b). With the recognition of potential disparities in life experiences before incarceration and biases in official reporting, the PAQ was formulated to evaluate the relative adjustment of incarcerated offenders within the correctional centre compared to their experiences in the free world. Simultaneously, the PAQ aims to measure discomfort within the correctional centre across various dimensions (Wright, 1983, 1985b). The PAQ's dual purpose, aiming to account for variations in prior life experiences while standardising assessments of both subjective and behavioural aspects of the correctional centre experience, proved notably beneficial for evaluating female incarcerated offenders (Warren et al., 2004).

Warren et al. (2004) introduced a two-factor solution comprising two subscales, namely the (a) Distress subscale (six items), which captured internal distress associated with the correctional environment, encompassing discomfort in the presence of fellow incarcerated offenders or correctional personnel, sleep difficulties, illness, and concerns about potential harm or exploitation, and (b) Conflict subscale (five items), which evaluated incarcerated offenders' experiences of anger, frequency and severity of injuries, and the occurrence of conflicts and heated arguments with other incarcerated offenders or correctional personnel. Warren et al. (2004) found that these scales predicted adjustment among incarcerated female offenders (Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren et al., 2004).

In Warren et al.'s (2004) study, the authors aimed to investigate the effectiveness of the PAQ in accurately assessing the experiences of a substantial cohort of female incarcerated offenders. The first examination focused on the factor structure of the PAQ, aiming to ascertain whether the dimensional structure of the instrument was consistent between male

and female samples and to determine the internal consistency of the resultant scales (Warren et al., 2004). Secondly, the study explored alternative scoring techniques, anticipating that these would enhance applicability with female incarcerated offenders. The goal was to establish a more practical index for examining adjustment among female incarcerated offenders at different stages during incarceration (Warren et al., 2004). Thirdly, the study assessed and validated the concurrent validity of the PAQ's two-factor model by comparing it with measures of correctional adjustment and psychological distress (Warren et al., 2004). Fourthly, the study employed a block design multiple regression to predict high PAQ scores by incorporating various demographic, criminological, and psychological variables (Warren et al., 2004).

The following section focuses on the participants and recruitment procedures Warren et al. (2004) used.

3.8.1 Participants and Recruitment Procedures Used by Warren et al. (2004)

Female incarcerated offenders in a state correctional centre, classified as maximum-security offenders, were invited to take part in a comprehensive study focusing on adjustment and coping within the correctional environment. Direct contact with female incarcerated offenders was initiated within their units over six months (Warren et al., 2004). In collaboration with correctional personnel, the researchers systematically entered each unit of the correctional centre, providing a brief overview of the study. Following this introduction, the incarcerated female offenders were invited to join the research personnel in two designated rooms within the educational building, where they completed the research protocol (Warren et al., 2004). The research protocol required an average of 45 to 60 minutes for completion. Following this engagement, 802 female incarcerated offenders consented to participate, constituting nearly two-thirds of the correctional centre's population during the day. However, due to incomplete data on several scales, 777 female incarcerated offenders

fully completed the PAQ and the other measuring instruments (Warren et al., 2004). The research sample participants were contrasted with all nonparticipants in the correctional centre from its inception until the conclusion of data collection, spanning 21 months. The two groups were compared based on race, the nature of the criminal offence (violent or non-violent), sentence length, frequency of institutional misconduct, and security classification. This analysis utilised information extracted from the correctional centre's records (Warren et al., 2004). There were no significant differences between participants and nonparticipants regarding race, sentence length, or time served. However, the participants were statistically significantly younger than the nonparticipants (M = 33.5, SD = 8.67; M = 35.5, SD = 8.86) and had a higher frequency of institutional misconduct (M = 2.05, SD = 3.42; for non-sample M = 1.83, SD = 3.60) (Warren et al., 2004).

The following section presents the results of Warren et al. (2004).

3.8.2 The Results of the Warren et al. (2004) Study

The results of Warren et al.'s (2004) study revealed that the majority of female incarcerated offenders reported having an understanding of the rules and having friends. However, nearly half of the participants indicated they were not receiving the necessary training for reintegration into society, felt they did not consistently receive adequate food, and seemed to have inadequate sleep (Islam-Zwart & Vik, 2004; Warren et al., 2004). Concerning the remaining items, the majority of female incarcerated offenders conveyed that their current needs for exercise, activity, and privacy were not being met. The study's results also highlighted that, among the surveyed items, feeling uncomfortable around others and experiencing sleep difficulties were the only aspects where the majority of female incarcerated offenders reported that the issues were more pronounced within the correctional centre compared to the free world (Islam-Zwart & Vik, 2004; Warren et al., 2004). In the case of the majority of female incarcerated offenders, feelings of anger, involvement in heated

arguments, physical altercations, injuries, illness, and the fear of exploitation were reported as either worse or unchanged compared to when they lived in the free world. Less than 10% of female incarcerated offenders indicated that physical altercations or injuries had worsened since their incarceration (Islam-Zwart & Vik, 2004; Warren et al., 2004).

The following section focuses on the factor structure and alternative scoring Warren et al. (2004) utilised.

3.8.3 The Factor Structure and Alternative Scoring of Warren et al.'s (2004) Two-factor Version

To investigate the internal structure of the PAQ and draw comparisons with findings in male incarcerated offenders, the researchers subjected the different items, indicating whether a specific problem was exacerbated during incarceration and, if so, its frequency, to exploratory factor analysis with varimax rotation (Warren et al., 2004). Warren et al. (2004) initially pursued a three-factor solution, aligning with the outcomes reported by Wright (1985b) in studies involving male incarcerated offenders. The three-factor solution identified an Internal factor (discomfort around fellow incarcerated offenders; discomfort around correctional personnel), an External factor (feeling angry; engaging in heated arguments with fellow incarcerated offenders; physical altercations), and a Physical factor (being injured; being sick; fear of being attacked; fear of being exploited). However, item scoring and factor results observations indicated the potential for a more optimised solution tailored to the female population (Warren et al., 2004).

Firstly, the Eigenvalues and the relatively low internal reliability for the Physical Scale indicated that a two-factor solution might be more concise. Secondly, the item scores were not ordinal due to the 0 categories representing two potential responses: either the problem did not currently occur, or the problem was not worse in the correctional centre. Thirdly, in most instances, a majority of female incarcerated offenders did not report that

their environment had deteriorated since their incarceration (Warren et al., 2004). Wright (1985b) suggested scoring procedures that assign a 0 score for such items, irrespective of how frequently the item is rated as occurring during incarceration. Considering these recommendations, an alternative factor analysis was performed using only the frequency with which problems are endorsed in the correctional centre. The first three Eigenvalues in Warren et al.'s (2004) study indicated a two-factor solution (3.9, 1.2, and .51, respectively).

In terms of the factor loadings and Cronbach alpha coefficients for the two factors, all variables exhibited satisfactory loadings, indicating a Conflict factor and a Distress factor. The Conflict factor encompasses feelings of anger, engaging in arguments, physical altercations, and sustaining injuries. The Distress factor consists of feeling uncomfortable around people, experiencing sleep problems, being sick, and fearing being attacked or exploited. Being injured was a complex variable with moderate and similar loadings on both factors. The two factors (Conflict and Distress) displayed a substantial correlation (r=.42) (Warren et al., 2004).

Based on the alternative two-factor analysis, each incarcerated offender had a Distress subscale score computed as the mean score loading on the Distress factor and a Conflict subscale score as the mean score loading on the Conflict factor. The mean score for the Distress subscale was 2.50 (SD = .77), and the distribution did not violate the assumptions of normality. The mean score for the Conflict subscale was 1.82 (SD = .61). Although the distribution was positively skewed (skewness = .93), the option of transformation was dismissed due to the large sample size and to preserve the interpretability of the results (Warren et al., 2004).

The following section explains how Warren et al. (2004) assessed the concurrent validity of the two-factor solution.

3.8.4 The Assessment of Concurrent Validity of the Two-factor Solution

To evaluate the concurrent validity of the PAQ scores, the scores on the alternative two-factor derived subscales observed in Warren et al.'s (2004) study, namely Distress and Conflict, were examined for associations with various measurement scales. These measurement scales included psychological symptomology (BSI Global Severity Index), self-reported violence perpetration, security classification, and average counts per month of violent, non-violent, socially proscribed, and correctional rule-based institutional misconduct. According to the results from Warren et al. (2004), the PAQ scale scores displayed consistent relationships with the validating measurement scales. As measured by the BSI Global Severity Index, psychological symptomology showed significant correlations with both scales. However, it exhibited higher correlation coefficients with the Distress subscale (.42 for the Conflict subscale and .57 for the Distress subscale). The self-reported perpetration of violence counts of institutional misconduct and security classification exhibited strong associations with the Conflict subscale. Only two variables, physical altercations and threats, showed more moderate associations with the Distress subscale (Warren et al., 2004).

The last section provides an in-depth discussion of the alternative two-factor solution.

3.8.5 Discussion of the Alternative Two-factor Solution

Warren et al. (2004) proposed that correctional adjustment can be effectively and validly assessed in a female population using the PAQ. The PAQ demonstrated consistent and theoretically interpretable correlations with validated measures of psychiatric distress, self-reported measures of both perpetration and victimisation of violence, as well as institutional counts of misconduct and security classification (Warren et al., 2004). The consistent validation across various psychological measurement scales, self-report inventories, and institutional assessments indicated a comprehensive and consistent measurement of behaviours and experiences associated with adjustment to the correctional environment

(Warren et al., 2004). Warren et al. (2004) endeavoured to investigate the dimensional structure of the PAQ when applied to women, drawing comparisons with its use in men. The study indicated both similarities and differences. As outlined earlier, the data were better represented by a two-factor solution rather than the three-factor solution reported by Wright (1985b) while validating the measure with male incarcerated offenders. Initially, Warren et al.'s (2004) results proposed a distinct structural model for female incarcerated offenders, encompassing emotional distress states and physical conflict, contrasting with male counterparts. However, a closer examination of the original Wright analyses suggested that a two-factor solution might better fit the original male data. This realisation made the structural distinction between males and females less significant than initially apparent. Interestingly, the two-factor distinction labelled Distress and Conflict in the current study aligns with the theoretical constructs that Wright initially aimed to measure when developing the PAQ: emotional distress and physical aggression (Warren et al., 2004).

The scoring approach employed in Warren et al.'s (2004) two-factor structure differs from the scoring regime developed by Wright (1985b) for use with male incarcerated offenders. Wright designed a measure that involved comparing various adjustment questions in the correctional centre to their counterparts related to adjustment in the free world (i.e., *"Is this problem worse than in the free world?"*). This comparative format was intended to eliminate individual differences in adjustment that were not specific to the correctional environment. Implicit in this comparative format was the assumption that, in most instances, incarcerated offenders would encounter more challenges in adjustment in the correctional centre than in the free world (Warren et al., 2004). How Wright reported his data does not facilitate an explicit examination of this assumption. However, the structural model he presented captures substantial item variability, indicating that most incarcerated offenders received an ordinal score on the 11 subscales of the PAQ. Following the scoring rules Wright

employed (i.e., a score of 0 if the problem was not worse in the correctional centre), these results would affirm the basic assumption that, on average, the adjustment of men was more challenging in the correctional centre than in the free world (Warren et al., 2004).

In Warren et al.'s (2004) study, a majority of women reported experiencing worse problems with feelings of anger, engaging in heated arguments, getting into fights, sustaining injuries, falling sick, and fearing an attack when they were living in the community compared to when they were in the correctional centre. These somewhat unexpected findings carry both sociological and methodological significance. From a sociological perspective, Warren et al. (2004) noted that many female incarcerated offenders seem to feel safer, calmer, and physically more secure in the correctional centre than in the free world. This highlights the instability and chaos of the pre-incarceration lives of these offenders rather than any sense of comfort provided by the correctional environment, emphasising an essential consideration for professional audiences (Warren et al., 2004).

Methodologically, this finding implies that the scoring procedure Wright (1985b) employed might be unsuitable for application to a female sample. If his comparison scoring procedure was utilised to summarise the present data, it could inappropriately downplay and obscure the adjustment difficulties experienced by this sample in the correctional centre, stemming from the unusually harsh nature of their lives before being sentenced (Warren et al., 2004). This approach distinctively segregates the community comparison from the level of difficulty experienced during incarceration, enabling a more flexible analysis of the challenges faced by these female incarcerated offenders. The multiple regression analyses conducted to identify factors that most effectively predicted the performance of the PAQ with the female sample yielded two significant models that largely affirmed earlier research (Warren et al., 2004).

Linquist and Linquist (1997) found that psychological factors played a pivotal role in the adjustment exhibited by female incarcerated offenders. These factors, assessed through the BSI and the SCID-II Screen, accounted for the most substantial portion of explained variance in the Distress and Conflict scale models. Specifically, BSI Anxiety contributed to 26% of the shared variance in the Distress model. At the same time, BSI Hostility and a positive screening for a personality disorder were the primary contributors to the majority of variance in the Conflict model. The origins of anxiety and hostility reported by these women remain unclear. It is also not known whether these emotional responses reflect enduring coping styles possibly linked to the high rates of victimisation experienced earlier in their lives or represent distinct reactions to life within a correctional centre. Nevertheless, the specificity of the significant BSI scales in these two models suggests that anxiety and hostility are uniquely associated with correctional adjustment and are not merely artefacts of distressed reporting styles on both the PAQ and the BSI. Demographic and historical factors held less significance in the Distress and Conflict models.

Fogel (1993), Koban (1983), and Fogel and Martin (1992) maintained that being a parent contributed to heightened distress among incarcerated females. It exacerbated their challenges in adjusting to life in a correctional centre. The significance of this finding may align with Koban's (1983) earlier observation that female incarcerated offenders had more difficulty maintaining regular contact with their children compared to male incarcerated offenders, who were encouraged to maintain family contact by their female partners. Alternatively, it might indicate the distress these women experience when in contact with their children, vividly reminding them that they are not part of their children's day-to-day lives. On the other hand, being married was associated with better adjustment, suggesting that marriage may reflect some form of interpersonal capacity that facilitates this type of

adjustment in the correctional centre or that the presence of a marital partner may alleviate some of the inherent stresses of the correctional environment (Warren et al., 2004).

Experiencing victimisation as a child or adolescent and being a nonminority were also factors contributing to more pronounced issues with correctional adjustment. The former may indicate the internalisation of certain aggressive forms of interpersonal relatedness, akin to a proxy form of "identification with the aggressor." The latter seems to be linked to a higher level of cultural exposure and familiarity with life within a correctional centre among minority women, as well as racial tensions within the correctional centre that lead to aggressive behaviour by minority-incarcerated offenders toward nonminority incarcerated offenders (Warren et al., 2004).

Contrary to previous research findings, prior incarceration was linked to higher levels of distress in Warren et al.'s (2004) sample. Additionally, while incarceration for a violent crime and time served were predictive of scores on the Conflict subscale of the PAQ, the sentence length did not emerge as a significant predictor. This finding partially aligns with earlier research by MacKenzie et al. (1989), which indicated that sentence length and time served were significant factors in determining adjustment patterns among incarcerated females. In previous research, primarily involving men, the amount of time served also showed a positive correlation with the Conflict subscale, suggesting that incarcerated offenders who had spent more extended periods in a correctional environment reported more problems with adjustment related to angry outbursts and heated arguments. Nevertheless, Warren et al. (2004) asserted that these criminological factors accounted for only a small portion of the explained variance in the Distress and Conflict regression models. This implies that psychological and historical factors are crucial in shaping the offender's adjustment pattern to life in a correctional centre. These findings align, to some extent, with the results of Gendreau et al. (1997), who discovered that the interaction of personal and institutional

factors was the most accurate predictor of institutional misconduct among male incarcerated offenders.

3.9 Summary

This chapter discussed the development of the Prison Adjustment Questionnaire with a specific focus on the correctional classification and Wright's research objectives, the participants and recruitment procedures used by Wright (1983), the methodology utilised to develop the PAQ, and the purposes for developing the PAQ. The chapter also discussed the layout of the PAQ, including the items on the PAQ, the subscales of the PAQ and the psychometric properties of the subscales reported by Wright. Furthermore, this chapter described and provided examples of items of each subscale of the PAQ, discussed the administration, scoring, and calculation of the PAQ, and discussed the purpose of the remaining items not computed. This chapter also explained the development processes of the PAQ and provided an overview of South African studies that utilised the PAQ. In addition, this chapter provided differences between Wright's (1983) PAQ and Wright's (1986) PAQ. Lastly, this chapter explored Warren et al.'s two-factor structure of the PAQ with emphasis on the participants and recruitment procedures used by Warren et al. (2004), the results of the Warren et al. (2004) study, the factor structure and alternative scoring of Warren et al.'s (2004) two-factor version, the assessment of concurrent validity of the two-factor solution, and a discussion of the alternative two-factor solution.

Chapter 4: Factor Analysis, Reliability and Validity

4.1 Introduction

This chapter provides insight into scale evaluation. Firstly, this chapter discusses factor analysis, specifically focusing on Exploratory Factor Analysis (EFA) and Confirmatory Factor analysis (CFA). Secondly, this chapter discusses validity in terms of what validity entails and specifically focuses on concurrent and discriminant validity. Lastly, this chapter discusses reliability in terms of what reliability entails, focusing on Cronbach's alpha coefficient and McDonald's omega coefficient.

4.2 Factor Analysis

Factor analysis refers to mathematical techniques researchers employ to identify variables or factors that generally signify traits, dimensions, or attributes that differ from one individual to another (Cohen & Swerdlik, 2009, 2018; DeVellis, 2012; Henson & Roberts, 2006). Factor analysis is a standard method used in the fields of education and psychology (Hogarty et al., 2005). It is used to interpret self-reporting questionnaires (Bryant et al., 1999). Factor analysis, known as a multivariate statistical procedure, has many uses. Firstly, factor analysis is used to reduce a large number of variables into a smaller set of factors. Secondly, factor analysis verifies underlying dimensions between measured variables and latent constructs, allowing researchers to form and refine theories. Thirdly, factor analysis provides evidence of construct validity of self-reporting measurement scales (Cohen & Swerdlik, 2009, 2018; Gorsuch, 1983; Hair et al., 1995; Hair et al., 2010; Tabachnick & Fidell, 2007; Thompson, 2004). The primary goals of factor analysis include minimising the number of variables, analysing the structure or interrelationships among variables, identifying and evaluating the unidimensionality of a theoretical construct, and assessing the construct validity of an instrument, scale, or test (Kuo, 2020; Williams et al., 2010).

Two procedures can be used to examine factor structures: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA and CFA are complementary methods that address different aspects of a specific measure. EFA is an analytical technique used to investigate a more extensive set of variables to identify a smaller number of underlying latent factors (Henson & Roberts, 2006). However, CFA is an analysis used to test an a priori theory or with already set theoretical expectations (Henson & Roberts, 2006). The subsequent section discusses the two types of factor analysis in detail: Exploratory Factor Analysis and Confirmatory Factor Analysis.

4.2.1 Exploratory Factor Analysis (EFA)

4.2.1.1 Exploratory Factor Analysis (EFA) Explained. Exploratory Factor Analysis (EFA) is a multivariate statistical technique used by researchers to determine the minimal number of hypothetical constructs (also called dimensions, factors, synthetic constructs, latent variables, or internal attributes) that can account for the observed co-variation among a set of measured variables (also referred to as manifest variables, observed variables, reflective indicators, effect indicators, or surface attributes) (Bandalos, 1996; Stangor, 2011; Tabachnick & Fidell, 2007; Watkins, 2018; Zikmund, 2008). Researchers use EFA when they are interested in aiming to reduce the amount of data that they want to use in their subsequent analysis or when they want to determine the number and character of the latent factors in their data sets (Conway & Huffcutt, 2003; Plucker, 2003). Additionally, researchers use EFA to identify the common factors that explain the structure and order among the measured variables. Tucker and MacCallum (1997) argued that in the behavioural and social sciences, factors are considered unobservable personal traits reflected in the variations in scores obtained by the individuals being measured.

When using EFA, the researcher has no expectations of the amount or nature of the variables; thus, as the title suggests, EFA is exploratory (Henson & Roberts, 2006; Hoyle,

2012), allowing researchers to explore the primary dimensions and develop a theory or model from a large number of latent constructs represented by a set of items (Henson & Roberts, 2006; Hoyle, 2012; Pett et al., 2003; Swisher et al., 2004; Thompson, 2004). The term exploratory is fitting because EFA does not test a predetermined factor structure model. Instead, the statistical programme analyses the data set to identify statistically justified factors (Plucker, 2003). This process is subjective, as the researcher must decide on the number of factors to select, often without complete information, leading to varied interpretations by different researchers (Cohen & Swerdlik, 2009; Plucker, 2003).

4.2.1.2 Statistical Packages that include EFA. EFA is available in various statistical software packages, including SPSS, SAS, Stata, and Mplus. Numerous tutorials and supplemental statistical routines for using EFA with these packages are also accessible (Child, 2006; Fabrigar & Wegener, 2012; Garson, 2013; Izquierdo et al., 2014; Lloret et al., 2017; Mehmetoglu & Jakobsen, 2017; O'Connor, 2000; O'Rourke & Hatcher, 2013; Pett et al., 2003; Price, 2017; Tabachnick & Fidell, 2001). Additionally, free statistical programmes that include EFA, such as the R package, are available for Windows, Macintosh, and Linux operating systems, with several published tutorials on how to use R (Beaujean, 2014; Finch & French, 2015; Revelle, 2016).

Statistical programmes should enable researchers to select optimal options for preliminary item analysis, measuring associations among variables, choosing the factor extraction method, select the rotation method, determine the criteria for the number of factors to retain, and estimate factor scores (Izquierdo et al., 2014). When performing EFA on items, choosing the appropriate type of correlation matrix for analysis is crucial. This technique is unsuitable for categorical items because it assumes linear relationships among them and the latent factors (Izquierdo et al., 2014). Tetrachoric or polychoric correlations are recommended when the items have four or fewer response categories (Finney & DiStefano,

2006). The Pearson correlation is typically used when items have five or more response categories. Brown (2006) added that using EFA with Pearson correlations is not recommended when a significant portion of the items have asymmetric distributions, as this can cause the items to cluster based on the mean of their distribution.

4.2.1.3 Variables to include in EFA. Researchers should make informed decisions about the variables they want to include in EFA. Measured variables are chosen based on their effectiveness as indicators of expected factors and their content and convergent and discriminant validity (Izquierdo et al., 2014). Therefore, these variables should accurately represent the domains the factors are intended to cover and should not include variables from unrelated domains (Tucker & MacCallum, 1997). Regarding assessments of existing measurement instruments that include a ready-made list of variables, researchers should evaluate these variables in terms of their validity (structural, factorial, or construct validity) (Watkins, 2018). The suggested guideline, or the number of measured variables for statistically identifying a factor, is at least three measured variables; however, more indicators are preferred (Child, 2006; Fabrigar & Wegener, 2012; Izquierdo et al., 2014). Fabrigar et al. (1999) recommended having four to six indicators per factor. Typically, EFA yields more reliable results when each factor is overidentified, indicating that that factor influences multiple variables. However, statistical programmes can still function with fewer than three variables per factor. However, akin to pinpointing a location in a three-dimensional space with just one, two, or three lines, the precision of such factors' location will be compromised (Watkins, 2018). Irrespective of the quantity, variables dependent on another should not be included in an EFA. Additionally, formative indicator variables should be used with caution in EFA (Bollen & Diamantopoulos, 2017). Formative indicators entail observed variables treated as determinants rather than effects of constructs (Edwards & Bagozzi, 2000).

4.2.1.4 The Five-Step Process when doing EFA. Researchers should also consider the following five steps when doing EFA (Williams et al., 2010). The first step entails determining whether the data is suitable for EFA. In this case, the data entails the sample size. After determining the sample size's suitability for EFA, the next steps include determining the sample-to-variable ratio, the factorability of the correlation matrix, and conducting several tests to determine the suitability of the respondent data for EFA.

The sample size is considered important in factor analysis, with literature citing several guidelines in this regard (Comrey & Lee, 1992; Cudeck & O'Dell, 1994; Gorsuch, 1983; Hair et al., 1995; Hogarty et al., 2005; Kline, 1994; MacCallum et al., 1999; Mundfrom et al., 2005; Tabachnick & Fidell, 2007). According to Tabachnick and Fidell (2007), at least 300 participants are needed for factor analysis. For Hair et al. (1995), a sample size of 100 or more participants is sufficient. Comrey and Lee (1992) categorised sample sizes as poor (100), fair (200), good (300), very good (500), and excellent (1000 or more), although MacCallum et al. (1999) cautioned that these guidelines may not always account for the complex dynamics of factor analysis. MacCallum et al. (1999) added that when "commonalities" (p. 402) are high (greater than .60) and several items define each factor, it is possible to use relatively small samples. Guadagnoli and Velicer (1988) suggested that solutions with correlation coefficients >.80 require smaller sample sizes, whereas Sapnas and Zeller (2002) maintained that small sample sizes consisting of 50 participants are adequate for factor analysis. It is evident that researchers vary significantly when suggesting the required sample size to complete factor analysis of a group of items that participants responded to.

The sample-to-variable ratio is another important consideration in determining whether data is suitable for EFA. This ratio, denoted as the *N:p* ratio, compares the number of participants (*N*) to the number of variables (*p*) (Hogarty et al., 2005). There are also

disparities in researchers' recommendations regarding the sample-to-variable ratios, as in sample sizes (Hair et al., 1995; Hogarty et al., 2005). Recommendations for this ratio vary among researchers, with suggested ratios ranging from 3:1 to 20:1 in the literature. Some researchers, such as Mundfrom et al. (2005), suggested that 100 or 200 subjects are sufficient if the communalities are higher than .50 and a minimum of 7 variables (items) define each factor. On the other hand, Izquierdo et al. (2014) argued that there are no minimum recommended ratios, as the variables' commonalities affect the variance proportion, the level of correlation among factors, and the number of variables defining each other. They also emphasised that the estimation of factor loadings will not be accurate when commonalities are low, regardless of sample size. Additional guidelines range from 3:1, 6:1, 10:1, 15:1, or 20:1 throughout literature (Everitt, 1975; Gorsuch, 1983; Hair et al., 1995; Tabachnick & Fidell, 2007). In order to emphasise this equivocality, Hogarty et al. (2005) and MacCallum et al. (1999) reported that there is no universally required level of *N* or *N:p* ratio for achieving good factor recovery.

When conducting EFA, it is important to consider the correlation matrix's factorability. The correlation matrix shows how individual variables are related in the EFA process. Researchers commonly use this matrix to understand relationships between variables (Henson & Roberts, 2006). Tabachnick and Fidell (2007) suggested that researchers investigate factorability (R) when correlation coefficients are greater than .30. According to Hair et al. (1995), correlation loadings can be grouped into categories: ±.30=minimal, ±.40=important, and ±.50=practically significant. If none of the correlations exceed .30, researchers should consider if factor analysis is the appropriate statistical method (Hair et al., 1995; Tabachnick & Fidell, 2007). Simply put, a factorability of .30 means that factors explain 30% of the relationship in the data or that a third of the variables (items) share too

much variance. This makes it impractical to determine whether the variables correlate with each other or with the dependent variable, known as multicollinearity.

Before extracting factors, several tests should be used to evaluate the suitability of the respondent data for EFA. These tests include the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (Kaiser, 1970, 1974) and Bartlett's Test of Sphericity (Bartlett, 1950). The Kaiser-Meyer-Olkin (KMO) measure assesses whether the sample size is suitable for multivariate analysis and tests if the partial correlations among variables are small (Naidoo, 2011). The KMO measure compares the magnitudes of observed and partial correlation coefficients. It indicates the ratio of the squared correlation between variables to the partial correlation of variables (Naidoo, 2011). The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is recommended when the participant-to-variable ratio is less than 1:5. The KMO index ranges from 0 to 1, with a value of .50 deemed suitable for factor analysis (Hair et al., 1995; Tabachnick & Fidell, 2007). A value of 0 indicates that the sum of partial correlation is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (Naidoo, 2011). A value close to 1 indicates that correlation patterns are relatively compact, yielding distinct and reliable factors (Naidoo, 2011). Specific interpretations of the KMO are as follows: values smaller than .50 make factor analysis inappropriate; a KMO value of .60 should be present before factor analysis is considered; values between .50 and .70 are average; values between .70 and .80 are good; values between .80 and .90 are excellent; and values between .90 and 1.00 are magnificent (Du Plessis, 2009; Du Plessis, 2010; Field, 2009). A larger KMO value indicates a more reliable factor analysis for a particular sample (Naidoo, 2011). Sphericity is a broader concept than compound symmetry, particularly when both the variables and the covariances between conditions are equal (Naidoo, 2011). Bartlett's test of Sphericity examines if a variance-covariance matrix is proportional to the identity matrix (Naidoo, 2011). Therefore, Bartlett's Sphericity test

assesses the strength of the relationships among variables and determines if the data is appropriate for multivariate statistical techniques such as factor analysis (Naidoo, 2011). It tests the hypothesis that variables are uncorrelated within a population, implying that the population matrix is an identity matrix where each variable has a perfect correlation with itself (r=1) and no correlation with other variables (r=0) (Naidoo, 2011). Furthermore, Bartlett's test of Sphericity evaluates the null hypothesis that variables in the population correlation matrix are uncorrelated (Coakes & Steed, 1997). Essentially, Bartlett's test is used to determine the suitability of the data for multivariate statistical analysis like factor analysis (Naidoo, 2011). For factor analysis to be appropriate, Bartlett's test should be significant ($p<.05$) (Field, 2009; Hair et al., 1995; Tabachnick & Fidell, 2007).

The second step requires researchers to consider how the factors will be extracted (Floyd & Widaman, 1995; Williams et al., 2010). Factor extraction allows researchers to estimate factor loadings and correlations between factors (Floyd & Widaman, 1995; Izquierdo et al., 2014). The choice of factor extraction method relies on several factors, including the researcher's objectives, adherence to distributional assumptions required by the method, and the researcher's interest in utilising goodness-of-fit indices (Izquierdo et al., 2014). Factor extraction entails employing a statistical programme to analyse the covariance among multiple variables to identify underlying factors within the dataset (Plucker, 2003). Various techniques exist for factor estimation and extraction, such as Principal Component Analysis (PCA), Principal Axis Factoring (PAF), Image factoring, Maximum likelihood, Alpha factoring and canonical methods (Plucker, 2003; Tabachnick & Fidell, 2007; Thompson, 2004), and Parallel Analysis (Horn, 1965). Despite minor differences, these methods aim to estimate weights that minimise residual correlations (discrepancies between empirical correlations and those predicted by the model) and produce similar estimates (Izquierdo et al., 2014). However, Principal Component Analysis (PCA) and Principal Axis

Factoring (PAF) are most employed in published research (Henson & Roberts, 2006; Tabachnick & Fidell, 2007; Thompson, 2004). Although the literature varies on whether to use PCA or PAF (Henson & Roberts, 2005), Thompson (2004) maintained that practical distinctions between PCA and PFA are generally negligible, mainly when variables exhibit high reliability or, according to Gorsuch (1983), when the number of variables exceeds 30. Thompson (2004) added that PCA is the default method in statistical software and is frequently utilised in EFA.

However, PCA is also recommended when no prior theoretical framework or model exists (Gorsuch, 1983). Furthermore, Pett et al. (2003) proposed using PCA by researchers to establish initial solutions in EFA. The present study utilised PCA as the factor extraction method; a brief overview of PCA is provided. Principal Component Analysis (PCA) involves analysing the entire correlation matrix and is typically utilised to condense data while retaining as much information as possible from the original dataset (Bryant & Yarnold, 1995; Norris & Lecavalier, 2010). To retain maximal information while reducing the data, PCA calculates linear combinations of the original measured variables that capture as much information as possible about those variables (referred to as components). These new measured variables serve as concise representations of the original measured variables but do not represent latent constructs (Cudeck, 2000). Alternatively, the measured variables, not the factors, influence the components.

PCA is typically the default model for statistical software (Watkins, 2018). Given that the present study utilised parallel analysis to estimate the appropriate number of factors to extract or retain, a brief explanation of parallel analysis is provided. Parallel analysis involves conducting factor analysis on a comparable dataset comprising random numbers; if the Eigenvalue for the first factor using actual data exceeds that for the first factor using random data, the factor should be retained (Thompson & Daniel, 1996). Parallel Analysis involves

statistically generating a random data set with the same number of variables and participants as the actual dataset (Watkins, 2018). This random dataset undergoes Principal Component Analysis (PCA), and the resulting Eigenvalues are recorded (Watkins, 2018); this process is repeated multiple times (typically at least 100 times), and the resulting Eigenvalue set is averaged and compared with the components extracted from the actual data. Eigenvalues derived from the actual data that surpass those derived from the random data indicate the number of factors to retain (Watkins, 2018). Factors are retained when the actual Eigenvalues exceed those of the randomly ordered Eigenvalues (O'Connor, 2022; Patil et al., 2017).

The third step involves researchers determining which criteria will aid in determining factor extraction (Floyd & Widaman, 1995; Williams et al., 2010). The objective of factor extraction is to condense numerous items into factors. Determining the number of factors to retain is one of the most crucial aspects of EFA and poses significant challenges in studies (Henson & Roberts, 2006). Various criteria are at researchers' disposal to achieve scale unidimensionality and simplify factor solutions. However, it is advised that researchers refrain from relying solely on one criterion to determine factor analysis due to the diverse and sometimes ambiguous nature of factor analysis (Costello & Osborne, 2005). Thompson and Daniel (1996) proposed that utilising multiple decision rules concurrently is suitable and preferable. Hair et al. (1995) noted that most factor analysts employ multiple criteria. Moreover, as most of the current criteria for determining the number of factors to retain are descriptive, it is recommended to employ diverse strategies when making this decision. Among these strategies is the utilisation of Parallel Analysis (Horn, 1965) alongside a descriptive examination of residual correlations (e.g., standardised root mean square residual [SRMR]) and scrutiny of the scree plot (Abad et al., 2011). Various extraction rules and methodologies are available, including Kaiser's criteria (Eigenvalue > 1) (Kaiser, 1960), the Scree test (Cattell, 1966), the cumulative percentage of variance extracted, and parallel

analysis (Horn, 1965). Multiple approaches can be adopted in factor extraction, and numerous peer-reviewed psychology measurement and education journals stipulate multiple extraction techniques for manuscripts to be considered for publication. The first approach, the cumulative percentage of variance, is a point of contention across fields such as natural sciences, psychology, and the humanities (Henson & Roberts, 2006). While specific percentages have been proposed, there is no universally agreed-upon threshold. For instance, Hair et al. (1995) suggested stopping factor extraction when at least 95% of the variance is accounted for in the natural sciences. Conversely, in the Humanities, it is common for explained variance to be lower, typically ranging from 50-60% (Hair et al., 1995; Pett et al., 2003). The second method, Scree plots, relies on subjective interpretation, necessitating researchers' judgements (Gorsuch, 1983; Tabachnick & Fidell, 2007; Thompson, 2004). Consequently, there is room for debate regarding which factors should be retained (Pett et al., 2003). However, disagreements and subjectivity tend to diminish with larger sample sizes, favourable *N:p* ratios (>3:1), and high communality values (Gorsuch, 1983; Pett et al., 2003). Evaluating the Scree test comprises two stages: (i) Initially, researchers draw a straight line across the lower Eigenvalues to identify any deviation from this line, indicating where a break occurs. In instances where the Scree plot exhibits ambiguity and becomes challenging to interpret, further data manipulation and extraction methods are necessary. (ii) The point located above the break denotes the number of factors that ought to be retained (Williams et al., 2010).

Parallel analysis is an excellent method for researchers to determine the number of factors they should retain or extract (Thompson, 2004). In parallel analysis, actual Eigenvalues are contrasted with Eigenvalues derived from random order. Factors are retained if actual Eigenvalues surpass those generated randomly. Once these analyses are completed, researchers will be presented with a final number of factors or optimal solutions.

Subsequently, researchers will exercise careful and thoughtful judgement to determine which solution fits best and which extracted factors align most logically with the conceptual framework (Williams et al., 2010).

Due to the researcher's subjectivity potentially affecting reliable interpretations of visual scree graphs, alternatives to these plots have been recommended (Stellefson & Hanik, 2008). These alternative methods use regression equations to objectively determine where the elbow in the scree plot occurs (Stellefson & Hanik, 2008). Nasser et al. (2002) identified the Standard Error (SE) scree test (Zoski & Jurs, 1996) as the most effective regression-based variation of the visual scree. The SE scree test calculates the Eigenvalues' standard errors (SEs) using a series of regression analyses, each time inserting a decreasing number of Eigenvalues (Stellefson & Hanik, 2008). The Eigenvalues' actual numerical values serve as the dependent variables in these analyses. In contrast, their ordinal positions from 1 to v (where v is the number of variables in the association matrix) serve as the predictor variables. The first SE is calculated from a regression using all v Eigenvalues, the second with v-1 Eigenvalues, the third with v-2, and so forth (Nasser et al., 2002). As each subsequent Eigenvalue is removed from the regression analyses, the SEs of the R^2 values decrease. Once the SE of R^2 falls below the criterion of one divided by the number of variables (used because error variance is inversely related to sample size), no significant residual Eigenvalues remain, indicating that factor retention should stop. Essentially, the number of SEs exceeding the 1/v criterion indicates the number of factors to retain (Stellefson & Hanik, 2008). The fourth step involves choosing a rotational method for data analysis, requiring researchers to determine whether a variable might be related to multiple factors (Browne, 2001; Floyd & Widaman, 1995; Williams et al., 2010). The purpose of the rotation is to simplify the factor structure of a set of items or to allocate high item loadings to one factor and lower loadings to the remaining factor solutions (Costello & Osborne, 2005). The primary aim of factor rotation is

to enhance the interpretability of the results (Plucker, 2003). Factor rotation aims to achieve a more straightforward and theoretically more meaningful solution by adjusting the axes within the factor space to align them more closely with the variables' positions (Watkins, 2018). Rotation reduces low item loadings and maximises high item loadings, resulting in a more interpretable and simplified solution (Williams et al., 2010). Two common rotation techniques are orthogonal rotation and oblique rotation. Researchers have various methods available within both techniques, such as orthogonal varimax/quartimax or oblique oblimin/promax (Williams et al., 2010). Varimax is the most commonly employed rotational technique in factor analysis in orthogonal rotation, yielding uncorrelated factor structures (Costello & Osborne, 2005). Put simply, orthogonal rotation involves adjusting the factors so they are not correlated (Plucker, 2003).

Moreover, the orthogonal rotation technique aims to maximise the dispersion of factor loadings within the factors (Field, 2009). In contrast, oblique rotation generates correlated factors and is typically perceived as producing more accurate outcomes for research on human behaviours or when the data fails to meet a priori assumptions (Costello & Osborne, 2005). Thus, oblique rotation involves permitting the rotated factors to correlate with each other (Plucker, 2003). Three key outcomes are derived from implementing oblique rotation: the factor pattern matrix, which depicts the direct impact of the factors on the variables and is the most suitable for interpreting the obtained solution; the factor structure matrix, which encompasses the factor-variable correlations; and the factor correlation matrix (Izquierdo et al., 2014). The loadings provided by the factor pattern matrix and the factor structure matrix may differ significantly if the factor intercorrelations are high; in such cases, it is advisable to report the findings and explicitly specify whether the reported loadings are factor pattern coefficients or factor structure coefficients (Thompson, 2004).

Rotating factors typically enhances the fit of the factors to the data, making interpretation easier (Plucker, 2003). Given that nearly all variables measured in the social sciences exhibit some degree of correlation (Meehl, 1990), it is commonly advised in the literature to employ an oblique rotation to allow for the emergence of intercorrelations (Brown, 2015; Cudeck, 2000; Fabrigar et al., 1999; Flora et al., 2012; Gaskin & Happell, 2014; Gorsuch, 1983; Norris & Lecavalier, 2010; Price, 2017). Concerning oblique rotations, matrices may yield significantly different outcomes, necessitating interpretation of the pattern matrix in such cases (Pedhazur & Schmelkin, 1991). Various criteria are used to determine whether a factor loading in a pattern matrix is practically significant (Plucker, 2003). Some researchers employ a threshold of .30, others opt for .35, and some set the bar at .40 or higher (Plucker, 2003). The choice of threshold depends on the researcher, who must interpret the factor when establishing a cutoff for loading interpretation. Statistical analysis programmes also calculate the commonality and the proportion of variance accounted for by each observed variable within the factor solution. High values indicate factor solutions that explain a substantial portion of variance for a particular variable or set of variables. In contrast, low values suggest a poor fit between the observed variables and factor solution (Plucker, 2003). When factors are not independent, thus not rotated, or if they are rotated orthogonally, these estimates can be computed by tallying the squared loadings of each item on each factor (Plucker, 2003).

In instances where no relationship exists between factors, oblimin rotations will yield orthogonal results. Fabrigar and Wegener (2012) asserted that oblique rotations typically offer a more realistic depiction of the data, provide a solution that is easier to interpret, and furnish the researcher with additional information not available in orthogonal rotations. Given these strengths mentioned above, oblimin rotation is recommended and generally suitable (Carroll,

1978; Child, 2006; Gorsuch, 1983; Izquierdo et al., 2014; Loehlin & Beaujean, 2017; Norman & Streiner, 2014; Pett et al., 2003).

Regardless of the extraction method chosen, the primary aims remain to facilitate a more precise interpretation of the results and to yield a more concise solution (Hair et al., 1995; Kieffer, 1999). Following Principal Component Analysis (PCA), Principal Axis Factoring (PAF) should be considered for comparison and assessment of the best fit, as Pett et al. (2003) and Kieffer (1999) recommended. In other words, researchers should intuitively and conceptually select the rotated solution that offers the best fit and factorial suitability. Subsequently, researchers assess items that either fail to load or cannot be attributed to a factor using the guidelines above and determine whether these items should be excluded. For instance, such items may load onto multiple factors, fail to load onto any factors, or lack a logical fit within any factor structure (Williams et al., 2010).

The last step, interpretation, involves researchers examining and interpreting which variables contribute to a factor and then assigning a name to that factor or categorising it under a common theme (Williams et al., 2010). Typically, two or three variables (items) must load onto a factor to provide a meaningful interpretation (Henson & Roberts, 2006; Isaac & Michael, 1997; Plucker, 2003). Assigning labels to the factors is a subjective, theoretical, and inductive process (Cohen & Swerdlik, 2009; Pett et al., 2003). Henson and Roberts (2006) noted that the significance or interpretation of the latent factors hinges on the researcher's definition of the factor. The rationale for conducting comprehensive and systematic factor analysis is to isolate the items with high loadings within the resulting pattern matrices. Thus, it is an endeavour to identify those factors that, when combined, account for most of the responses. Once the researcher is content with these factors, they should be operationalised and labelled descriptively. It is crucial that these labels or constructs accurately reflect the conceptual and theoretical intentions (Williams et al., 2010). The interpretation of factors

relies on the interpretation of two matrices (Plucker, 2003). The pattern matrix illustrates the relationship between each variable and factor while controlling for other factors (Plucker, 2003). The structure matrix illustrates the correlation between each variable and each factor without accounting for the variables' correlations with other factors (Plucker, 2003).

4.2.1.5 Distributional Properties of the Data to consider in EFA. The subsequent section briefly discusses the distributional properties of the data that the researcher should consider in EFA. It is important to note that not all the mentioned properties are part of this current study but are discussed only as background knowledge to understand EFA.

EFA's assumptions are more conceptual than statistical (Hair et al., 2010). For example, latent constructs are believed to cause co-variation among measured variables and influence them linearly (Bandalos & Gerstner, 2016; Fabrigar & Wegener, 2012; Tucker & MacCallum, 1997). Deviations from normality and linearity are significant only because they affect the Pearson product-moment correlation coefficients (r) among measured variables, which are used to compute EFA results and can lead to misleading findings (Reise et al., 2000). Therefore, it is essential to assess and report the distributional properties of the data that might impact the Pearson correlations (Goodwin & Leech, 2006). The Pearson correlation coefficient is a straightforward correlational analysis that displays the various relationships between different variables through a correlation matrix (Du Plessis, 2010; Naidoo, 2011). These coefficients are statistical measures of the co-variation or association between two variables. The Pearson correlation coefficient ranges from -1 to 1, with a value near -1 indicating a strong negative correlation and near 1 indicating a strong positive correlation between two variables (Du Plessis, 2010; Xiong et al., 2003; Zikmund, 2008).

When conducting Exploratory Factor Analysis (EFA), researchers should consider the following factors:

1. **Variability**: Research samples often use selective sampling techniques and may not represent the entire population (Fabrigar & Wegener, 2012; Tucker & MacCallum, 1997). When the sample is more restrictive, the variance of its variables is limited, weakening r-coefficients (Fabrigar et al., 1999). Researchers should account for range restrictions and apply appropriate remedies cautiously (Hunter et al., 2006).
2. **Linearity**: The Pearson *r* coefficient measures the linear relationship between two variables. If the relationship is non-linear, the r value decreases. Linearity can be assessed subjectively using scatterplots (Goodwin & Leech, 2006). If non-linearity is detected, a more robust correlation coefficient should be used instead of *r* (De Winter et al., 2016; Gorsuch, 1983; Lloret et al., 2017; Revelle, 2016).
3. **Normality**: The Pearson correlation coefficient assumes normality (Goodwin & Leech, 2006), but real data often violates this assumption (Cain et al., 2017; Micceri, 1989). Skewness and kurtosis can influence EFA results and *r*. Skewness refers to the asymmetry of the score distribution, and kurtosis measures the height of the distribution relative to its width (Watkins, 2018). Differences in distributions generally reduce the correlation coefficient, but extreme skewness can produce misleading factors (Bandalos & Gerstner, 2016). All manifest variables should be scored consistently to minimise skewness effects on EFA, with negative valence variables reversed scored (Norman & Streiner, 2014). Mardia's estimates can assess multivariate skewness and kurtosis (Mardia, 1970). Significant problems can arise when univariate skewness is ≥2.0 and kurtosis is ≥7.0 (Curran et al., 1996). More robust methods like Spearman, phi, polychoric, or tetrachoric correlations should be used when normality is improbable or skewness and kurtosis are high (Curran et al., 1996; De Winter et al., 2016; Fabrigar & Wegener, 2012; Fabrigar et al., 1999; Flora et al., 2012; Gorsuch, 1983; Lloret et al., 2017; Revelle, 2016).

4. **Level of Measurement**: Pearson correlations assume normally distributed variables measured on ratio or interval scales, meaning continuous data with equal intervals. Ordinal variables (e.g., Likert-type items) and dichotomous variables (e.g., binary items such as true or false items) do not meet these assumptions, negatively affecting correlation coefficients and EFA results (Fabrigar & Wegener, 2012). Researchers recommend using polychoric correlations for ordinal variables with fewer than five to seven categories or asymmetrical distributions (Bandalos & Gerstner, 2016; Fabrigar et al., 1999; Izquierdo et al., 2014; Lloret et al., 2017; Norris & Lecavalier, 2010).
5. **Missing Data**: Researchers should report the quantity and nature of missing data and the methods used to address it. Controlling the experimental situation to minimise missing data is ideal but not always feasible. Default methods like listwise and pairwise deletion are inefficient and usually not recommended (Baraldi & Enders, 2010). Alternative methods include mean, regression, multiple, and maximum likelihood (ML) imputation. Studies suggest any method is effective with <5% missing data, mean imputation is acceptable with <10% missing data, and regression imputation is acceptable with <15% missing data. Multiple imputation and ML methods are more accurate for more significant proportions of missing data (Baraldi & Enders, 2010; Schumacker, 2015).
6. **Outliers**: Box plots, scatterplots, and Mahalanobis distance can identify outliers (Aguinis et al., 2013). Outliers can result from data collection, capturing errors, or misreading missing-value codes as real data. Correcting erroneous data is necessary (Watkins, 2018). Outliers may also reflect a different population than intended, which can be addressed by deletion or transformation, though some methodologists advise against these modifications (Aguinis et al., 2013; Zijlstra et al., 2011). Using robust estimators like Spearman or polychoric correlations is more appropriate in these cases

(De Winter et al., 2016; Gorsuch, 1983; Revelle, 2016). Researchers should report decisions and results when outliers are deleted or transformed (Watkins, 2018).

7. **Measurement Error**: Measurement error reduces variable reliability, decreasing the correlation between variables. Variables with reliabilities lower than .70 should be avoided in EFA, although this standard may not be feasible when analysing test items (Fabrigar et al., 1999; Watkins, 2018).
8. **Appropriateness of Data for EFA**: Researchers must verify that measured variables are sufficiently intercorrelated to justify factor analysis. This can be assessed subjectively by checking if correlations exceed ±.30 (Hair et al., 2010). Bartlett's Sphericity test objectively tests the correlation matrix's factorability (Watkins, 2018). A significant chi-square value from Bartlett's test justifies EFA, but results should be supplemented with the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. KMO values range from .00 to 1.00, with values ≥.70 desired and values <.50 considered unacceptable (Child, 2006; Hair et al., 2010; Hoelzle & Meyer, 2013; Lloret et al., 2017). Kaiser (1974) described Kaiser-Meyer-Olkin values ≥.90 as spectacular, ≥.80 admirable, ≥.70 moderate, ≥.60 average, ≥.50 inadequate, and ≤.50 unacceptable.

4.2.1.6 Reporting the Results of EFA. In an EFA report, researchers should thoroughly describe the study's methodology and present the results clearly and in detail. The report must be coherent to support the validity of the results and justify the study's conclusions (Appelbaum et al., 2011). Additionally, the EFA report should address all preceding decisions and include the following information:

- Justification for the measured variables included in the EFA,
- Justification for the type and number of participants included,
- Data characteristics (including descriptive statistics, normality, and missing data),

- Appropriateness of the data for EFA (Bartlett and KMO statistics),
- The statistical programme and version used,
- The correlation matrix analysis (Pearson, polychoric),
- The factor model used (principal components analysis versus common factor analysis),
- The estimation method (iterated principal axis, maximum likelihood),
- The method of estimating commonalities,
- How the number of factors to retain was determined,
- The factor rotation method used,
- The strategy for interpreting factors (including the definition of salience),
- The percentage of variance accounted for by factors (specify before or after rotation),
- The complete pattern coefficient matrix (including low coefficients),
- The inter-factor correlations (for oblique rotations),
- The reliability estimates for the identified factors,
- The complete structure coefficient matrix (when substantially different from the pattern matrix),
- The Eigenvalues for all factors, if space permits, and
- The correlation matrix, if space permits (Ford et al., 1986; Izquierdo et al., 2014; Pedhazur & Schmelkin, 1991; Pett et al., 2003).

4.2.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) is employed when the researcher can predict the number and relationships among factors as well as their loadings on variables, with some loadings assumed to be null based on prior systematic results or strong theoretical foundations (Izquierdo et al., 2014). The stability of the results can be tested on independent samples. For instance, if the sample size permits, the researcher can conduct cross-validation

studies by applying EFA to one-half of the sample and then using CFA to confirm the structure on the other half (Brown, 2006). It is recommended that EFA is performed first to generate or suggest plausible models for testing theory, followed by CFA to test or confirm a hypothesis generated by the initial EFA (Henson & Roberts, 2006).

4.2.2.1 Confirmatory Factor Analysis (CFA) Explained. CFA is used to test a proposed theory. It is a type of structural equation modelling that relies on prior theoretical expectations regarding the number of factors and the best-fitting factor theories or models (Hoyle, 2012; Irwing et al., 2018; Morin et al., 2016; Stangor, 2011; Williams et al., 2010). CFA assesses how well-measured variables (e.g., test item scores) represent a smaller number of underlying constructs (Hair et al., 2010). It provides a confirmatory test of measurement theory by showing that a set of items correlates with underlying constructs (Foxcroft & Roodt, 2013; Hoyle, 2012; Irwing et al., 2018). Unlike EFA, which uses correlation coefficients, CFA uses covariances as the basis for analysis. This allows CFA to inspect unwanted sources of variance within test scores and helps researchers understand the complex multidimensional nature of contamination by isolating different sources of variance (Foxcroft & Roodt, 2013; Hoyle, 2012; Irwing et al., 2018).

4.2.2.2 The Five-Step Process when doing Confirmatory Factor Analysis. CFA involves five main steps: specifying the model, estimating (fitting) the model, evaluating the fit, modifying the model, and interpreting loadings and related statistics (Floyd & Widaman, 1995; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). The first step, specifying the measurement model, occurs after initial item creation and data collection (Floyd & Widaman, 1995; Furr, 2011; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Researchers define the measurement model using CFA-capable software like AMOS, SPSS, SAS, and LISREL, subsequently allowing for the creation of diagrams representing their

models (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

In the first step, researchers identify at least three aspects of their measurement model: the number of factors, the relationships between factors and items, potential relationships between factors (if more than one is hypothesised), the specific values of parameters such as factor loadings, and the equality of parameters such as constrained factor loadings (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). They also specify which items load onto each factor, ensuring at least one item per factor, with each item typically associated with only one latent variable (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). This means hypothesising that participants' responses to specific items are influenced by their levels of particular latent variables, allowing the statistical programme to determine the strength of these effects (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

For multidimensional models, researchers specify items not associated with one or more latent variables, indicating zero-loading on these variables (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Any possible associations between factors are specified if the model includes multiple factors. This can be done by either indicating that factors load on a higher-order factor or by showing that factors are simply correlated with each other (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

During model specification, three types of measurement-related parameters are typically identified: hypothesised factor loadings, correlations between factors or loadings of a lower-order factor onto a higher-order factor, and error variance estimates for each item. These parameters are generally freely estimated, meaning they are assumed to be non-zero,

and the statistical software is used to estimate their precise values (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

After researchers have specified their hypothesised model, Step 2 involves submitting these specifications along with the scale's data for analysis, allowing the statistical programme to process them (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). This analysis comprises four phases:

1. The statistical programme first uses the collected data to calculate the actual variances of items and the covariances among them (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). These values are crucial for estimating item parameters and assessing the model's accuracy.
2. Next, the programme uses these actual variances and covariances to estimate the parameters as defined by the researchers (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). For instance, it uses the real association between two items to estimate their factor loadings on a common factor (Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). This phase includes estimating all factor loadings, inter-factor correlations, and error variances and computing inferential statistics for each parameter. The typical inferential test's null hypothesis is that the parameter is zero in the population, allowing the programme to test if each item significantly loads onto its factor (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).
3. In the third phase, the programme uses the estimated parameters to generate implied item variances and covariances based on the specified model and its parameters

(Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). A well-fitting model will have implied variances and covariances closely matching the actual values from phase one. Significant differences indicate a poor model fit.

4. Finally, in phase four, the programme provides information on the overall adequacy of the hypothesised model (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Specifically, it compares implied variances and covariances to the actual ones, producing indices of model fit and modification (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Good fit indices, indicated by minor discrepancies, suggest that the hypothesised model adequately accounts for the associations among the scale's items. Conversely, significant discrepancies result in poor fit indices, indicating the model does not adequately explain the scale's data (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

After researchers have gathered responses to a scale, specified a hypothesised measurement model, and conducted the analysis, they proceed to Step 3: interpreting the output and reporting their findings (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). CFA generates output relevant to various aspects of the analysis and the model itself. Depending on the results, researchers may either examine additional results or conclude their analyses. In the best-case scenarios, the hypothesised models closely match actual responses, requiring researchers to examine only two sets of output: fit indices and parameter estimates (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

Researchers typically start by examining fit indices to assess the overall adequacy of the hypothesised model, with the chi-squared statistic being the most commonly examined index. Additionally, they consider other fit indices, such as the Goodness of Fit Index (GFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), and Akaike Information Criteria (AIC) (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

If the model is deemed adequate, researchers will examine parameter estimates to evaluate the scale's psychometric properties. If the model is inadequate, they will likely look at modification indices to consider potential revisions (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Once a measurement model has an acceptable overall fit, researchers typically evaluate and report parameter estimates, including factor loadings, inter-factor correlations, and error variances (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). These estimates provide essential information about the scale's factorial structure and psychometric properties.

Factor loadings indicate the degree to which an item is associated with a factor, reflecting how differences in participants' responses to the item stem from differences in their levels of the underlying construct being measured. Researchers hope to find significantly significant positive factor loadings for items hypothesised to load onto a specific factor (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). Suppose an item's factor loading is small or nonsignificant. In that case, the item is considered unrelated to the factor and is usually removed from the scale. Researchers then re-specify the model for the revised scale and re-run the analysis to

evaluate it anew (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

For multidimensional models, researchers also interpret and report parameters that reflect associations among factors, which can be modelled either as effects of higher-order factors on lower-order factors or as correlations between factors (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003). Researchers expect significantly significant inter-factor loadings when higher-order factors are hypothesised to affect lower-order factors. Similarly, significant inter-factor correlations are expected when factors are hypothesised to be non-causally associated with each other (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

If fit indices support the model, researchers proceed to examine parameter estimates. If these estimates are acceptable and support the model—meaning no weak or nonsignificant factor loadings are found—researchers consider the CFA complete. However, if fit indices do not support the model, researchers typically revise their hypotheses and seek to improve their understanding of the scale's dimensionality (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). This leads to the next potential step in CFA: Step 4-model modification and re-analysis.

When researchers encounter poor fit indices, they typically examine modification indices to identify potential revisions to their measurement model. Each modification index usually refers to a parameter initially set to zero within the model (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). The size of a modification index indicates the potential improvement from revising that parameter. For parameters with large modification index values, researchers consider modifying the hypothesised model to alter that parameter, which should enhance the

model's fit (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

Researchers re-run the analysis after reviewing modification indices and adjusting one or more parameters. This generates new output, including updated fit indices and parameter estimates. They then assess the revised model's adequacy, examining parameter estimates if the model fits well or new modification indices if it still fits poorly (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

Modification indices provide valuable insights into a scale's factor structure. However, extensive post-hoc modifications blur the line between confirmatory and exploratory analysis. Researchers should be cautious with numerous modifications, particularly those lacking clear conceptual rationale, as these might be unstable across different respondent samples and may reflect unique response patterns of the original sample. If more than one or two modifications are made, researchers should consider evaluating the revised model with a cross-validation sample before drawing solid conclusions (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Leach et al., 2008; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

When conducting CFA, researchers often compare competing measurement models, such as one-factor versus two-factor models. These comparisons focus on the differences in fit between models, assuming other factors (e.g., theoretical foundation) are equal. Researchers prefer models with a relatively better fit. They compare one model's fit indices to alternative models (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

Model comparison can involve inferential tests of fit differences. When one model is nested within another (i.e., one model is derived by adding or removing constraints on

parameters), researchers can calculate a chi-square value representing the difference in fit between the two models (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; Hoyle, 2011; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004). The difference in chi-square values between two nested models is a chi-square value tested with degrees of freedom equal to the difference in degrees of freedom between the two models. If the difference chi-square is statistically significant, it indicates that one model fits significantly better than the other (Floyd & Widaman, 1995; Furr, 2011; Irwing et al., 2018; O'Rourke & Hatcher, 2013; Plucker, 2003; Thompson, 2004).

4.2.2.3 The Most Common Techniques used in CFA and Recommended Thresholds.

CFA generates a number of statistics, referred to as fit statistics, that inform researchers which models or hypotheses they tested most agree with their data (Cohen & Swerdlik, 2009). By studying the results, researchers can select the model that best fits their data or generate a new model (Cohen & Swerdlik, 2009).

The Goodness of Fit statistic evaluates how well-collected data align with the hypothesised relationship, typically through a chi-square test for statistical significance (Stangor, 2011). The immense goodness of fit statistic indicates alignment between observed and expected relationships (>0.90), and a small, nonsignificant chi-square test suggests that the data fit the hypothesised model (Stangor, 2011).

Common techniques in CFA include the chi-square test of exact fit, Root Mean Square Error of Approximation (RMSEA ≤ 0.06), Tucker Lewis Index (TLI ≥ 0.95), Comparative Fit Index (CFI ≥ 0.95), Standardised Root Mean Square Residual (SRMR ≤ 0.08), and Weighted Root Mean Square Residual (WRMR ≤ 1.0) (Bentler, 1990; Bentler & Bonett, 1980; Bond & Fox, 2007; Brown, 2006; Browne & Cudeck, 1993; Cochran, 1952; Hu & Bentler, 1999; Jöreskog & Sörbom, 1993; Morin et al., 2016; Tucker & Lewis, 1973). The chi-square test compares observed covariance with theoretically proposed covariance matrices (Cochran,

1952; Raykov & Marcoulides, 2011). However, it is sensitive to sample size and non-normal variables. Alternative options like the Satorra-Bentler Chi-square statistic and DIFFTEST are recommended in such cases (Cochran, 1952; Raykov & Marcoulides, 2011).

RMSEA measures the discrepancy between population and model-implied covariance matrices per degree of freedom (Cook et al., 2009), with thresholds varying among researchers (Bentler, 1990; Bentler & Bonett, 1980; Browne & Cudeck, 1993; Hu & Bentler, 1999; Jöreskog & Sörbom, 1993; Kline, 1993). TLI compares the proposed factor model to one with no assumed interrelationships among items (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999; Tucker & Lewis, 1973), with recommended thresholds differing (Bentler & Bonnett, 1980; Hu & Bentler, 1999). CFI measures relative fit improvement over a baseline model (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999; Tucker & Lewis, 1973), with a threshold of ≥0.95 (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). SRMR gauges absolute correlation residual mean difference between observed and predicted correlations (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999; Tucker & Lewis, 1973), with an acceptable threshold of ≤0.08 (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). WRMR, suitable for models with variables on different scales, is recommended for binary and ordinal data, with a threshold of <1.0 (Cook et al., 2009; Yu, 2002).

Following discussions on Factor Analysis, Exploratory Factor Analysis, and Confirmatory Factor Analysis, the subsequent sections explore validity, focusing on concurrent and discriminant validity and reliability, highlighting measures like Cronbach's alpha coefficient and McDonald's omega coefficient (Stangor, 2011).

4.3 Validity

4.3.1 Defining Validity

Validity refers to how accurately a test measures its intended constructs and the extent to which it measures them effectively. Thus, validity ensures a tool measures what it is expected to measure and not something else (Borsboom et al., 2004; Cohen & Swerdlik, 2018; Cureton, 1951; Foxcroft & Roodt, 2013; Irwing et al., 2018; Kelley, 1942; Messick, 1989; Raykov & Marcoulides, 2011). Validity is essential for understanding the true meaning of test scores in psychological testing (Cohen & Swerdlik, 2018). According to DeVellis and Thorpe (2022), validity involves identifying the fundamental cause of variations among test items. For Furr (2011), from a contemporary viewpoint, validity is the alignment between theory, evidence, and the intended use of a scale.

No single measuring instrument is universally valid across all contexts and populations. Therefore, the validity of a measuring instrument must be reaffirmed over time, mainly because of the evolution of societal and cultural norms (Cohen & Swerdlik, 2018). Validity is influenced by a measurement instrument's intended purpose as well as the selected samples' characteristics (Foxcroft & Roodt, 2013; Furr, 2011; Hathcoat et al., 2016; Schepers, 2005). For example, a measuring instrument may generate valid results when applied to a norm group, but when applied to a different group, it may not uphold its validity (Foxcroft & Roodt, 2013; Schepers, 2005). Therefore, validity assessment requires an ongoing process where evidence needs to be provided for support regarding the measuring instrument's appropriateness and significance and using the inferences drawn from scores within a singular sample and context (Zumbo et al., 2007).

The following section discusses the two types of validity conducted in this current study: concurrent and discriminant.

4.3.2 Concurrent Validity

Concurrent validity is a form of criterion validity that involves evaluating the extent to which various self-report measures correlate with a behaviour measured simultaneously (Cohen & Swerdlik, 2009; Coolican, 2014; Foxcroft & Roodt, 2013; Raykov & Marcoulides, 2011; Stangor, 2011). Concurrent validity refers to a measuring instrument's accuracy when assessing individuals present behaviour or characteristics (Cohen & Swerdlik, 2009; Coolican, 2014; Foxcroft & Roodt, 2013; Frost et al., 2007; Huysamen, 1996; Smit, 1996). Concurrent validity is the extent to which the test scores have a stronger relationship with the criterion measurement (gold standard) that was made at the time of administration of the test or shortly afterwards (Cohen & Swerdlik, 2009; Raykov & Marcoulides, 2011; Terwee et al., 2007). Concurrent validity can be estimated using the Pearson product-moment correlation or latent variable modelling (Boateng et al., 2018). The current study evaluated concurrent validity by comparing the utilised measure (Measure A) to another measure (Measure B) used to measure the same construct. Comparing these two measures can only be done because prior research has satisfactorily demonstrated the validity of Measure B. In short, the researcher tested how well Measure A compared to Measure B, where Measure B was used as the validating criterion.

4.3.3 Discriminant Validity

Discriminant validity refers to the degree that one measured variable is distinct and has no relationship with other measured variables that are used to assess different conceptual variables and are not theoretically meant to be correlated with each other (Campbell & Fiske, 1959; Churchill, 1979; Cohen & Swerdlik, 2009, 2018; Raykov & Marcoulides, 2011; Stangor, 2011). Discriminant validity can be estimated by utilising the multitrait-multimethod matrix (Campbell & Fiske, 1959; Raykov & Marcoulides, 2011), where discriminant validity is indicated by predictably weak or low correlations between the measure of interest and

other measures that are not measuring the same variable or concept (Churchill, 1979). When correlations with other tests that are not supposed to measure the same construct are too high, the newly developed construct should be regarded as invalid (Campbell & Fiske, 1959).

4.4 Reliability

4.4.1 Defining Reliability

Reliability refers to the extent to which a measuring instrument consistently measures what it is intended to measure without implying consistently good or bad outcomes (Cohen & Swerdlik, 2018; Coolican, 2014; Foxcroft & Roodt, 2013; Porta, 2008; Stangor, 2011). Reliability primarily concerns the consistency of scores; if scores lack consistency, they are observed as random, rendering the measuring instrument ineffective (Hathcoat et al., 2016). According to Furr (2011), reliability can be interpreted as the extent to which variability in observed scores remains unaffected by error variability and the degree to which observed scores exhibit no correlation with error scores. Additionally, a reliability coefficient represents the relationship between the true score variance on a measuring instrument and the overall variance (Cohen & Swerdlik, 2018; Furr, 2011).

DeVellis and Thorpe (2022) maintained that reliability in psychological measurement refers to the consistency and predictability of the performance of the measuring instrument. A reliable instrument should always produce scores that accurately reflect the actual state of the variable being assessed; this means that the scores produced by the measuring instrument should remain stable except if there is an actual altercation in the measured variable. The more the scores obtained from a scale align with the true score of the variable, and the less they are influenced by external factors, the more reliable the scale is deemed to be (DeVellis & Thorpe, 2022).

The instrument's reliability should be determined because the current study used a questionnaire to collect data. Bisschoff and Kade (2015) defined reliability as the consistency

of a set of measurements or the consistency of a measuring instrument used to describe a test. Therefore, the scale should consistently reflect its measuring construct (Naidoo, 2011). Reliability comprises a measuring instrument's quality, consistency, and repeatability (Naidoo, 2011). Researchers need to determine the reliability of their research data; one of the most popular techniques to test the reliability of the measuring instrument is Cronbach's alpha coefficient (Santos, 1999), as published by mathematician Cronbach in 1951.

4.4.2 Cronbach's Alpha Coefficient (α)

Cronbach's alpha coefficient (α) assesses the internal consistency of the scale items, signifying how closely they vary together in relation to their total score (Cronbach, 1951; DeVellis, 2012; DeVellis & Thorpe, 2022; Furr, 2011; Raykov & Marcoulides, 2011; Stangor, 2011). Reflecting the underlying correlation pattern of a scale, Cronbach's alpha ranges from $\alpha = .00$ (indicating complete measurement error) to $\alpha = +1.00$ (indicating absence of error) (Stangor, 2011). However, various criteria have been suggested by literature for defining "good" internal consistency; an alpha ranging from approximately Cronbach's alphas of .60 to .80 is seen as acceptable. Cronbach's alphas of .80 to .90 are deemed good. Cronbach's alphas of .90 and higher are seen as exceptional (Boshoff & Hoole, 1998; Cronbach, 1951; Field, 2009; Kothari, 2004; Santos, 1999; Terwee et al., 2007).

Cronbach's alpha coefficient is the favoured method for measuring a measuring instrument's internal consistency (reliability) because it requires only a single test administration (Cohen & Swerdlik, 2018). Alpha is an "item-level" internal consistency approach, using inter-item associations to estimate the reliability of scale scores (Furr, 2011). Calculating Cronbach's alpha coefficient is straightforward using statistical software such as Statistical Package for the Social Sciences (SPSS) or Mplus. Various statistical software packages contain two alpha versions: raw and standardised (Furr, 2011). Even though these versions are similar in most instances, they may exhibit significant differences in some

instances, and their relevance may vary depending on the intended usage of the scale (Furr, 2011). Raw alpha generates a reliability estimate for composite scores resulting from unadjusted responses. Researchers usually use the raw alpha to measure reliability when they aim to accumulate or average the raw responses of the items (Furr, 2011).

In contrast, the standardised alpha is applicable when researchers aim to standardise responses to each item before accumulating them across items (Furr, 2011). Responses are standardised when items exhibit noticeable differences in levels of variability, enabling researchers to prevent composite scores from being predominantly influenced by the item or items with the most significant variability (Furr, 2011). This becomes essential when items are scaled using different metrics, such as five- or seven-point scales (Furr, 2011). It would also be appropriate for researchers to combine scores from various measures to create an accumulated measure. In such cases, standardisation becomes crucial, and standardised alpha is necessary (Furr, 2011).

4.4.3 McDonald's Omega Coefficient (ω)

McDonald's omega coefficient (ω) (McDonald, 1999) serves as an alternative measure of reliability (DeVellis & Thorpe, 2022; Padilla & Divers, 2016). The underlying principle of omega resembles that of alpha in essence. Both indices define reliability as the ratio of true score variance to total observed variance. However, omega employs a distinct approach to computing these relevant variances (DeVellis & Thorpe, 2022). While alpha calculates variance estimates based on the covariance (or correlation) matrix of the items composing a scale, omega utilises a matrix of item loadings on the single common factor shared by the items (DeVellis & Thorpe, 2022). Omega operates under the assumptions of the congeneric model rather than the tau-equivalent model, which forms the basis for alpha. The primary distinction between the assumptions of these two models lies in the congeneric model, which does not mandate that the covariances of items with their common factor (an

indicator of the true score) be precisely equal. Instead, it requires that all items reflect a single underlying variable, yielding one and only one common factor (DeVellis & Thorpe, 2022).

Using omega holds significant appeal (DeVellis & Thorpe, 2022). It follows a similar logic to alpha, wherein observed variance is divided into segments representing the true score and error, and the proportion of the total variance attributable to the true score indicates reliability (DeVellis & Thorpe, 2022). However, omega deviates from alpha by not imposing the constraints of assuming essential tau equivalence. While maintaining the requirement of unidimensionality (i.e., all items reflecting a single shared causal variable), omega eliminates the additional constraint of requiring the covariances between items and their true scores to be essentially equal, which is approximated by the items' factor loadings (DeVellis & Thorpe, 2022). Despite these conceptual advantages, omega has not seen widespread adoption due to its higher computational complexity (DeVellis & Thorpe, 2022). Unlike alpha, which can be calculated manually with basic statistics once item variances and total scale variance are determined, omega necessitates more intensive computational processes. Although convenient routines for computing omega have not been widely available in standard statistical packages, this situation is evolving (DeVellis & Thorpe, 2022).

The following section discusses inter-item reliability because Cronbach's alpha and McDonald's omega are examples of testing for inter-item reliability.

4.4.4 Inter-item Reliability

Inter-item reliability, also known as inter-item consistency, measures the consistency of responses across all items within a test (Cohen-Swerdlik, 2009; Foxcroft & Roodt, 2013). It evaluates the correlation levels among all items on a scale (Cohen-Swerdlik, 2009). It is assessed using a single test version. This measure provides insights into the uniformity of the test (Cohen-Swerdlik, 2009). A test is considered homogeneous when items measure a single

characteristic, indicating how well it evaluates one factor. Homogeneity measures the unidimensionality of the items within a scale (Cohen-Swerdlik, 2009).

In contrast, heterogeneity refers to how much a test assesses multiple factors. A heterogeneous or nonhomogeneous test contains items that evaluate more than one trait (Cohen-Swerdlik, 2009). Higher homogeneity in a test is expected to result in greater inter-item consistency. A homogeneous test covering a narrow content domain will likely show higher inter-item consistency than a heterogeneous test. Homogeneity is beneficial because it allows for straightforward interpretation of test scores. Individuals with the same score on a homogeneous test will likely have similar abilities in the tested area. On the other hand, individuals with the same score on a more heterogeneous test may have significantly different abilities (Cohen-Swerdlik, 2009).

Although a homogeneous test facilitates clear interpretation, it may not adequately measure complex psychological constructs like intelligence or personality. A common approach is administering a set of homogeneous tests, each targeting a specific aspect of a heterogeneous variable (Cohen-Swerdlik, 2009).

4.5 Summary

This chapter thoroughly explored scale evaluation. This chapter discussed factor analysis, specifically focusing on Exploratory Factor Analysis (EFA) and Confirmatory Factor analysis (CFA), including validity and what it entails, focusing explicitly on concurrent validity and discriminant validity. The chapter also discussed reliability in terms of what it entails, focusing on Cronbach's alpha coefficient, McDonald's omega coefficient, and Inter-item Reliability.

Chapter 5: Research Methodology

5.1 Introduction

This chapter encompasses a detailed discussion of this study's research questions, methodology, and research design. The chapter also focuses on the research sample, measurement scales, data-gathering techniques, statistical procedures, and ethical considerations.

5.2 Research Aim and Research Questions

This study aimed to investigate the psychometric properties of the PAQ on a sample of South African incarcerated male and female offenders. The current study aimed to investigate the validity, factor structure, and reliability of the PAQ on a sample of South African incarcerated offenders. The following research questions were explored:

- How does the factor structure of Wright's (1983) PAQ that was conducted on a New York sample of male incarcerated offenders compare to a South African sample of incarcerated offenders?
- Is the Prison Adjustment Questionnaire (PAQ), developed by Wright (1983), a valid and reliable measurement scale for evaluating South African incarcerated offenders' correctional adjustment?

5.3 Research Methodology and Design

The researcher used a quantitative research approach, and the study was non-experimental (ex-post-facto). A cross-sectional research design (Stangor, 2015) was the most influential research design to use due to the central goal being to evaluate the psychometric properties of the Prison Adjustment Questionnaire amongst South African incarcerated offenders. Cross-sectional research studies are observational studies conducted when data collection takes place at a single point in time from a sample selected to represent a larger population (De Vos, 1998). A cross-sectional research study uses a sample of individuals that

differ in the variable being studied (in this case, correctional adjustment) but share other qualities such as socioeconomic status, educational background, ethnicity, race, or language (Van Wagner, 2009). When conducting a cross-sectional study, respondents answer a series of questions on a self-report questionnaire (correctional adjustment in this case) without any attempt to follow up or re-test. A cross-sectional research design was the most suitable for this study because the goal was to explore a variable at a particular point in time; there was no need to take multiple measures over an extended period as in longitudinal studies (De Vos, 1998; Stangor, 2011). A strength of cross-sectional research is that it is inexpensive and easy to conduct, multiple variables can be analysed, and it can lead to preliminary evidence in planning future advanced research. A weakness of cross-sectional research is its limited ability to rule out reverse causation, inability to evaluate changes over time, and inability to conclude causality (Stangor, 2011).

Quantitative research is descriptive research that utilises formal measures of behaviour (Stangor, 2015). These formal measures of behaviour include questionnaires and systematic observation of behaviour, which are designed to be subjected to statistical analysis. One strength of descriptive research is that it attempts to describe the density of everyday behaviour (Stangor, 2015). Quantitative research can be classified into three main research types: experimental, pre-experimental, and non-experimental. This study was non-experimental in nature. The units selected to participate in the study were measured on all significant variables at a specific time, and no manipulation of variables occurred (Maree, 2007).

Consequently, descriptive research presents a relatively inclusive understanding of current happenings. However, although descriptive research provides an understanding of what is presently happening, it is inadequate in providing static pictures (Stangor, 2011, 2015). Descriptive statistics, including the means and standard deviations, were analysed to

reflect how the participants responded on the different scales. Skewness and kurtosis were also investigated to determine the distribution of scores on the continuous variables. If the distribution is perfectly normal, a skewness and kurtosis value of 0 (uncommon in social sciences) will be obtained. Positive skewness values indicate positively skewed distributions (scores clustered to the left at the low values). However, negative skewness values indicate a clustering of the scores at the high end (right-hand side of the graph). Positive kurtosis values indicate that the distribution is somewhat peaked (clustered in the centre), with long, thin tails. Kurtosis values below 0 indicate a relatively flat distribution (too many cases in the extremes). With reasonably large samples, skewness will not make a substantial difference in the analysis (Tabachnick & Fidell, 2001).

5.4 Research Sample

Within this research study, 814 South African incarcerated offenders were randomly selected using the systematic random sampling technique (Stangor, 2011, 2015), which is a probability sampling method. Probability sampling is necessary to ensure that a sample is representative of a population. Within probability sampling, procedures are used to ensure that each person in the population has an equal chance to be selected to be part of the sample (Stangor, 2015). A representative sample makes it possible to draw inferences about the whole population. Systematic random sampling entails a sampling method in which the first case is selected randomly from a list of population members, and subsequent cases are selected at prescribed intervals (Irwing et al., 2018). To create the systematic sample, the researcher chooses a random number (e.g., *n*) and then samples the person corresponding to the random number (e.g., person number *n)* from the sampling frame; the rest of the sample is then selected as every *n*th person after the first selected person (Stangor, 2015). In the current study, the researcher obtained a complete list of the incarcerated offenders from the selected correctional centres, then randomly selected participants from the sample frame that fulfilled

the characteristics needed for the research study. In order to obtain a systematic sample from a population, the population needs to be divided into groups and all units of each group (Irwing et al.,2018). In this case, the population of incarcerated offenders was divided into different correctional centres in different provinces, and different numbers of incarcerated offenders were randomly selected from each correctional centre as the units of analysis. Sampling frames were obtained by contacting the correctional centres and relevant staff at these correctional centres and explaining the number of participants needed as well as the inclusion and exclusion criteria. Meetings were scheduled between the researcher and the relevant staff members of each correctional centre to assist in obtaining the needed research sample from each correctional centre. The researcher was also invited to inform the incarcerated offenders about the nature and objectives of the research study and gave them free will to participate. The advantages of systematic random sampling include saving time and effort in obtaining the research sample (Irwing et al., 2018). However, a disadvantage of systematic random sampling is that when the list of participants is arranged in some periodic or cyclical order, the resulting sample might not be representative (Irwing et al., 2018). Therefore, caution needs to be taken when examining the list.

Of the 814 participants, 787 were literate male incarcerated offenders, and 27 were literate female incarcerated offenders. The current research study faced challenges in obtaining sufficient participation from female offenders. This was primarily due to correctional settings that either declined to assist or failed to communicate with the researcher regarding data collection. Consequently, the sample of female offenders was excluded from the study, as the small sample size could result in invalid findings and subsequently not allow for meaningful comparisons with the larger sample of male offenders. Participants were included in this study if they (i) were proficient in English, (ii) could read and write, (iii) were over the age of 21 years, (iv) had a literacy level above Grade 6, and (v) if they were

incarcerated and not waiting on parole. No participant was excluded from the study based on their ethnic group.

5.5 Measurement Scales

The following measurement scales were utilised in this study:

- Biographical Questionnaire
- The Prison Adjustment Questionnaire (PAQ)
- The Scale of Experience in Prison (SEP)
- The Depression, Anxiety and Stress Scale (DASS)
- The Prison Adjustment Scale (PAS)

Each of these measurement scales is discussed in more detail below.

5.5.1 Biographical Questionnaire

The biographical questionnaire was administered to collect background information on the South African incarcerated offenders. The questions of this questionnaire focused on (i) age, (ii) ethnicity, (iii) home language, (iv) marital status, (v) employment status at the time of arrest, (vi) level of education, (vii) type of sentence, (viii) sentence length, (ix) number of years already incarcerated, (x) programme involvement, (xi) gang involvement and (xii) gang affiliation.

5.5.2 The Prison Adjustment Questionnaire (PAQ)

The Prison Adjustment Questionnaire (PAQ; Wright, 1983) was used to measure the offenders' self-perceptions of correctional adjustment. Wright (1983) developed the PAQ to evaluate the comparative correctional adjustment of incarcerated offenders within the correctional environment contrary to the public while also evaluating discomfort with incarceration across several dimensions (Rogers, 2019; Warren, 2003). The PAQ comprises 30 items and three subscales: Internal Adjustment, External Adjustment and Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven,

2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright, 1983, 1985b). The PAQ focuses on incarcerated offenders' quality of life within the correctional environment (Duba, 2022; Duba & Jordaan, 2023) and is utilised in research studies to determine distress levels of incarcerated offenders within the correctional environment (Thompson & Loper, 2005) by examining incarcerated offenders' perceptions of (a) whether life within a correctional centre is worse than life in the free world, (b) the frequency of specific stressors, and (c) satisfactory correctional provisions (e.g., receiving enough food and having enough privacy) (Loper, 2002). The PAQ's 30 items focus on nine problems that incarcerated offenders may experience. These problems include the following: the uncomfortableness offenders feel around others; the fear, illness, anger and injury that offenders experience while incarcerated; trouble sleeping; arguments and physical fights they are involved in; as well as being taken advantage of by other offenders (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Wright, 1983). According to Wright (1986a, 1991a), 20 of the 30 items delve into three dimensions (subscales) linked to offenders' incarceration experiences. The External Adjustment subscale consists of questions concerning heated arguments with fellow offenders and correctional personnel as well as frequency of fights (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright 1983, 1985b). The External Adjustment subscale also specifies whether the incarcerated offender experiences more problems relating to other individuals in the correctional centre than in the free world (Wright, 1983, 1985b). The Internal Adjustment subscale comprises questions concerning uncomfortableness around fellow offenders and uncomfortableness around the correctional staff as well as anger and sleeping problems (Carr,

2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b). The Internal Adjustment subscale also focuses on problems that an offender may experience in coping with incarceration compared to the free world (Wright, 1983, 1985b). The Physical Adjustment subscale features questions regarding being injured, being sick, having a fear of being attacked, and having a fear of being taken advantage of (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b). The third subscale includes severe physical problems that the incarcerated offender may encounter in coping with incarceration in comparison to the free world (Wright, 1983, 1985b). The responses are rated on a five-point Likert-type scale ranging from 0 ("*never"*) to 4 ("*always"*). Adequate internal consistencies (Cronbach's alphas) for the PAQ subscales have been identified as ranging from .67 to .73 for Internal Adjustment, .74 to .76 for External Adjustment, and .50 to .71 for Physical Adjustment (Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Rogers, 2019; Rogers et al., 2024; Van Tongeren & Klebe, 2010; Wright, 1985). A higher score indicates that incarcerated offenders encounter more significant challenges in adjusting to incarceration. Conversely, lower scores on the PAQ suggest fewer adjustment issues and more successful adjustment within the correctional centre (Wright, 1983).

5.5.3 The Scale of Experience in Prison (SEP)

The Scale of Experience in Prison (SEP; Liu & Chui, 2014) was used to measure the incarcerated offenders' experience of the correctional environment. The SEP was administered to study the concurrent validity of the PAQ. The SEP consists of 12 items, and the responses are rated on a five-point Likert-type scale ranging from 1 (*"strongly disagree"*)

to 5 (*"strongly agree"*). Higher scores indicate positive correctional centre adjustment (Liu & Chui, 2014). An exceptional internal consistency (Cronbach's alpha) of .91 has been identified for the SEP (Liu & Chui, 2014).

5.5.4 The Prison Adjustment Scale (PAS)

The Prison Adjustment Scale (PAS; Dye & Aday, 2013) was used to measure the overall correctional adjustment of incarcerated offenders. The PAS was administered to study the concurrent validity of the PAQ. The PAS has five subscales: Outside Deprivations, Lack of Autonomy and Control, Psychological Adjustment, Physical Prison Adjustment, and Inside Social Life. The Outside Deprivations subscale includes items related to missing friends, separation from family members, dealing with a loss of freedom, feeling out of touch with the world, and not knowing where incarcerated offenders stand with parole. All of the items in this subscale relate to the incarcerated offenders' worries and preoccupation with separation from their social relationships and connectedness to the free world. The Lack of Autonomy and Control subscale includes items that relate to correctional personnel not listening to grievances, concerns about falling ill in the correctional centre, and not feeling physically safe. These three items relate to incarcerated offenders' feelings that they are in control of their health and safety within the correctional environment.

The Psychological Adjustment subscale includes items relating to being afraid of going crazy, concerns about becoming institutionalised, having no goals and ambitions, getting annoyed or irritated, and being bored or having much idle time. All the items in this subscale relate to incarcerated offenders' mental and emotional adjustment to living in a correctional centre. The Physical Prison Adjustment subscale includes items that relate to wishing for more privacy and feeling comfortable in the cell. These two items relate to incarcerated offenders' reported feelings about their comfort in the correctional environment. The Inside Social Life subscale includes items relating to performing a job assigned to them,

not fitting in with other offenders, getting along with fellow offenders, and having a relationship with correctional staff. These four items relate to incarcerated offenders' social relationships inside the correctional centre, including in their jobs and interactions with fellow incarcerated offenders and with correctional staff. The PAS has 21 items, and the responses are rated on a three-point Likert-type scale ranging from 0 to 4, where 0 is *"never,"* 1 is *"rarely,"* 2 is *"sometimes,"* 3 is *"often,"* and 4 is *"always"*. For the computation of the scale score, each respondent's item scores are summed and divided by the number of items constituting the scale. Thus, lower scores indicate better correctional adjustment (Dye & Aday, 2013. Adequate internal consistencies (Cronbach's alpha coefficients) have been reported for the PAS subscales, namely .761 for Psychological Adjustment, .743 for Outside Deprivations, .649 for Lack of Autonomy and Control, .699 for Physical Prison Adjustment, and .629 for Inside Social Life (Cook, 2018). Animasahun (2008) and Dye and Aday (2013) also reported good to exceptional internal consistencies for the total PAS ranging from .85 to .93.

5.5.5 The Depression, Anxiety and Stress Scale (DASS)

The Depression, Anxiety, and Stress Scale (DASS; Lovibond & Lovibond, 1995) was used to measure the emotional distress (negative emotional states) of the incarcerated offenders. The DASS was administered to study the discriminant validity of the PAQ. This scale consists of 42 items that assess negative emotional states on three subscales: (i) Depression, (ii) Anxiety, and (iii) Stress (Lovibond & Lovibond, 1995; Page et al., 2007). The three subscales relate to the reactive symptoms within a stressful environment, such as irritability, tension, or the inclination to overreact (Grennan & Woodhams, 2007; Steyn & Hall, 2015). According to Grennan and Woodhams (2007), the Depression subscale relates to any dysphoric mood, such as feelings of worthlessness or sadness. The Anxiety subscale relates to the presence of symptoms associated with the physiological hyperarousal state (e.g.,

fear or a pounding heart). The Stress subscale relates to the reactive symptoms within a stressful environment, such as irritability, tension, or the inclination to overreact (Grennan & Woodhams, 2007; Steyn & Hall, 2015). The responses are rated on a four-point Likert-type scale ranging from 1 (*"did not apply to me at all"*) to 4 (*"applied to me very much"*) (Page et al., 2007). Scores for each subscale are calculated by summing up the responses (Steyn & Hall, 2015). For the Depression subscale, a score that ranges from 0 to 9 is considered normal. For the Anxiety subscale, the normal score ranges from 0 to 7. For the Stress subscale, the normal score ranges from 0 to 14. Any score above these ranges indicates the severity of an emotional problem from mild to extreme.

Therefore, higher scores indicate higher levels of depression, anxiety and stress among incarcerated offenders (Lovibond & Lovibond, 1995). Cronbach's alphas have been determined for the Depression, Anxiety and Stress scales, respectively ranging from .85 to .97 for the Depression subscale, .81 to 92 for the Anxiety subscale, and .80 to .95 for the Stress subscale (Antony et al., 1998; Basha & Kaya, 2016; Brown et al., 1997; Lovibond & Lovibond, 1995).

5.6 Data Collection Procedure

Data was collected from South African incarcerated offenders through the administration of the Biographical Questionnaire, the Prison Adjustment Questionnaire (PAQ), the Scale of Experience in Prison (SEP), the Depression, Anxiety and Stress Scale (DASS), and the Prison Adjustment Scale (PAS). The questionnaires were administered in booklet form and returned to the researcher after completion. The researcher was present during the administration of the questionnaires and available to answer any questions the research participants might have.

The questionnaires, detailed information, and informed consent forms were distributed as hard copies to the participants before the data collection sessions started. The researcher read

the information regarding the research study and the informed consent form to the participants and gave them adequate time to complete the informed consent form when they indicated their willingness to participate in the research study. Afterwards, a hard copy of the questionnaires, in booklet form, was distributed for them to complete during an hour-long session within the correctional centre. It was returned to the researcher and relevant staff, who assisted the researcher upon completion. Participation was purely voluntary because any individual who did not wish to participate was not coerced. To ensure anonymity and to minimise anxiety, participants did not have to provide any form of identifying details of themselves that could be linked back to them (e.g., names, contact numbers, offender numbers). The researcher and the relevant staff members who assisted the researcher were present throughout the answering of the questionnaires to assist with any questions or uncertainty about the questions.

5.7 Data Analysis

Data collected from the participants was analysed using SPSS (Version 30; IBM Corporation, 2024) and MPlus (Muthén & Muthén, 2015). Statistical programmes enable researchers to select optimal options for preliminary item analysis, measure associations among variables, choose the factor extraction method, select the rotation method, determine the criteria for the number of factors to retain and estimate factor scores (Izquierdo et al., 2014).

Descriptive statistics of the sample were compiled. Exploratory Factor Analysis (EFA) was done to analyse the underlying pattern of correlations between a set of measured variables and to explore the possible factors (subscales) of the PAQ (Stangor, 2015). Exploratory Factor Analysis (EFA) is a multivariate statistical technique used by researchers to determine the minimal number of hypothetical constructs (also termed dimensions, factors, synthetic constructs, latent variables, or internal attributes) that can account for the observed

co-variation among a set of measured variables (also referred to as manifest variables, observed variables, reflective indicators, effect indicators, or surface attributes) (Bandalos, 1996; Stangor, 2011; Tabachnick & Fidell, 2007; Watkins, 2018; Zikmund, 2008). Researchers use EFA when they intend to reduce the amount of data they want to use in their subsequent analysis or when they want to determine the number and character of the latent factors in their data sets (Conway & Huffcutt, 2003; Plucker, 2003). Additionally, researchers use EFA to identify the common factors that explain the structure and order among the measured variables. Tucker and MacCallum (1997) argued that in the behavioural and social sciences, factors are considered unobservable personal traits reflected in the variations in scores obtained by the individuals being measured.

When using EFA, the researcher has no expectations of the amount or nature of the variables; thus, as the title suggests, EFA is exploratory (Henson & Roberts, 2006; Hoyle, 2012). In other words, EFA allows researchers to explore the primary dimensions and develop a theory or model from a large number of latent constructs represented by a set of items (Henson & Roberts, 2006; Hoyle, 2012; Pett et al., 2003; Swisher et al., 2004; Thompson, 2004). The term exploratory is fitting because EFA does not test a predetermined factor structure model. Instead, the statistical programme analyses the data set to identify statistically justified factors (Plucker, 2003). This process is subjective, as the researcher must decide on the number of factors to select, often without complete information, leading to varied interpretations by different researchers (Cohen & Swerdlik, 2009; Plucker, 2003).

Confirmatory Factor Analysis (CFA) was done to confirm the factors (subscales) of the PAQ. CFA is used to test a proposed theory. It is a type of structural equation modelling that relies on prior theoretical expectations regarding the number of factors and the best-fitting factor theories or models (Hoyle, 2012; Irwing et al., 2018; Morin et al., 2016; Stangor, 2011; Williams et al., 2010). CFA assesses how well-measured variables (e.g., test

item scores) represent a smaller number of underlying constructs (Hair et al., 2010). It provides a confirmatory test of measurement theory by showing that a set of items correlates with underlying constructs (Foxcroft & Roodt, 2013; Hoyle, 2012; Irwing et al., 2018). Unlike EFA, which uses correlation coefficients, CFA uses covariances as the basis for analysis. This allows CFA to review unwanted sources of variance within test scores and assists researchers in understanding the complex multidimensional nature of contamination by isolating different sources of variance (Foxcroft & Roodt, 2013; Hoyle, 2012; Irwing et al., 2018). CFA was done via the MPlus modelling framework.

Cronbach's alpha and Coefficient omega were used to measure the reliability of the PAQ. Cronbach's alpha coefficient (α) assesses the internal consistency of the scale items, signifying how closely they vary together in relation to their total score (Cronbach, 1951; DeVellis, 2012; DeVellis & Thorpe, 2022; Furr, 2011; Raykov & Marcoulides, 2011; Stangor, 2011). Reflecting the underlying correlation pattern of a scale, Cronbach's alpha ranges from $\alpha = .00$ (indicating complete measurement error) to $\alpha = +1.00$ (indicating absence of error) (Stangor, 2011). However, various criteria have been suggested by literature for defining "good" internal consistency; an alpha ranging from approximately Cronbach's alphas of .60 to .80 is seen as acceptable. Cronbach's alphas of .80 to .90 are seen as good. Cronbach's alphas of .90 and higher are seen as exceptional (Boshoff & Hoole, 1998; Cronbach, 1951; Field, 2009; Kothari, 2004; Santos, 1999; Terwee et al., 2007).

McDonald's omega coefficient (ω) (McDonald, 1999) serves as an alternative measure of reliability (DeVellis & Thorpe, 2022; Padilla & Divers, 2016). The underlying principle of omega resembles that of alpha in essence. Both indices define reliability as the ratio of true score variance to total observed variance. However, omega employs a distinct approach to computing these relevant variances (DeVellis & Thorpe, 2022). While alpha calculates variance estimates based on the covariance (or correlation) matrix of the items

composing a scale, omega utilises a matrix of item loadings on the single common factor shared by the items (DeVellis & Thorpe, 2022). Omega operates under the assumptions of the congeneric model rather than the tau-equivalent model, which forms the basis for alpha. The primary distinction between the assumptions of these two models lies in the congeneric model, which does not mandate that the covariances of items with their common factor (an indicator of the true score) be precisely equal. Instead, it requires that all items reflect a single underlying variable, yielding one and only one common factor (DeVellis & Thorpe, 2022).

Pearson correlation coefficients were used to investigate the concurrent and discriminant validity of the PAQ. The Pearson correlation coefficient identifies relationships between factors and other variables (Naidoo, 2011). It indicates the degree of association between one variable and another (Naidoo, 2011). The Pearson correlation coefficient is a straightforward correlational analysis that displays the various relationships between different variables through a correlation matrix (Du Plessis, 2010). These coefficients are statistical measures of the co-variation or association between two variables. The Pearson correlation coefficient ranges from -1 to 1, with a value near -1 indicating a strong negative correlation and a value near 1 indicating a strong positive correlation between two variables (Du Plessis, 2010; Xiong et al., 2003; Zikmund, 2008).

One set of data was utilised; however, the data set was divided into two parts to conduct EFA and CFA independently. Confirmatory Factor Analysis (CFA) is employed when the researcher can predict the number and relationships among factors as well as their loadings on variables, with some loadings assumed to be null based on prior systematic results or strong theoretical foundations (Izquierdo et al., 2014). The stability of the results can be tested on independent samples. For instance, if the sample size permits, the researcher can conduct cross-validation studies by applying EFA to one-half of the sample and then using CFA to confirm the structure of the other half (Brown, 2006). It is recommended that

EFA is performed first to generate or suggest plausible models for testing theory, followed by CFA to test or confirm a hypothesis generated by the initial EFA (Henson & Roberts, 2006).

5.8 Ethical Considerations

Due to the coercive nature of the correctional environment, incarcerated offenders are susceptible to harm and exploitation by researchers (Ayamba et al., 2017). Consequently, strict adherence to the Ethical Code of Conduct established by the Professional Board of Psychology in South Africa was crucial for this study (Allan, 2016). The study received ethical clearance from the General and Human Research Ethics Committee (GHREC) at the University of the Free State (Ethical clearance number, UFS-HSD2020/2083/21) and approval from the Department of Correctional Services (DCS). After acquiring all necessary permissions, the researcher began collecting data by visiting the approved correctional centres.

Participants were verbally invited to participate in the study, and those who agreed received information sheets outlining the inclusion and exclusion criteria, emphasising that participation was entirely voluntary and without reimbursement. The information sheets also provided an overview of potential risks and benefits associated with the study. To address any emotional or psychological distress that might arise, a psychologist and/or social worker was available to provide debriefing and counselling services.

In line with ethical guidelines, written informed consent was obtained from participants at the start of the study (Flick, 2011). The researcher consistently reminded participants that they had the right to withdraw from the study at any time without facing any negative consequences (Gravetter & Forzano, 2018). This approach ensured that participation remained voluntary throughout the research process. Participants' identifying information was not required to complete the questionnaire, and coding systems were employed to

maintain anonymity. Additionally, data obtained from the study was securely stored to further protect participants' anonymity and confidentiality.

5.9 Summary

This chapter discussed the psychometric properties of the Prison Adjustment Questionnaire (PAQ) amongst South African incarcerated offenders. A non-experimental (post-ex-facto) research design was used in order to test the validity and reliability of the PAQ on South African incarcerated offenders. A cross-sectional research design was used to measure the adjustment of incarcerated offenders from different age groups at one point in time. Adequate internal reliability consistencies were calculated for all the measuring scales' subscales. Collected data was analysed by using SPSS and Mplus. Descriptive statistics were compiled. EFA and CFA were conducted to analyse correlations and to confirm factors (subscales).

Chapter 6: Results

6.1. Introduction

This chapter presents the findings from the statistical analyses. The chapter first discusses the sample's descriptive statistics and the PAQ items, followed by a discussion of the Pearson correlations between the PAQ total score and the PAQ items. Thereafter, the findings from the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are presented. Also included is a presentation and discussion of the correlation analyses regarding concurrent validity and discriminant validity. The internal consistencies (Cronbach's alpha and omega) of the identified factors were calculated afterwards. The researcher ensured that the questionnaires were thoroughly completed by the participants before the collection of the completed questionnaire booklets. Therefore, no missing data were present in the dataset, and no imputation methods were required.

6.2. Descriptive Statistics of Sample

As mentioned in Chapter 5, the sample for this study comprised 814 (N=814) incarcerated male and female offenders. The incarcerated male and female offenders were of different ages, sentence lengths, ethnic groups, types of offences, first-time or repeat offenders, and gang affiliation, among other inclusion criteria. The sample consisted of 787 male offenders and 27 female offenders. Due to the small sample size of female offenders, the female offenders were excluded from further data analysis. The sample of female offenders was excluded as a small sample size may yield invalid results, and the findings would not be comparable to that of the larger male offenders sample size.

The frequencies for the research sample (male offenders only), as illustrated in Table 1, were calculated in terms of the following: ethnicity, marital status, employment status at the time of the arrest, educational level, times incarcerated before this sentence, type of

offender, type of offence, programme involvement, gang involvement in the correctional centre, and gang affiliation.

Table 1

Frequency Distribution of Participants (Male Offenders) according to the Demographic Variables

Demographic variable	***n***	**%**
Ethnicity		
African	720	91.5
Coloured	44	5.6
White	20	2.5
Asian	1	.1
Indian	2	.3
Marital status		
Not married and not in a relationship	412	52.4
Married	109	13.9
Common law marriage/living together	46	5.8
In a serious relationship	154	19.6
Divorced	17	2.2
Separated but not divorced	30	3.8
Widowed/spouse deceased	19	2.4
Employment status at the time of the arrest		
Employed full-time	306	38.9
Employed part-time	136	17.3
Not employed	345	43.8
Level of education		
Grade 1	2	.3
Grade 2	0	.0
Grade 3	1	.1
Grade 4	1	.1
Grade 5	2	.3
Grade 6	47	6.0
Grade 7	18	2.3
Grade 8	37	4.7
Grade 9	81	10.3
Grade 10	156	19.8
Grade 11	116	14.7
Grade 12	224	28.5
Post school certificate	37	4.7
Tertiary diploma	46	5.8
Tertiary degree	19	2.4
Times incarcerated before this sentence		
Never before	505	64.2
Once before	145	18.4
Twice before	69	8.8
Three or more times before	68	8.6
Type of offender		
First-time offender	505	64.2
Repeat offender	282	35.8
Type of offence		
Violent	372	47.3
Sexual	308	39.1
Economic	107	13.6

Demographic variable	*n*	%
Programme involvement		
Yes	752	95.6
No	35	4.4
Gang involvement in the correctional centre		
Yes	213	27.1
No	538	68.4
Prefer not to answer	36	4.6
Gang affiliation		
26 Gang	120	15.2
27 Gang	9	1.1
28 Gang	52	6.6
Airforce	50	6.4
Big Five	4	.5
Not applicable	552	70.1

The data on the participants' age, sentence length, and sentence served were continuous in nature. The average age of the participants was 37.32 years (*SD* = 8.451; minimum age = 21; maximum age 76). The average sentence length that the participants are serving was 26.34 years (*SD* = 18.701), with the minimum sentence being two years and the maximum sentence being 325 years for the sample of male offenders. The average sentence already served by the participants was 6.65 years (*SD* = 3.823). The biographical information attained from the research participants indicated that the majority were African (*n*=720; 91.5%), while the rest were Coloured (*n*=44; 5.56%), White (*n*=20; 2.5%), Asian (*n*=1; .10%), and Indian (*n*=2; .30%). The participants' marital status was distributed into seven categories: not married and not in a relationship, married, common law marriage/living together, in a serious relationship, divorced, separated but not divorced, and widowed/spouse deceased. According to Table 1, the largest number of participants (*n*=412; 52.4%) were not married and not in a relationship, 13.9 % (*n*=109) were married, 5.8% (*n*=46) were in a common law marriage/living together, 19.6 % (*n*=154) were in a serious relationship, 2.2 % (*n*=17) were divorced, 3.8% (*n*=30) were separated but not divorced, and 2.4% (*n*=19) were widowed/their spouse were deceased. The participants' employment status at the time of arrest was distributed into three categories: employed full-time, employed part-time, and not employed. According to Table 1, the largest number of participants (43.8%; *n*=345) were not employed, 38.9% (*n*=306) were employed full-time, and 17.3% (*n*=136) were employed part-

time. According to Table 1, 87.0% (*n*=685) of the participants completed some form of primary or secondary education, while 13% (*n*=102) of the participants completed training at a tertiary level. The participants' times incarcerated before this sentence were distributed into four categories: never before, once before, twice before, and three or more times before. According to Table 1, most participants (*n*=505; 64.2%) were never sentenced before this current sentence, 18.4% (*n*=145) were sentenced once before, 8.8 % (*n*=69) were sentenced twice before, and 8.6% (*n*=68) were sentenced three or more times before. The majority of the participants (*n*=505; 64.2%) were first-time offenders, while 35.8% (*n*=282) were repeat offenders. Most participants (*n*=372; 47.3%) were sentenced for violent offences (e.g., murder, manslaughter, and assault), while 39.1 % (*n*=308) were sentenced for sexual offences (e.g., rape, groping, sexual abuse of children, torture in a sexual manner and indecent assault), and 13.6 % (*n*=107) for economic offences (e.g., fraud, money laundering, forgery, bribery, and corruption). Most participants (*n*=752; 95.6%) indicated that they are involved in programmes available at the correctional centres, while 4.4 % (*n*=35) are not involved in programmes. Most participants (*n*=538; 68.4%) are not involved in a gang in the correctional environment, while 27.1 % (*n*=213) are involved in a gang in the correctional environment, and 4.6% (*n*=36) preferred not to answer if they are involved in a gang in the correctional environment. Regarding gang affiliation, most participants (*n*=552; 70.1%) selected *"Not applicable"*, 15.2% (*n*=120) are part of the 26 Gang, 1.1% (*n*=9) are part of the 27 Gang, 6.6% (*n*=52) are part of the 28 Gang, 6.4% (*n*=50) are part of the Airforce gang, and .50% (*n*=4) are part of the Big Five gang.

6.3 Descriptive Statistics of the PAQ items

Table 2 illustrates the response proportions for the PAQ items for the sample of male offenders.

Table 2

Response Proportions for the PAQ Items for the Sample of Male Offenders

Item	Description of PAQ item	Never	Seldom	Occasionally	At least once a day	Most of the day	%
1	How often do you feel uncomfortable around the other offenders here? (IA)	14.0	14.0	22.7	15.2	34.1	100
2	How often do you feel uncomfortable around the staff? (IA)	32.9	14.4	14.4	13.9	24.5	100
3	How often are you angry here? (IA)	9.4	17.2	28.5	19.1	25.9	100
4	Since you have been in prison, how often have you been sick? (PA)	13.9	25.8	29.9	11.9	18.6	100
5	How often do you have trouble sleeping here? (IA)	8.1	17.8	48.5	20.8	4.7	100
6	How often are you afraid of being attacked in prison? (PA)	19.8	11.8	14.2	8.6	45.5	100
7	How often do you get into a fight here? (EA)	45.6	23.9	13.6	8.6	8.3	100
8	How often do you have a heated argument with another offender? (EA)	30.1	27.1	18.4	15.8	8.6	100
9	How often do you argue with guards? (EA)	52.7	21.2	10.3	8.5	7.2	100
10	How often are you injured or hurt here? (PA)	50.3	21.7	9.5	9.9	8.5	100
11	How often are you taken advantage of by other offenders? (PA)	64.7	12.1	8.5	6.0	8.8	100

Note: IA = Internal Adjustment, EA = External Adjustment, PA = Physical Adjustment

Table 2 indicates the response proportions for the 11 PAQ items, showing the components of each factor of the PAQ as described by Wright (1983). Table 2 shows that 34.1% of the participants tend to feel uncomfortable most of the day around other offenders in the correctional centre. Most of the participants (32.9%) indicated that they tend to feel comfortable around correctional staff members in the correctional environment. Many of the participants (45.5%) were afraid of being attacked in the correctional centre, while most of the participants (45.6%) indicated that they were less inclined to get into fights within the correctional environment. The majority of the offenders respectively indicated that they were less inclined to argue with correctional staff members (52.7%), to be injured or hurt (50.3%), or to be taken advantage of by other offenders (64.7%).

Table 3 displays the means, standard deviations, skewness, and kurtosis of the PAQ items for the group of male offenders.

Table 3

Means, Standard Deviations, Skewness, and Kurtosis of the PAQ Items (n=787)

PAQ Items	*M*	*SD*	Skewness	Kurtosis
Item 1	3.41	1.430	-.340	-1.205
Item 2	2.83	1.598	.160	-1.546
Item 3	3.35	1.287	-.205	-1.024
Item 4	2.96	1.294	.214	-.986
Item 5	2.77	.922	-.524	-.486
Item 6	3.48	1.609	-.440	-1.427
Item 7	2.10	1.293	.973	-.228
Item 8	2.46	1.299	.490	-.921
Item 9	1.96	1.274	1.161	.127
Item 10	2.05	1.327	1.049	-.211
Item 11	1.82	1.315	1.420	.617

There were 787 valid cases (responses) per item. As part of the descriptive statistics in this table, the researcher investigated whether the data were normally distributed for each item by calculating the skewness and kurtosis values of the different items. According to Kahane (2008), the cutoff point for skewness is > |2| and kurtosis > |4|. Thus, Table 3 clearly indicates that the items' scores are within these cutoff points and do not deviate substantially from normality.

6.4 Correlations between the PAQ Total Score and the PAQ Items

Table 4 presents the Pearson correlations between the PAQ Total Score and PAQ items for the group of male offenders.

Table 4

Correlations between the PAQ Total Score and the PAQ Items for the Group of Male Offenders (n=787)

	PAQTS	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11
PAQTS	-	.477**	.555**	.582**	.537**	.449**	.563**	.583**	.567**	.553**	.541**	.436**
Item 1		-	.310**	.230**	.161**	.207**	.303**	.111**	.096**	.079**	.082**	.107**
Item 2			-	.275**	.206**	.192**	.227**	.210**	.149**	.193**	.193**	.129**
Item 3				-	.280**	.250**	.269**	.230**	.262**	.271**	.216**	.150**
Item 4					-	.314**	.251**	.223**	.220**	.185**	.254**	.107**
Item 5						-	.286**	.119**	.130**	.129**	.149**	.083*
Item 6							-	.183**	.209**	.123**	.168**	.129**
Item 7								-	.459**	.381**	.295**	.233**
Item 8									-	.388**	.272**	.177**
Item 9										-	.329**	.215**
Item 10											-	.234**
Item 11												-

Key: PAQTS = PAQ Total Score
Determinant = .220
* p≤.05 ** p≤.01

From Table 4, it is evident that there are positive statistically significant relationships between the PAQ Total Score and the PAQ Items. These relationships are all statistically significant at the 1% level, with effect sizes ranging from medium (.44) to large (.58). Furthermore, the correlation matrix indicates that all the items are associated with each other. The determinant value indicates that multicollinearity is not a problem. The correlation matrix was examined to determine if any of the items should be removed based on very low (r = < .00) or very high correlation coefficients (r = < .90). There were no very low or very high correlated items.

6.5 Exploratory Factor Analysis

In order to cross-validate the findings (Brown, 2006), both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted. EFA was conducted to determine the underlying factor structure of the PAQ in the sample of South African male offenders. The sample was randomly divided into two samples to conduct EFA on one part of the data set (n=389) and CFA on the other (n=398). Some authors (Child, 2006; Fabrigar & Wegener, 2012; Izquierdo et al., 2014) have argued that at least three items (variables) are needed for the statistical identification of a factor, while others have argued four to six variables per factor (Fabrigar et al., 1999). For EFA, a minimum sample size of five (05) participants per item is recommended (Kline, 1994). However, it is recommended that larger samples for EFA are better (Comrey & Lee, 1992; Cudeck & O'Dell, 1994; Kline, 1994; MacCallum et al., 1999; Mundfrom et al., 2005). Comrey and Lee (1992) indicated in their guide sample sizes of 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 or more as excellent. The PAQ consists of 11 items; a sample size of at least 55 participants or more is required to conduct EFA. The sample size of 389 is large enough (Comrey & Lee, 1992; Mundfrom et al., 2005) to conduct EFA, and altogether, there was a ratio of 35.4 cases per variable to conduct EFA. The assumptions of normality, linearity, homoscedasticity and

multi-collinearity were investigated, and none of the assumptions were violated. Prior to running Principal Component Analysis, an examination of the data indicated that every variable (item) was normally distributed. The relationships between the items were linear, and no curvilinear relationships were identified. The data also did not contain any outliers. In this study, EFA was conducted using both SPSS and MPlus. Both statistical software programmes were used to confirm the number of factors identified as well as the items belonging to each factor.

6.5.1 Exploratory Factor Analysis (EFA) through SPSS

All procedures and analyses followed Watkins' (2018) best practices for Exploratory Factor Analysis. Several criteria were employed to examine the number of factors to retain, namely Eigenvalues greater than 1 (Kaiser, 1960), the Scree test (Cattell, 1966), the Standard Error of Scree (SE_{scree}) (Watkins, 2007), and Parallel Analysis (Horn, 1965). Principal Component Analysis was conducted to determine the suitability of the data for factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy indicated a strong sample adequacy of .80 (KMO = .80), exceeding the minimum criterion of .60. Bartlett's Test of Sphericity was highly significant (χ^2 = 581.322, p.<,001) indicating the absence of significant issues with sampling adequacy and that the data were suitable for factor analysis. Principal Component Analysis was used to determine the communalities of the PAQ items. Table 5 presents the communalities of the PAQ items.

Table 5

Communalities of the PAQ Items

	Initial	Extraction
Item 1 (IA)	1.000	.440
Item 2 (IA)	1.000	.368
Item 3 (IA)	1.000	.393
Item 4 (PA)	1.000	.335
Item 5 (IA)	1.000	.385
Item 6 (PA)	1.000	.480
Item 7 (EA)	1.000	.447
Item 8 (EA)	1.000	.465
Item 9 (EA)	1.000	.514
Item 10 (PA)	1.000	.416
Item 11 (PA)	1.000	.197

Extraction Method: Principal Component Analysis

The communalities of the individual items should be investigated to determine whether the items fit into one of the subscales as well as the overall scale. Items with communalities below .20 are seen as unique items and could likely be removed from the pool of items. Table 5 shows that Item 11 (.197) has less in common with the other items. However, since Item 11 showed a high positive item-total correlation, it was decided to include the item in the analysis that followed.

The Principal Component Analysis indicated a two-component (factor) structure among the PAQ items based on Eigenvalues greater than 1. Table 6 presents the results.

Table 6

Total Variance Explained by Components (Factors) with Eigenvalues greater than 1

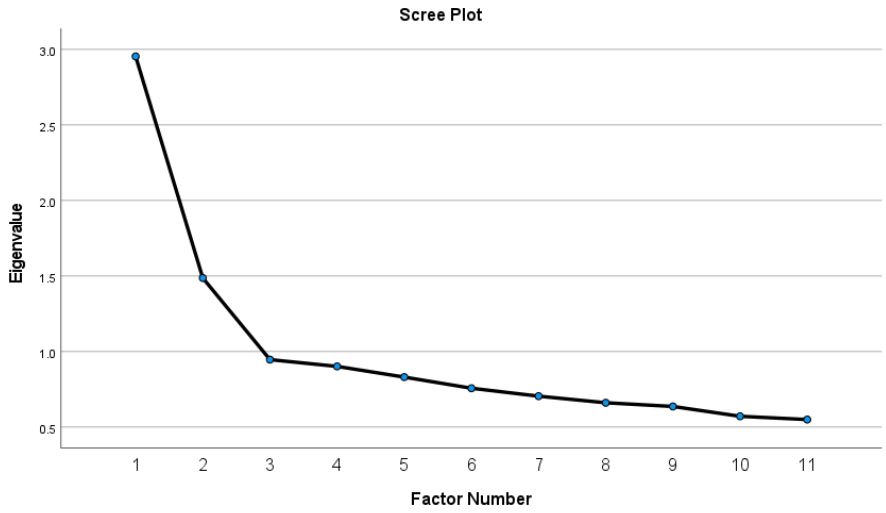
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.954	26.851	26.851	2.954	26.851	26.851	2.466
2	1.487	13.516	40.367	1.487	13.516	40.367	2.392
3	.946	8.604	48.971				
4	.902	8.197	57.168				
5	.831	7.553	64.722				
6	.757	6.883	71.605				
7	.705	6.406	78.011				
8	.661	6.008	84.019				
9	.637	5.787	89.806				
10	.571	5.195	95.001				
11	.550	4.999	100.000				

Extraction Method: Principal Component Analysis

Table 6 shows that there are two factors (subscales) with Eigenvalues greater than 1. These two factors accounted for 40.37% of the total variance, with Factor 1 accounting for 26.85% of the explained variance and Factor 2 accounting for 13.52% of the explained variance. These findings are confirmed by the Scree Plot below (Figure 1), confirming two factors (subscales) with Eigenvalues greater than 1. Thus, two factors seem evident due to the convergence of the scree plot data and the Kaiser's criterion on this value.

Figure 1

Scree Plot for 11 Item Prison Adjustment Questionnaire through SPSS



Parallel Analysis was also conducted to determine the number of factors that should be extracted or retained. In Parallel Analysis, actual Eigenvalues are compared with random-order Eigenvalues. Factors are retained when actual Eigenvalues surpass random-ordered Eigenvalues. The random-ordered generated Eigenvalues were obtained via two computer software programmes (O'Connor, 2022; Patil et al., 2017). In Table 7 below, it is evident that the findings from the Parallel Analysis support a two-factor structure, as the Eigenvalues of the first two factors exceeded those of the randomly generated data (n = 389; 11 variables).

Table 7

Parallel Analysis to determine the number of Factors to Extract or Retain

Factor number	Means	95th Percentile	Decision
1	1.290167	1.377293	Accept
2	1.201340	1.254533	Accept
3	1.139280	1.177535	Reject
4	1.085503	1.120908	Reject
5	1.039785	1.067514	Reject
6	.989907	1.027835	Reject
7	.943397	.974538	Reject
8	.897827	.933512	Reject
9	.856062	.885327	Reject
10	.806568	.844626	Reject
11	.750164	.793921	Reject

Furthermore, due to the scree test being considered a subjective criterion, the SE_{scree} (Watkins, 2007) was used since it is a more accurate objective scree method (Watkins, 2018). Table 8 and Figure 2 indicate the findings obtained through the SE_{scree} method that support a two-factor structure.

Table 8

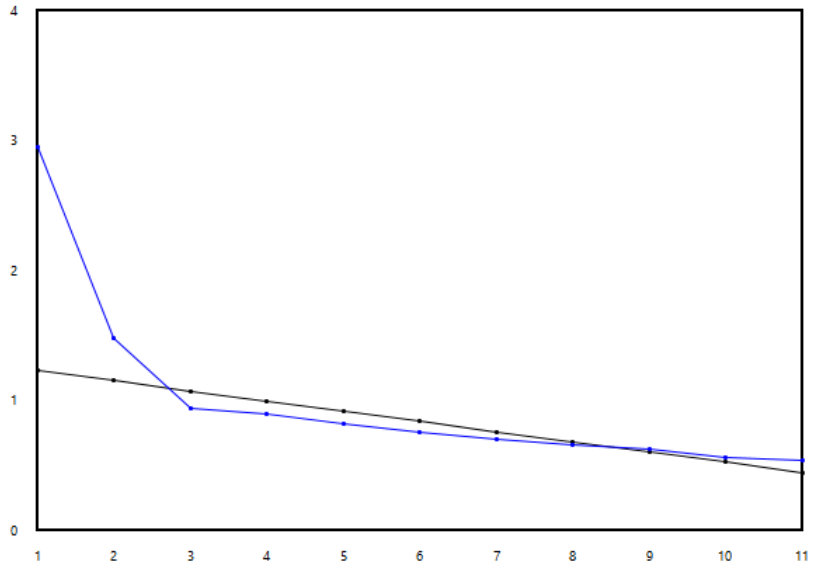
Eigenvalues based on SE_{scree} method

Order	Eigenvalue	SE	Factor*
1	+2.9540	.4922	Nontrivial
2	+1.4870	.1451	Nontrivial
3	+.9460	.0197	Trivial
4	+.9020	.0202	Trivial
5	+.8310	.0157	Trivial
6	+.7570	.0106	Trivial
7	+.7050	.0113	Trivial
8	+.6610	.0138	Trivial
9	+.6370	.0184	Trivial

*Critical value = .0909 (2 factors)

Figure 2

SE_{scree} Plot for 11 item Prison Adjustment Questionnaire through SPSS



Thus, two factors (subscales) were retained based on various criteria. During the execution of the Principal Component Analysis, the axis were rotated according to the Direct Oblimin method since the items showed statistically significant intercorrelations. The pattern matrix is presented in Table 9 below.

Table 9

Pattern Matrix indicating the Factor Loadings

	Component	
	1	**2**
EA3 (Item 9)	**.738**	-.093
EA1 (Item 7)	**.681**	-.047
EA2 (Item 8)	**.676**	.021
PA3 (Item 10)	**.627**	.056
PA4 (Item 11)	**.418**	.073
PA2 (Item 6)	-.006	**.695**
IA1 (Item 1)	-.227	**.691**
IA4 (Item 5)	-.022	**.627**
IA2 (Item 2)	.103	**.569**
IA3 (Item 3)	.245	**.511**
PA1 (Item 4)	.275	**.437**

Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalisation; Rotation converged in 7 iterations

According to Munnik et al. (2021), items that load above .32 on more than one factor should be considered cross-loading. The results of the rotated Oblimin matrix revealed a

relatively stable two-factor structure. Table 9 shows that five items (i.e., Items 9, 8, 7, 10 and 11) were loaded onto Factor 1 (subscale 1) with factor loadings ranging from .418. to .738. Table 9 further shows that six items (i.e., Items 6, 1, 5, 2, 3, and 4) were loaded onto Factor 2 (subscale 2) with factor loadings ranging from .437 to .695. None of the items cross-loaded onto more than one factor.

The content of these two factors differs from the original PAQ three-factor model for male offenders (Wright, 1983). Therefore, the present results differ from the established three-factor model, suggesting that the current three-factor model does not fit when applied to a sample of South African incarcerated male offenders. Rather, two factors were identified in the current study and after an investigation of the content of the items of these two factors, the researcher decided on the following factor names: Behavioural Adjustment (behavioural component/subscale) as Factor 1 and Emotional Adjustment (emotional component/subscale) as Factor 2.

6.5.2 Exploratory Factor Analysis (EFA) through MPlus

The Exploratory Factor Analysis was repeated using MPlus (Muthén & Muthén, 2015). Maximum likelihood was used as the estimator, and Oblique was used as the method of rotation. The findings confirmed the existence of two factors with Eigenvalues greater than 1 (Factor 1 = 2.954; Factor 2 = 1.487). The Scree Plot below (Figure 3) proves these findings, confirming two factors (subscales) with Eigenvalues greater than 1.

Figure 3

Scree Plot for Item 11 of the Prison Adjustment Questionnaire through MPlus

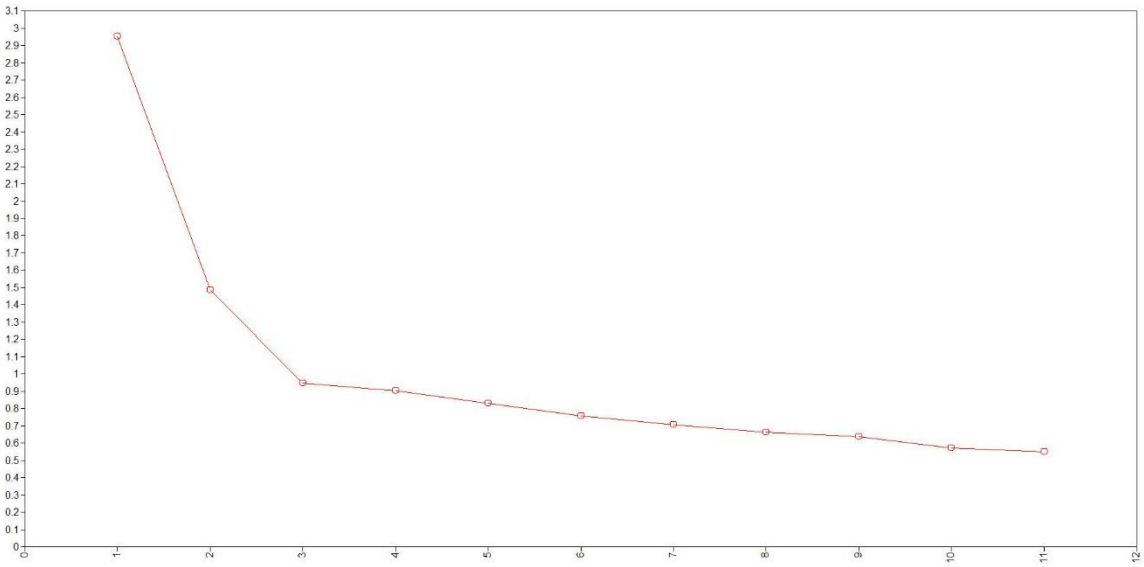


Table 10 indicates the model fit information obtained through the EFA.

Table 10

Model Fit Information from EFA

Model	*χ2*	*df*	CFI	TLI	RMSEA (90% CI)	SRMR
Two-factor model	44.785	34	.980	.967	.029 (.000/.049)	.028

Note: *χ2* = chi square goodness of fit statistic; *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation; CI = Confidence Interval; SRMR = Standardized Root Mean Square Residual

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 10 indicates that the Satorra-Bentler chi-square statistic was not statistically significant, indicating an acceptable model fit. The chi-square/degrees of freedom ratio for the model is 1.32. The CFI value (.980) and the TLI value (.967) were both higher than .95, indicating an acceptable model fit. The RMSEA value (.029), which is below the lower 90% confidence interval, also indicates an acceptable model fit. The SRMR value (.028) indicates a good fit. Therefore, the chi-square statistic, CFI, TLI, RMSEA, and SRMR values all indicate an acceptable to excellent model fit. Table 11 indicates the Geomin rotated loadings.

Table 11

Geomin Rotated Loadings

	Factor	
Items	**1**	**2**
Item 9 (EA)	**.548***	-.007
Item 8 (EA)	**.573***	.035
Item 7 (EA)	**.635***	-.072
Item 10 (PA)	**.495***	.076
Item 11 (PA)	**.300***	.090
Item 6 (PA)	.229*	**.360***
Item 1 (IA)	-.138	**.518***
Item 5 (IA)	.000	**.490***
Item 2 (IA)	.113	**.441***
Item 3 (IA)	.221*	**.415***
Item 4 (PA)	-.002	**.598***

* $p < .05$

The results of the Geomin rotated loadings also revealed a relatively stable two-factor structure. Table 11 shows that the same five items (i.e., Items 9, 8, 7, 10 and 11) were loaded onto Factor 1 (subscale 1) with factor loadings ranging from .300. to .635. Table 11 further shows that the same six items (i.e., Items 6, 1, 5, 2, 3, and 4) were loaded onto Factor 2 (subscale 2) with factor loadings ranging from .360 to .598. None of the items cross-loaded onto more than one factor. The Geomin rotated loadings confirm and are similar to the factor loadings obtained through SPSS.

6.6 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was conducted on the other part of the data set (n=398) to confirm the factors identified by the EFA. In Table 12, the two-factor model identified through EFA in this study was investigated.

Table 12

Goodness of Fit Indicators for the Two Factor Model identified through EFA

Model	***χ2***	***df***	**CFI**	**TLI**	**RMSEA (90% CI)**	**SRMR**
Two-factor model	79.913***	43	.948	.933	.046 (.030/.062)	.040

Note: *χ2* = chi square goodness of fit statistic; *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root-Mean-Square Error of Approximation; CI = Confidence Interval; SRMR = Standardised Root Mean Square Residual

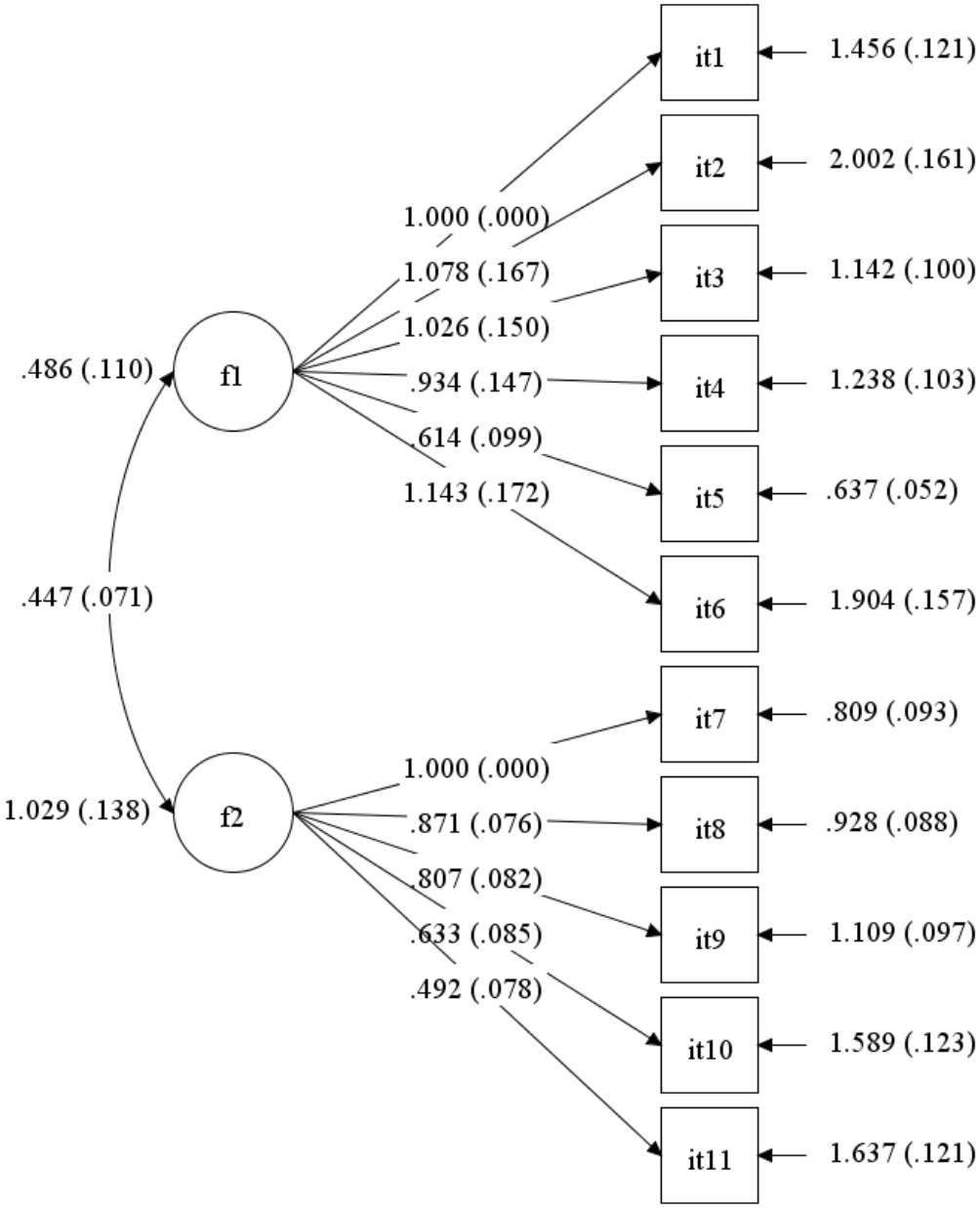
* $p < .05$; ** $p < .01$; *** $p < .001$

Confirmatory Factor Analysis was conducted using MPlus (Muthén & Muthén, 2015). Maximum likelihood with a covariance matrix was used to estimate the model's parameters. Several fit indexes were examined to determine the adequacy of the model fit: the Satorra-Bentler scaled chi-square, the Root-mean-square error of approximation (RMSEA) with 90% confidence intervals (90% CI), the Standardised root mean square residual (SRMR), the Comparative Fit Index (CFI), and the Tucker Lewis Index (TLI). Table 12 indicates that the Satorra-Bentler chi-square statistic was statistically significant at the .1% level, indicating that a significant proportion of the variance in the model was unexplained. Thus, indicating that the model did not reproduce the observed covariance (did not fit the sample data well). However, this should not necessarily lead to model rejection as large sample sizes have been found to produce significant and sizeable χ^2 statistics (Bollen & Long, 1993; Desmond et al., 2006). The chi-square/degrees of freedom ratio for the model is 1.86. The CFI value (.948) and the TLI value (.933) were both between the recommended > .90-.95 cutoff. The two-factor model fits the data well based on the adequate CFI value (.948) and the TLI value (.933). The RMSEA value (.046), which is below the lower 90% confidence interval, indicates a close fit with the data. The SRMR value (.04) indicates a good fit. Therefore, the CFI, TLI, RMSEA and SRMR values all indicate an acceptable to excellent model fit and confirm the two factors identified through EFA.

Figure 4 below depicts the two-factor model of the PAQ for the sample of male offenders.

Figure 4

Two-Factor Model of the PAQ for the Sample of Male Offenders



6.7 Concurrent and Discriminant Validity

Table 13 displays the correlation analyses regarding concurrent validity and discriminant validity. The SEP and PAS total scores were used to investigate the concurrent validity of the two identified factors. The SEP scores were reversed to align with the PAQ

(e.g., higher scores imply poorer adjustment) and to enable the researcher to investigate the concurrent validity of the two identified factors. The DASS total score was used to investigate the discriminant validity of the two identified factors. The scores on the DASS were reversed scored to enable the researcher to investigate the discriminant validity of the two identified factors.

Table 13

Correlations between the two PAQ Factors and the SEP Total Score, PAS Total Score and DASS Total Score

	PAQ F1	PAQ F2	SEP TS	PAS TS	DASS TS
PAQ F1	-	.402**	.193**	.151**	-.367**
PAQ F2		-	.201**	.342**	-.400**
SEP TS			-	-.023	-.088*
PAS TS				-	-.385**
DASS TS					-

Key: PAQ F1 = Factor 1 of the PAQ, PAQ F2 = Factor 2 of the PAQ, SEP TS = SEP Total Score, PAS TS = PAS Total Score, DASS TS = DASS Total Score
* $p < .05$; ** $p < .01$

Table 13 indicates that Factor 1 of the PAQ has statistically significant positive correlations with both the SEP Total Score ($r = .193$, $p = <.001$) and the PAS Total Score ($r = .151$, $p = <.001$). Similarly, Factor 2 of the PAQ has statistically significant positive correlations with both the SEP Total Score ($r = .201$, $p = <.001$) and the PAS Total Score ($r = .342$, $p = <.001$). These correlations are statistically significant at the 1% level with small to medium effect sizes. These findings suggest the concurrent validity of the data.

In addition, Table 13 indicates that Factor 1 of the PAQ has a statistically significant negative correlation with the DASS Total Score ($r = -.367$, $p = <.001$). Similarly, Factor 2 of the PAQ has a statistically significant negative correlation with the DASS Total Score ($r = -.400$, $p = <.001$). These correlations are statistically significant at the 1% level with medium effect sizes. These findings suggest the discriminant validity of the data.

6.8 Reliability of Factors 1 and 2

Cronbach's alpha coefficient (α) and McDonald's omega coefficient (ω) were calculated to indicate the internal consistencies of the two identified factors. Table 14 reports the internal consistencies of the two identified factors and the PAQ total score.

Table 14

Internal Consistencies of the Two Identified Factors and the total PAQ

Measures	*N*	*N* of items	α	ω
PAQ	787	11	.761	.757
Factor 1	787	5	.701	.703
Factor 2	787	6	.657	.658

Table 14 indicates that the Cronbach alpha coefficients for the two identified factors are .701 and .657. Table 14 also indicates that the omega coefficients for the two identified factors are .658 to .703, respectively. These two identified factors, therefore, displayed acceptable levels of internal consistency (Kline, 1994; Watkins, 2018, 2021). Furthermore, Table 14 indicates that Cronbach's alpha coefficient and omega coefficient for the PAQ scale are .761 and .757, respectively. The PAQ, therefore, displayed an acceptable level of internal consistency.

6.9 Summary

This chapter presented the findings from the statistical analyses. The chapter first discussed the sample's descriptive statistics and the PAQ items. Thereafter, the Pearson correlations between the PAQ total score and the PAQ items were discussed. This discussion was followed by the findings from the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Also included was a presentation and discussion of the correlation analyses regarding concurrent validity and discriminant validity. Thereafter, the internal consistencies (Cronbach's alpha and omega) of the identified factors were calculated.

Chapter 7: Discussion, Conclusions, Limitations and Recommendations

7.1 Introduction

This chapter encompasses a conclusive discussion of the results attained by the research study as well as a discussion of its implications. The results are reported based on a thorough exploration of and a connection with the literature review of Chapter 2 (Adjustment) and Chapter 3 (The Prison Adjustment Questionnaire). This research study aimed to evaluate the psychometric properties of the Prison Adjustment Questionnaire (PAQ) amongst South African incarcerated offenders. Exploratory Factor Analysis and Confirmatory Factor Analysis were conducted, and are subsequently discussed in line with the results obtained in Chapter 6 (Results) and the literature review in Chapter 4 (Exploratory Factor Analysis, Confirmatory Factor Analysis, Reliability, and Validity). Attention was given to the validity and reliability of the PAQ as a measurement scale to measure correctional adjustment of South African incarcerated offenders. The study's conclusion, limitations, and future recommendations follow these discussions.

7.2 Discussion of Results

The results of this research study are interpreted in this section. This section is divided into subheadings, starting with a problem summary. The following subheadings comprise a detailed discussion of the results to answer the research questions.

7.2.1 A Summary of the Problem

Correctional adjustment is of crucial importance. Therefore, this research study focused on whether the PAQ measures what it is supposed to measure. Incarcerated offenders must be able to adjust in a correctional environment (Blevins et al., 2010; Bonta & Gendreau, 1990; Condon et al., 2008; De Vigianni, 2007; Mandell, 2006; Tasca et al., 2010; Trulson, 2007; Visher & Travis, 2003; Wolff & Shi, 2009c), as adjusting to a correctional environment is essential for ensuring rehabilitation (Adams, 1992; Hochstetler et al., 2010; Kerbs & Jolley,

2009), managing emotional outbursts and withdrawal (Picken, 2012), and reducing violent conflicts and disciplinary infractions (Gonçalves, 2014). Furthermore, successful adjustment is vital for facilitating a smooth transition back into society (Canda et al., 2015). It can serve as a predictive factor for reducing the likelihood of recidivism after release (Crank, 2010).

Traditionally, classification has played a vital role in the initial placement of offenders into correctional centres and the assessment of transfers (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). Wright (1983) sought to develop inventive classification procedures through his research, intending to assist administrators in accurately assigning incarcerated offenders to suitable correctional centres. The knowledge derived from comprehending adjustment patterns was employed by Wright (1983) to suggest innovative approaches for placing incarcerated offenders in correctional environments (Wright, 1983, 1985b).

As evidence for the benefits of correctional adjustment accumulates, it is paramount that concerns regarding the factor structure of the PAQ are diminished and a theoretically consistent model emerges.

7.2.2 Discussion of the Prison Adjustment Questionnaire (PAQ)

According to Wright's (1983) research, improving the effectiveness of classification information could be enhanced by understanding how distinct groups respond to various environmental conditions. By understanding which incarcerated offenders adjust successfully to specific correctional conditions, placements can be customised to address various behavioural issues within the offender population (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983). In pursuit of its objective, Wright's (1983) research project aimed to accomplish three key objectives. Firstly, Wright (1983) sought to compare various existing classification systems to identify the ones that most effectively differentiate incarcerated offenders experiencing

different adjustment problems. Secondly, Wright (1983) aimed to elucidate the factors influencing adjustment problems within correctional centres. Lastly, Wright (1983) examined the feasibility of mitigating adjustment problems by strategically placing incarcerated offenders into suitable environments (DCS, 2018, 2020, 2022; Jordaan, 2014; Matshaba, 2007; Neser, 1993; Pretorius, 2019; Pretorius et al., 2024; Wright, 1983).

Wright's (1983) initial sample consisted of 942 male incarcerated offenders in New York, and the current study's sample consisted of 787 male incarcerated offenders based in South Africa. Wright's (1983) initial questionnaire comprised three subscales: External Adjustment, Internal Adjustment, and Physical Adjustment; these were suitable for the New York sample. However, after completing research analysis, the current study identified a two-factor version, namely, Behavioural Adjustment and Emotional Adjustment, that are more suitable for South African male incarcerated offenders.

Wright's first subscale, External Adjustment, comprises items that suggest the incarcerated offenders have heated arguments with fellow offenders and correctional personnel as well as frequency of fights (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright 1983, 1985b). The second subscale of Wright (1983), Internal Adjustment, included items concerning uncomfortableness around fellow incarcerated offenders and correctional staff, anger and sleeping problems (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper, 2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b). The third subscale, Physical Adjustment, included items concerning being injured, being sick, and having a fear of being taken advantage of (Carr, 2013; Cook, 2018; Duba, 2022; Duba & Jordaan, 2023; Islam-Zwart & Vik, 2004; Langenhoven, 2023; Loper,

2022; Rogers, 2019; Rogers et al., 2024; Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren, 2003; Wright, 1983, 1985b).

However, in the current study, it was evident that the first subscale, Behavioural Adjustment, included items concerning the frequency of fights, heated arguments with fellow incarcerated offenders and correctional personnel, being injured, and having a fear of being taken advantage of. The second subscale, Emotional Adjustment, included items concerning uncomfortableness around fellow incarcerated offenders and correctional staff, anger, illness, sleeping problems, and having a fear of being attacked.

7.2.3 Theoretical Discussion of the Current Study's Factor Structure for South African Male Incarcerated Offenders

The following sections explain what Behavioural Adjustment and Emotional Adjustment entail, with a specific focus on behavioural methods employed by individuals in general to adjust and a discussion of the items loaded onto the Behavioural Adjustment Subscale and how these link to adjustment. This is followed by a discussion of the emotional methods individuals generally employ to adjust, the items loaded onto the Emotional Adjustment Subscale, and how these items link to adjustment.

7.2.3.1 Behavioural Adjustment. Behavioural Adjustment refers to the process of modifying behaviours in response to environmental demands, stressors, or change to improve functioning and adjust to new situations (Bandura, 1977; Carver & Scheier, 1998; Cohen & Wills, 1985; Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984; Locke & Latham, 2002; Malpass et al., 2019; Skinner, 1965).

7.2.3.1.1 Behavioural Methods Employed by Individuals to Adjust. Research on behavioural methods that adults generally use to adjust to various life situations often focuses on coping strategies, adjustment techniques, and behavioural interventions (Beck, 2011; Folkman & Moskowitz, 2004; Gross, 2015; Lazarus & Folkman, 1984). Research on the

behavioural methods incarcerated offenders employ to adjust to incarceration revealed several strategies (Cao et al., 2020; Crewe et al., 2020a). Incarcerated offenders often adjust by forming or joining social subcultures that provide stability and define expectations and behaviours that help them navigate the correctional environment (Cao et al., 2020; Crewe et al., 2020a). This adjustment can also involve adopting aggressive or passive strategies to manage threats of victimisation (Cao et al., 2020; Crewe et al., 2020a). Additionally, the correctional environment, including access to rehabilitative programmes, significantly influences incarcerated offenders' behaviour and adjustment (Cao et al., 2020; Crewe et al., 2020a).

Behavioural methods are crucial for adults adjusting to stress and managing emotional challenges. According to Folkman and Moskowitz (2004), coping strategies such as problem-solving and emotional regulation are essential behavioural methods adults employ. Lazarus and Folkman (1984) highlighted these strategies within the Transactional Model of Stress and Coping (TMSC), categorising them into problem-focused and emotion-focused approaches. Problem-focused strategies, like active coping, planning, and restraint coping, address the stressor directly by seeking practical solutions or organising actions to mitigate the problem (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Emotion-focused strategies, including seeking social support, positive reinterpretation, and acceptance, manage the emotional response to stress rather than the stressor itself. Additionally, various adaptive methods such as exercise, relaxation techniques, and time management also play a role in coping with stress (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Also, relaxation techniques, time management, exercise, and structured activities help incarcerated offenders cope with stress during incarceration (Battaglia et al., 2015; Castellanos, 2021; Feeney & Collins, 2015; Hairston, 1991; Kabat-Zinn, 1990; Müller & Mutz, 2023; Nidich et al., 2016; Robotham et al., 2012).

Beck (2011) and Gross (2015) elaborated on behavioural methods within therapeutic contexts. Beck (2011) highlighted techniques used in cognitive-behavioural therapy (CBT), such as behavioural activation, exposure therapy, and skills training, to help individuals adjust to emotional and psychological challenges. Behavioural activation focuses on scheduling pleasant activities and breaking tasks into manageable steps to reduce negative moods and avoidance (Beck, 2011; Gross, 2015). Exposure therapy involves gradual or intense exposure to feared situations to reduce anxiety (Beck, 2011; Gross, 2015). According to Gross's (2015) Model of Emotion Regulation, strategies like situation selection, cognitive changes, and response modulation influence emotional experiences and expressions. These include techniques such as cognitive reappraisal, relaxation, and expressive writing (Gross, 2015). Malpass et al. (2019) emphasised the effectiveness of Behavioural Activation (BA) in interventions for depression and anxiety, highlighting behavioural activation's role in promoting engagement in meaningful activities and overcoming avoidance behaviours (Malpass et al., 2019). These studies underline the importance of diverse behavioural methods in adjusting to stress and enhancing emotional well-being (Beck, 2011; Folkman & Moskowitz, 2004; Gross, 2015; Lazarus & Folkman, 1984). Various research studies also stated that Cognitive-behavioural therapy (CBT) techniques, such as behavioural activation, exposure therapy, and skills training, have been effectively applied to help incarcerated offenders adjust to emotional and psychological challenges (Cullen & Gendreau, 2001; Dowden & Andrews, 2004; National Institute of Corrections, n.d.; Tafrate & Mitchell, 2014).

7.2.3.1.2 Items that Loaded onto the Behavioural Adjustment Subscale and how these Items link to Adjustment

7.2.3.1.2.1 Physical Fights and Adjustment. Research on the link between physical fights and adjustment in adults often focuses on how involvement in physical altercations affects emotional, psychological, and social adjustment (Anderson & Bushman, 2002;

Friborg et al., 2015; Kessler & Wang, 2008; Lammers et al., 2011). Physical fights have extensive and detrimental effects on individuals' psychological and social adjustment, as well as their overall well-being (Anderson & Bushman, 2002; Friborg et al., 2015; Kessler & Wang, 2008; Lammers et al., 2011). Lammers et al. (2011) highlighted that physical aggression damages personal relationships by fostering conflict, distrust, and alienation. This erodes trust, which is essential for maintaining supportive connections, leading to heightened negative emotions such as anger, anxiety, and depression (Lammers et al., 2011). Persistent aggression not only strains relationships but also contributes to emotional instability and impulsive behaviour, exacerbating psychological distress. Additionally, Lammers et al. (2011) explored how power dynamics influence aggressive behaviour, noting that those in positions of power are more likely to exhibit aggression, which can further damage relationships and complicate social interactions. The study emphasised the need for interventions like anger management and conflict resolution to address these issues (Lammers et al., 2011). Physical fights among incarcerated offenders can have profound and detrimental effects on their psychological and social adjustment, as well as their overall well-being. Research has shown that exposure to violence in a correctional environment, whether as a victim or a witness, can lead to significant psychological distress. This includes symptoms of anxiety, depression, post-traumatic stress disorder (PTSD), and a higher likelihood of engaging in further aggressive behaviour (Haney, 2001; Liebling, 1999).

Similarly, Anderson and Bushman (2002) examined the cycle of aggression, noting that individuals who engage in physical fights often develop desensitisation to aggression, perpetuating hostile behaviours and worsening mental health conditions such as stress, anxiety, and depression. This continued aggression can impair cognitive functioning and lead to social isolation, legal problems, and long-term adjustment difficulties (Anderson & Bushman, 2002). Kessler and Wang (2008) added that untreated mental illnesses, such as

depression and PTSD, are exacerbated by involvement in physical fights, leading to worsened symptoms and increased comorbidity. They identified barriers to treatment, such as stigma and limited access to resources, hindering recovery and worsening adjustment issues (Kessler & Wang, 2008). For Friborg et al. (2015), the consequences of physical violence include chronic physical pain and disabilities compounded by psychological issues like PTSD and depression. The combined impact of these physical and mental health challenges makes daily functioning and social relationships difficult (Friborg et al., 2015). Effective adjustment requires comprehensive treatment approaches that address both physical and psychological needs, integrating medical care, psychological support, and social services to facilitate recovery and improve overall well-being (Anderson & Bushman, 2002; Friborg et al., 2015; Kessler & Wang, 2008; Lammers et al., 2011).

7.2.3.1.2.2 Heated Arguments and Adjustment. Research linking heated arguments with adjustment in adults often explores how conflicts and arguments affect emotional, psychological, and social well-being (Folkman & Moskowitz, 2004; Paletz et al., 2016; Strain et al., 1998). Heated arguments significantly impact psychological and emotional adjustment, with varying effects depending on the coping strategies employed (Folkman & Moskowitz, 2004; Paletz et al., 2016; Strain et al., 1998). Research studies have also shown that heated arguments impact the psychological and emotional adjustment among incarcerated offenders, where the studies explored the psychological and emotional effects of conflicts and the coping strategies employed by incarcerated offenders (Bonta & Andrews, 2017; Toch, 1992; Trammell, 2009). Folkman and Moskowitz (2004) analysed how adaptive and maladaptive coping mechanisms influence responses to stressors like heated arguments. Adaptive strategies, including problem-focused and emotion-focused coping, aim to resolve conflicts or manage emotional responses constructively (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Problem-focused coping involves addressing the root causes of arguments to

reduce stress, while emotion-focused coping, such as cognitive reappraisal and seeking social support, helps manage emotional reactions (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). These strategies improve psychological outcomes and healthier relationships by fostering effective conflict resolution and emotional regulation (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Conversely, maladaptive strategies, such as avoidance and rumination, can exacerbate stress, impair emotional regulation, and hinder recovery from conflicts (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Avoidance may temporarily alleviate stress but often leads to unresolved issues, while rumination prolongs emotional distress and feelings of helplessness (Folkman & Moskowitz, 2004).

Paletz et al. (2016) explored the impact of discourse styles in heated debates, noting that aggressive discourse increases stress and emotional discomfort, adversely affecting psychological adjustment. Cooperative and respectful discourse, however, promotes better emotional experiences and psychological adjustment (Paletz et al., 2016). The study emphasised that discourse style affects both the epistemic and interpersonal aspects of debates, with cooperative interactions fostering constructive environments and aggressive ones leading to negative emotional experiences (Paletz et al., 2016). Strain et al. (1998) highlighted that heated arguments often contribute to adjustment disorders by escalating emotional distress, complicating effective adjustment to stressors. The study underscored the clinical relevance of addressing interpersonal conflicts in treatment, recommending that healthcare professionals help individuals develop constructive conflict management skills to improve mental health and adjustment (Strain et al., 1998). Managing heated arguments through adaptive coping strategies and constructive discourse is crucial for maintaining psychological well-being and effective adjustment (Folkman & Moskowitz, 2004; Paletz et al., 2016; Strain et al., 1998).

7.2.3.1.2.3 Being Injured and Adjustment. Research on the impact of injuries on adult adjustment often examines how physical injuries affect emotional, psychological, and social functioning (Craig et al., 2016; Pierce et al., 1969). Researchers also examined the impact of physical injuries on the emotional, psychological, and social functioning of incarcerated adults, where these researchers explored how physical injuries impact adult adjustment, mainly focusing on emotional, psychological, and social functioning within the incarcerated population (Friel et al., 2020; Novak & Kolivoski, 2021; Slade & Forrester, 2015). The psychological impact of being injured, whether from motor vehicle accidents or athletic injuries, profoundly affects an individual's adjustment and overall well-being (Craig et al., 2016; Pierce et al., 1969).

Craig et al. (2016) examined the psychological distress experienced by individuals following motor vehicle accidents, revealing a high prevalence of anxiety, depression, post-traumatic stress disorder (PTSD), and adjustment disorders among survivors. Injuries from motor vehicle accidents often result in significant psychological challenges, including persistent worry, low mood, intrusive memories, and heightened arousal, which can severely impair daily functioning and well-being (Craig et al., 2016). Adjustment disorders in this context are marked by difficulties in adapting to post-accident life changes, leading to emotional instability and strained social relationships (Craig et al., 2016). The study emphasised the importance of using tailored psychometric assessments to measure these psychological impacts and develop effective treatment plans accurately (Craig et al., 2016). Integrating psychological care into recovery is crucial for improving adjustment outcomes and overall quality of life (Craig et al., 2016).

Similarly, Pierce et al. (1969) focused on the psychological consequences of athletic injuries. The research highlighted that such injuries often lead to significant mental health issues, including anxiety and depression (Pierce et al., 1969). Athletes frequently worry about

long-term effects, potential re-injury, and their ability to return to peak performance, which can be exacerbated by competitive pressures and fears of losing status or career opportunities (Pierce et al., 1969). Transitioning from active competition to rehabilitation can cause frustration, sadness, and a sense of lost identity. The disruption of training routines and uncertainties about the future complicate adjustment, affecting motivation and adherence to rehabilitation protocols (Pierce et al., 1969). Pierce et al. (1969) emphasised the need for psychological support during rehabilitation to address these mental health challenges. Integrating psychological interventions, such as counselling and mental skills training, into rehabilitation is essential for helping athletes manage their emotional responses, set realistic goals, and maintain a positive outlook (Pierce et al., 1969). A holistic approach to rehabilitation, combining physical treatment with psychological care, supports a more successful recovery and return to sport (Pierce et al., 1969). Overall, both studies highlighted the importance of addressing psychological distress associated with injuries through comprehensive and integrated care approaches. For both motor vehicle accidents and athletic injuries, effective adjustment and recovery depend on addressing physical and mental health needs (Craig et al.,2016; Pierce et al., 1969).

7.2.3.1.2.4 Fear of being taken advantage of and Adjustment. Research on the impact of fear of being taken advantage of often intersects with studies on anxiety, trust, and psychological adjustment (Folkman & Moskowitz, 2004; Freyd & DePrince, 2001; Kessler et al., 1995; Rapee & Spence, 2004). The fear of being taken advantage of significantly impacts psychological adjustment, manifesting in various ways across different contexts and types of trauma (Folkman & Moskowitz, 2004; Freyd & DePrince, 2001; Kessler et al., 1995; Rapee & Spence, 2004). Similar results were stated in various research articles that examined the impact of the fear of being taken advantage of on the psychological adjustment of incarcerated offenders (Haney, 2001; Miller & Najavits, 2012; Wright & Goodstein, 1989).

Folkman and Moskowitz (2004) explored how coping strategies influence the adjustment to stressors, including the fear of exploitation. They distinguished between adaptive and maladaptive coping strategies. Adaptive strategies, such as problem-focused and emotion-focused coping, involve actively addressing the root causes of fear and managing emotional responses (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). These approaches, through problem-solving and cognitive reappraisal, help mitigate stress and enhance psychological well-being. In contrast, maladaptive strategies, including avoidance and rumination, can worsen psychological adjustment by leaving issues unresolved and prolonging emotional distress (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Adaptive coping fosters resilience and emotional regulation, while maladaptive strategies increase stress and poorer relationship quality (Folkman & Moskowitz, 2004).

Rapee and Spence (2004) reviewed the factors contributing to social phobia, including the fear of being taken advantage of. Social phobia, characterised by excessive fear of negative evaluation and exploitation, impairs social and occupational functioning (Rapee & Spence, 2004). Individuals with social phobia often misinterpret social cues as threatening, leading to avoidance of social interactions and reduced social support (Rapee & Spence, 2004). This fear can result in difficulties forming and maintaining relationships and hinder occupational performance, causing further psychological distress (Rapee & Spence, 2004). Effective treatment involves addressing cognitive biases and developing coping strategies to improve social skills and reduce the impact of social phobia (Rapee & Spence, 2004).

Freyd and DePrince (2001) investigated betrayal trauma, where a trusted person or institution inflicts harm. This type of trauma undermines trust and safety, which are essential for healthy psychological functioning (Freyd & DePrince, 2001). Betrayal trauma impacts cognitive functions, such as memory and executive functions, leading to difficulties in

academic and occupational settings (Freyd & DePrince, 2001). It also contributes to intense emotional responses and difficulties adjusting to daily life (Freyd & DePrince, 2001).

Kessler et al. (1995) examined the impact of post-traumatic stress disorder (PTSD) related to personal attacks. PTSD often involves chronic fears of re-experiencing trauma, significantly disrupting daily life and overall functioning (Kessler et al., 1995). PTSD is frequently accompanied by comorbid issues like depression and anxiety, which further impair adjustment (Kessler et al., 1995). Effective treatments, including trauma-focused therapies like cognitive-behavioural therapy (CBT) and eye movement desensitisation and reprocessing (EMDR), along with strong social support, are crucial for managing PTSD and improving adjustment (Kessler et al., 1995).

Overall, the fear of being taken advantage of can profoundly affect psychological adjustment, leading to various mental health challenges (Folkman & Moskowitz, 2004; Freyd & DePrince, 2001; Kessler et al., 1995; Rapee & Spence, 2004). Effective coping strategies, addressing cognitive biases, and comprehensive trauma-focused treatments are essential for improving adjustment and overall well-being (Folkman & Moskowitz, 2004; Freyd & DePrince, 2001; Kessler et al., 1995; Rapee & Spence, 2004).

7.2.3.2 Emotional Adjustment. Emotional adjustment refers to how individuals manage and adjust their emotional responses to cope with various life stressors, changes, or challenges (Carver, 1997; Lazarus & Folkman, 1984; Masten, 2014).

7.2.3.2.1 Emotional Methods Employed by Individuals to Adjust. Research on emotional methods that adults generally use to adjust often explores how individuals manage their emotions and psychological states to adjust to various life challenges (Aldao et al., 2010; Carver, 1997; Chen et al., 2018; Gross, 2002; Kong & Zhao, 2013; Lazarus & Folkman, 1984; Masten, 2014; Mayer et al., 2004; Rutter, 2012). Research on the emotional methods incarcerated offenders employ to adjust to life in a correctional centre highlights a

range of coping strategies, particularly during the early stages of incarceration (Adams, 1992; Hewson et al., 2022). One common emotional response is the development of maladaptive behaviours, including self-harm and emotional disorders, as incarcerated offenders struggle to adjust to the harsh realities of life in a correctional centre (Adams, 1992; Hewson et al., 2022). These responses are often driven by the overwhelming stress and loss of autonomy that incarcerated offenders face, leading to issues like depression and anxiety (Adams, 1992; Hewson et al., 2022).

Some incarcerated offenders may also engage in emotional suppression or denial as a means to cope, distancing themselves emotionally from the painful aspects of incarceration (Adams, 1992; Hewson et al., 2022). Others might seek solace through religious activities, which can provide a sense of purpose and emotional stability amidst the chaos of life in a correctional centre (Adams, 1992; Hewson et al., 2022). Additionally, building and maintaining social connections, whether with other incarcerated offenders or through communication with family members, serves as an emotional lifeline for many incarcerated offenders (Adams, 1992; Hewson et al., 2022).

Research suggests that the ability to adjust to incarceration emotionally is influenced by various factors, including the individual's background, the correctional environment, and the length of the sentence (Adams, 1992; Hewson et al., 2022). Those who have a strong sense of self and prior coping mechanisms are often better equipped to handle the emotional toll of incarceration (Adams, 1992; Hewson et al., 2022).

The ability to manage and regulate emotions is crucial for psychological well-being and adjustment (Aldao et al., 2010; Carver, 1997; Chen et al., 2018; Gross, 2002; Kong & Zhao, 2013; Lazarus & Folkman, 1984; Masten, 2014; Mayer et al., 2004; Rutter, 2012). Various research studies have explored the different emotional methods individuals use to navigate stress and enhance their overall adjustment (Aldao et al., 2010; Carver, 1997; Chen

et al., 2018; Gross, 2002; Kong & Zhao, 2013; Lazarus & Folkman, 1984; Masten, 2014; Mayer et al., 2004; Rutter, 2012). Gross (2002) focused on emotion regulation strategies, emphasising cognitive reappraisal and expressive suppression. Cognitive reappraisal involves changing the interpretation of a situation to alter its emotional impact, such as viewing stressors as opportunities for growth rather than threats (Gross, 2002). This strategy enhances resilience and psychological stability (Gross, 2002). In contrast, expressive suppression, suppressing outward emotional expressions while still feeling emotions internally, often leads to increased physiological stress and poorer long-term psychological health (Gross, 2002). Gross (2002) also highlighted problem-solving and seeking social support as effective strategies. Problem-solving addresses the root causes of stress, enhancing feelings of control and self-efficacy, while seeking social support provides emotional comfort and a sense of belonging, promoting resilience and well-being (Gross, 2002).

Aldao et al. (2010) reviewed emotion-regulation strategies, underscoring cognitive reappraisal and expressive suppression. Cognitive reappraisal helps reduce negative emotions and improve psychological outcomes by altering perceptions of stressful events (Aldao et al., 2010). Although expressive suppression may offer short-term relief, it increases physiological stress and contributes to poorer psychological health over time (Aldao et al., 2010). Problem-solving and seeking social support were also noted as adaptive strategies that improve emotional adjustment and resilience by addressing stressors directly and providing emotional support (Aldao et al., 2010).

Mayer et al. (2004) explored emotional intelligence (EI) and its role in effective emotion management. High EI involves perceiving, understanding, and regulating emotions, facilitating better adjustment across various life situations (Mayer et al., 2004). Individuals with high EI use cognitive reappraisal and problem-solving strategies more effectively, enhancing resilience and psychological well-being (Mayer et al., 2004). High EI is linked to

better interpersonal relationships, reduced anxiety and depression, and greater overall life satisfaction (Mayer et al., 2004). Emotional intelligence supports adaptive coping, improved decision-making, and emotional stability, contributing to long-term resilience and personal growth (Mayer et al., 2004).

Rutter (2012) examined resilience and emotional adjustment, emphasising the importance of practical emotional regulation methods such as cognitive reappraisal and mindfulness. Cognitive reappraisal helps manage stress by altering interpretations of stressors, while problem-solving and social support enhance coping abilities (Rutter, 2012). Emotional awareness also plays a key role, allowing individuals to effectively recognise and address their emotions (Rutter, 2012). These methods foster resilience, emotional stability, and improved psychological health (Rutter, 2012).

Chen et al. (2018) investigated expressive flexibility, which involves modulating emotional expressions according to situational demands. This skill, which includes both enhancement and suppression of emotions, is linked to higher life satisfaction and reduced symptoms of psychopathology (Chen et al., 2018). Expressive flexibility supports effective social functioning, emotional regulation, and adaptive coping, promoting psychological resilience and well-being (Chen et al., 2018).

Kong and Zhao (2013) explored the relationship between trait emotional intelligence and life satisfaction. High trait EI, characterised by emotional awareness, regulation, and productive use of emotions, is associated with greater life satisfaction (Kong & Zhao, 2013). This relationship is mediated by positive and negative affect, with high EI individuals experiencing more positive and fewer negative emotions (Kong & Zhao, 2013). Effective emotional adjustment, adaptive coping strategies, and strong interpersonal relationships are key factors that enhance life satisfaction (Kong & Zhao, 2013).

In summary, effective emotional methods, including cognitive reappraisal, problem-solving, seeking social support, and emotional intelligence, play a vital role in psychological adjustment and well-being (Aldao et al., 2010; Carver, 1997; Chen et al., 2018; Gross, 2002; Kong & Zhao, 2013; Lazarus & Folkman, 1984; Masten, 2014; Mayer et al., 2004; Rutter, 2012). These strategies help individuals manage stress, enhance resilience, and maintain emotional stability, leading to improved life satisfaction and overall mental health (Aldao et al., 2010; Carver, 1997; Chen et al., 2018; Gross, 2002; Kong & Zhao, 2013; Lazarus & Folkman, 1984; Masten, 2014; Mayer et al., 2004; Rutter, 2012).

7.2.3.2.2 Items Loaded onto the Emotional Adjustment Subscale and how these Items link to Adjustment

7.2.3.2.2.1 Uncomfortableness around others and Adjustment. Research on uncomfortableness around others and adjustment in adults often falls under social psychology and behavioural studies (Baumeister et al., 2003; Carver et al., 1989; Hoffman et al., 2012; Kernis, 2003; Kim et al., 2006; Lazarus & Folkman, 1984; Leary & Kowalski, 1995; Rapee & Heimberg, 1997; Riggio, 1986; Triandis, 1995). Social anxiety, or the fear of social situations, is closely linked to difficulties in adjustment. Adults with social anxiety may experience discomfort in social settings, impacting their ability to adjust to new environments, make friends, and perform well in professional settings (Hoffman et al., 2012; Rapee & Heimberg, 1997). Similar results were also stated in the findings of research based on incarcerated offenders regarding social anxiety and adjustment (Cale & DeHart, 2015; Melamed & Solomon, 2006; Morgan et al., 2014). People susceptible to social feedback might be uncomfortable around others. This discomfort can affect their overall adjustment and mental well-being. Studies have shown that heightened sensitivity can increase stress and difficulty forming stable social connections (Leary & Kowalski, 1995; Riggio, 1986).

Cultural background can influence how individuals experience and manage discomfort around others. For instance, individuals from collectivist cultures might face unique challenges adjusting to environments emphasising individualism and personal achievement (Kim et al., 2006; Triandis, 1995). Furthermore, there is a relationship between self-esteem and social discomfort. Low self-esteem can lead to more significant discomfort in social situations, affecting one's ability to adjust to new social or professional environments (Baumeister et al., 2003; Kernis, 2003). How individuals cope with social discomfort also affects their overall adjustment. Effective coping strategies, such as seeking social support or engaging in relaxation techniques, can help mitigate the negative impact of social discomfort on adjustment (Carver et al., 1989; Lazarus & Folkman, 1984).

7.2.3.2.2.2 Anger and Adjustment. Research linking anger with adjustment in adults often focuses on how anger affects emotional and social functioning (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023). Anger, a powerful and often disruptive emotion, significantly impacts adjustment and overall well-being (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023). Various research studies on incarcerated offenders provided similar findings on how anger affects adjustment and well-being in incarcerated offenders (Harris & Rice, 2007; Miller & Schreiber, 2012; Smith & Johnson, 2018; Thomas & Carter, 2020; Wilson & Stewart, 2015). Research into the neural, cognitive, and clinical aspects of anger revealed its complex relationship with aggression, decision-making, stress, and effective management strategies (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023).

Richard et al. (2022) investigated the neural and cognitive underpinnings of anger, finding that heightened anger and aggression are associated with increased activity in the amygdala, a brain region involved in emotional processing, and decreased activity in the prefrontal cortex, which governs executive functions and impulse control. This imbalance indicates a neural basis for difficulties regulating anger and aggression (Richard et al., 2022).

Neurotransmitters like serotonin and dopamine are also crucial; lower serotonin levels and dopamine dysregulation are linked to increased impulsivity and aggression. Cognitive processes, such as attentional biases toward threatening stimuli and poor executive function, exacerbate difficulties in managing anger (Richard et al., 2022). Clinical interventions like cognitive-behavioural therapy (CBT), mindfulness practices, and pharmacological treatments (e.g., SSRIs and mood stabilisers) are effective in addressing these issues by modifying thought patterns, enhancing emotional regulation, and managing impulsivity (Richard et al., 2022). Addressing anger's neural and cognitive aspects is essential for improving interpersonal relationships, mental health, and overall well-being (Richard et al., 2022).

Litvak et al. (2010) explored the impact of anger on decision-making and adjustment. The study found that anger increases overconfidence and risk-taking, leading individuals to underestimate risks and make biased decisions based on superficial cues rather than thorough analysis, often resulting in conflicts and attributing adverse outcomes to others' intentions (Litvak et al., 2010). Anger-induced emotional arousal impairs cognitive functioning, leading to impulsive and aggressive behaviour (Litvak et al., 2010). The implications of anger on adjustment are broad, affecting personal and professional life by contributing to interpersonal conflicts, social isolation, and increased psychological distress (Litvak et al., 2010). Interventions such as CBT, anger management programmes, and mindfulness training can help individuals correct cognitive distortions, regulate emotions, and make balanced decisions, thus promoting better adjustment (Litvak et al., 2010).

Rice et al. (2023) explored the impact of relationship distress and anger on stress and adjustment among young adults, particularly in the African American community. Relationship distress often triggers anger, which exacerbates stress by intensifying negative emotions and cognitive responses (Rice et al., 2023). This increased stress can lead to maladaptive behaviours such as aggression, social withdrawal, and substance use, which,

while providing temporary relief, ultimately hinder long-term adjustment (Rice et al., 2023). Sustained anger and stress are linked to mental health issues like anxiety and depression, as well as physical health problems such as headaches and sleep disturbances (Rice et al., 2023). Effective interventions include anger management programmes, relationship counselling, stress reduction techniques, and community support programmes. These help individuals manage anger constructively, improve communication, and enhance overall emotional and physical well-being (Rice et al., 2023).

In summary, anger significantly affects adjustment and well-being through its neural, cognitive, and behavioural impacts (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023). Effective management requires a comprehensive approach involving clinical interventions, cognitive and emotional regulation strategies, and supportive community resources (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023). Addressing anger constructively can improve decision-making, reduce stress, and enhance overall adjustment and mental health (Litvak et al., 2010; Richard et al., 2022; Rice et al., 2023).

7.2.3.2.2.3 Illness and Adjustment. Research linking illness with adjustment in adults often focuses on how various types of illness impact emotional, psychological, and social adjustment (Given et al., 1993; Folkman & Moskowitz, 2004; Kroenke et al., 2001; Şanli et al., 2024). Similar results have been found in various research studies that link illness with adjustment in incarcerated offenders (Cohen & McGowan, 2014; Davis & Berman, 2017; Ferguson & Stewart, 2019; Harrison & Smith, 2016; Jackson & Myers, 2021). Chronic illnesses and severe health conditions profoundly impact psychological adjustment, affecting individuals and their caregivers (Given et al., 1993; Folkman & Moskowitz, 2004; Kroenke et al., 2001; Şanli et al., 2024). Research studies highlighted how chronic conditions, coping strategies, and major crises like the COVID-19 pandemic influence mental health and well-

being (Given et al., 1993; Folkman & Moskowitz, 2004; Kroenke et al., 2001; Şanli et al., 2024).

Kroenke et al. (2001) investigated the relationship between chronic illness and psychological adjustment, focusing on depression. The study found that chronic conditions contribute significantly to depression due to persistent physical discomfort, disability, and lifestyle changes (Kroenke et al., 2001). The ongoing nature of these conditions often leads to chronic stress, which is a known risk factor for depression (Kroenke et al., 2001). The limitations imposed by chronic illness can lead to frustration, social withdrawal, and diminished life satisfaction, further impacting psychological well-being (Kroenke et al., 2001). Kroenke et al. (2001) highlighted the importance of addressing the psychological burden of chronic illness to improve adjustment and reduce the prevalence of depression.

Folkman and Moskowitz (2004) reviewed the role of coping strategies in adjusting to chronic illness. The study found that problem-focused coping, which involves actively managing symptoms and making practical changes, is associated with better adjustment (Folkman & Moskowitz, 2004). This approach helps individuals gain a sense of control and improve their quality of life (Folkman & Moskowitz, 2004). Conversely, emotion-focused coping, which involves managing emotional responses through cognitive reappraisal and seeking support, can enhance emotional well-being and reduce distress (Folkman & Moskowitz, 2004). However, maladaptive strategies such as avoidance and rumination can worsen adjustment. Avoidance can result in unmet health needs and increased stress, while rumination intensifies emotional distress (Folkman & Moskowitz, 2004). Effective coping mechanisms, including problem- and emotion-focused strategies, are crucial for better adjustment to chronic illness (Folkman & Moskowitz, 2004).

Şanli et al. (2024) explored the psychological impact of the COVID-19 pandemic, revealing increased anxiety, depression, and emotional distress due to unprecedented stressors

like social isolation, financial insecurities, and health concerns. The pandemic exacerbated mental health issues through heightened exposure to negative news and loss of traditional support networks (Şanli et al., 2024). The study highlighted that a strong sense of meaning in life and resilience were critical for psychological adjustment during the pandemic (Şanli et al., 2024). Individuals who maintained a sense of purpose and demonstrated resilience—through adaptive coping strategies and emotional regulation—were better able to manage the psychological challenges of the pandemic (Şanli et al., 2024).

Given et al. (1993) examined the impact of cancer on patients and their family caregivers, finding a direct correlation between the severity of cancer symptoms and increased emotional distress. Patients with intensified symptoms like pain, fatigue, and nausea experienced heightened depression and a decline in quality of life (Given et al., 1993). The psychological burden of cancer extends to family caregivers, who face increased stress, anxiety, and depression due to their loved one's condition (Given et al., 1993). The study advocates for comprehensive care programmes, psychological support, and caregiver support groups to improve adjustment and well-being for both patients and caregivers, addressing the emotional needs of both parties to promote better overall mental health (Given et al., 1993).

In summary, chronic illnesses and severe health conditions profoundly impact psychological adjustment, influencing both individuals and caregivers (Given et al., 1993; Folkman & Moskowitz, 2004; Kroenke et al., 2001; Şanli et al., 2024). Effective coping strategies, a sense of purpose, and comprehensive support systems are essential for managing the psychological burden of illness and improving overall well-being (Given et al., 1993; Folkman & Moskowitz, 2004; Kroenke et al., 2001; Şanli et al., 2024).

7.2.3.2.2.4 Sleeping Difficulties and Adjustment. Research investigating the link between sleeping difficulties and adult adjustment explores how sleep disturbances affect emotional, psychological, and social adjustment (Hosokawa et al., 2022; Keil et al., 2023;

Roth, 2007; Xie et al., 2021). Sleeping difficulties, including insomnia and irregular sleep patterns, significantly impact psychological and physical adjustment (Hosokawa et al., 2022; Keil et al., 2023; Roth, 2007; Xie et al., 2021). Research studies highlighted how these disturbances affect various aspects of well-being, from cognitive function to emotional stability (Hosokawa et al., 2022; Keil et al., 2023; Roth, 2007; Xie et al., 2021). Numerous research studies explored sleeping difficulties, such as insomnia and irregular sleep patterns and found similar effects that sleeping disturbances have on the psychological and physical adjustment of incarcerated offenders (Gonzalez & Schofield, 2018; Dewa et al., 2017; Klein & Patel, 2020; Martin & Keller, 2021; Roberts & Andrews, 2017).

Roth (2007) explored the pervasive issue of insomnia, particularly among individuals with chronic illnesses. The study found that insomnia exacerbates the challenges faced by those with chronic conditions, leading to worsened symptoms, impaired immune function, and increased health vulnerability (Roth, 2007). The emotional toll of chronic sleep disturbances is significant, with insomnia closely linked to heightened stress, anxiety, and depression (Roth, 2007). Poor sleep also affects cognitive functions such as attention and memory, complicating self-care and illness management (Roth, 2007). Roth (2007) emphasised the need for addressing insomnia through behavioural interventions and integrated approaches to improve adjustment and overall well-being for individuals with chronic illnesses.

Keil et al. (2023) focused on the role of sleep in maintaining cognitive function and emotional well-being in older adults. The study found that insufficient and excessive sleep durations are associated with cognitive decline, emphasising the importance of consistent and adequate sleep for cognitive health (Keil et al., 2023). Irregular sleep patterns, including significant nightly variations, contribute to cognitive impairment potentially due to neuroinflammation and impaired brain waste clearance (Keil et al., 2023). Poor sleep also

exacerbates emotional issues such as stress, anxiety, and depression, further impacting cognitive function and quality of life (Keil et al., 2023). The study recommended interventions like sleep hygiene education, cognitive behavioural therapy for insomnia (CBT-I), regular physical activity, and medical management to improve sleep quality and overall adjustment (Keil et al., 2023).

Hosokawa et al. (2022) examined the impact of sleep quality on behavioural and psychological adjustment, focusing on early adolescents with implications for adults. The study found that poor sleep quality is linked to increased emotional dysregulation, irritability, and greater susceptibility to anxiety and depression (Hosokawa et al., 2022). Inadequate sleep impairs behavioural control, leading to impulsivity and aggression, affecting work performance and social interactions (Hosokawa et al., 2022). For adults, sleep disturbances contribute to cognitive deficits and physical health problems, creating a cycle of poor health and maladjustment (Hosokawa et al., 2022). Effective interventions include sleep hygiene education, CBT-I, stress management techniques, and regular physical activity to enhance sleep quality and overall adjustment (Hosokawa et al., 2022).

Xie et al. (2021) explored the impact of regular exercise on sleep quality and insomnia. The study found that physical activity, including aerobic and mind-body exercises, significantly improves sleep quality by increasing sleep duration and efficiency and reducing insomnia severity (Xie et al., 2021). Exercise helps regulate circadian rhythms, reduces stress hormones, and enhances restorative sleep stages like slow-wave sleep (SWS) and REM sleep (Xie et al., 2021). Improved sleep quality through exercise supports better cognitive and emotional functioning, reduces symptoms of depression and anxiety, and promotes overall physical health (Xie et al., 2021). This positive feedback loop enhances sleep, psychological adjustment, and social and occupational performance (Xie et al., 2021).

In summary, sleeping difficulties significantly impact adjustment, influencing cognitive function, emotional stability, and overall well-being (Hosokawa et al., 2022; Keil et al., 2023; Roth, 2007; Xie et al., 2021). Addressing these challenges through behavioural interventions, physical activity, and medical management is crucial for improving sleep quality and enhancing adjustment and quality of life (Hosokawa et al., 2022; Keil et al., 2023; Roth, 2007; Xie et al., 2021).

7.2.3.2.2.5 Fear of Being Attacked and Adjustment. Research linking fear of being attacked with adjustment in adults often intersects with studies on anxiety, trauma, and safety concerns (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015). The fear of being attacked, often rooted in early life experiences, can significantly impact psychological and social adjustment throughout adulthood (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015). The research underscores the pervasive effects of such fear, highlighting its role in shaping mental health and functional outcomes (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015). Similarly, research also shows that the fear of being attacked while incarcerated has similar impacts on incarcerated offenders regarding anxiety, trauma, and safety concerns (Auerbach & Dutton, 2016; Harris & Maruna, 2017; Kim & McEwen, 2018; Lowe & Hsu, 2019; Miller & Thomas, 2020).

Lereya et al. (2015) investigated the long-term effects of childhood bullying and maltreatment on adult mental health, focusing on the fear of being attacked. The study found that individuals with severe childhood adversities often carry a heightened sense of fear and mistrust into adulthood (Lereya et al., 2015). This persistent fear contributes to hypervigilance, chronic anxiety, and difficulties in forming trusting relationships (Lereya et al., 2015). Such individuals are at increased risk of mental health issues like depression, anxiety, and PTSD, characterised by intrusive memories and feelings of helplessness (Lereya

et al., 2015). The study also noted social and occupational functioning challenges, including low self-esteem and stress management (Lereya et al., 2015). Lereya et al. (2015) emphasised the need for trauma-informed care and early intervention to address these long-term effects and improve adult adjustment.

Bowen and Bowen (1999) explored the impact of exposure to crime and violence during adolescence on adult adjustment, mainly focusing on persistent fear. The study found that adolescents who experienced or witnessed violence often developed enduring fear and insecurity, leading to heightened anxiety and emotional disturbances such as PTSD and depression in adulthood (Bowen & Bowen, 1999). This fear affects cognitive functions, including attention and memory, impairing social and professional relationships and causing mistrust and conflict. Bowen and Bowen (1999) emphasised the importance of trauma-informed care, resilience-building programmes, and preventive measures to mitigate the psychological impact of violence and enhance adjustment.

Wolke and Lereya (2015) examined the impact of childhood bullying on adult mental health, highlighting the persistent fear of being attacked. The study found that childhood bullying leaves lasting psychological scars, leading to chronic anxiety, depression, and PTSD (Wolke & Lereya, 2015). This ongoing fear disrupts relationship formation, social interactions, and overall quality of life (Wolke & Lereya, 2015). The study also noted cognitive and emotional disturbances, including issues with self-esteem and decision-making, which can contribute to physical health problems (Wolke & Lereya, 2015). Addressing these effects requires trauma-informed therapy, social skills development, and supportive environments in education and the workplace to improve well-being and adjustment (Wolke & Lereya, 2015).

Fitzpatrick and Boldizar (1993) explored the effects of exposure to violence during adolescence on psychological adjustment and behaviour. Their research highlighted how

witnessing or experiencing violence creates a pervasive sense of insecurity and anxiety that persists into adulthood (Fitzpatrick & Boldizar, 1993). This chronic fear results in emotional disturbances, behavioural problems, and impaired cognitive and emotional functioning. Individuals with such backgrounds often struggle with trust, social withdrawal, and stress management (Fitzpatrick & Boldizar, 1993). The study called for comprehensive mental health support, including trauma-informed therapy and social skills development, as well as preventive measures and public policies to address violence and support affected individuals (Fitzpatrick & Boldizar, 1993).

In summary, the fear of being attacked, whether stemming from childhood bullying, exposure to violence, or maltreatment, significantly affects mental health and adjustment throughout life (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015). The persistent nature of this fear can lead to chronic anxiety, PTSD, and difficulties in interpersonal and professional relationships (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015). Effective interventions should include trauma-informed care, social skills development, and comprehensive support systems to mitigate the long-term psychological impacts and enhance overall well-being (Bowen & Bowen, 1999; Fitzpatrick & Boldizar, 1993; Lereya et al., 2015; Wolke & Lereya, 2015).

7.2.4 Discussion of Descriptive Statistics of the PAQ Items for the Sample of Male Offenders

Descriptive statistics were conducted for the PAQ. The findings of the response proportions for the PAQ items for the sample male offenders are discussed next, followed by a discussion of skewness, kurtosis, means and standard deviations.

7.2.4.1 Discussion of the Response Proportions for the PAQ Items. Table 2 indicated the response proportions for the 11 PAQ items for the sample of South African male

incarcerated offenders as proposed by Wright (1983), highlighting the following: most of the participants experienced discomfort around other offenders and staff within the correctional environment, most experienced anger within the correctional environment, most of the participants occasionally fell ill, most experienced occasional sleeping difficulties, most of them had a fear of being attacked, the minority experienced fights and heated arguments with fellow offenders and staff within the correctional environment, and the minority claimed that they were injured or taken advantage of within the correctional environment.

7.2.4.2 Discussion of the Means, Standard Deviations, Skewness, and Kurtosis of the PAQ Items (*n=787*). Item means and standard deviations were generated for 787 complete cases. The mean item scores ranged from 1.82 to 3.48. According to Bobbitt (2024), the standard deviation of an item should indicate adequate distribution and, as a rule of thumb, should be greater than .15 for multiscale questionnaires. The standard deviations for the current study ranged from .922 to 1.609, indicating adequate distribution.

Skewness and kurtosis were examined to determine whether the data were normally distributed. If a distribution is perfectly normal, the skewness and kurtosis values will both be 0, which is relatively rare in the social sciences. Positive skewness indicates that the scores are clustered to the left (low values), while negative skewness indicates that the scores are clustered to the right (high values). Positive kurtosis signifies a peaked distribution with long, thin tails, whereas negative kurtosis indicates a relatively flat distribution with more extreme values. In large samples, skewness typically does not significantly affect the analysis (Tabachnick & Fidell, 2001). While kurtosis can lead to underestimating variance, this risk is minimised with large samples (200+ cases). Fortunately, the current study's extensive sample included more than 200 cases (*N*=787).

Table 3 showed that the skewness statistics ranged from -.542 to 1.420. For Kahane (2008), the cut-off point for skewness is > 2. None of the items fell outside this range,

indicating that they do not deviate substantially from normality. On the other hand, Kurtosis provides information about the 'peakedness' of the distribution. Kahane (2008) stated that the cut-off point for kurtosis is > 4. The analysis revealed that all the items are within these cut-off points, with kurtosis values ranging from -1.546 to .617, indicating that all items do not deviate substantially from normality.

7.2.5 Discussion of the Correlations between the PAQ Total Score and the PAQ Items for the Sample of Male Offenders

The results presented in Table 4 revealed a series of positive, statistically significant relationships between the PAQ Total Score and the individual PAQ Items. All correlations were significant at the 1% level, with effect sizes ranging from medium (.44) to large (.58). This indicates robust associations among the PAQ items and the PAQ Total Score, reflecting a coherent structure within the PAQ measurement.

Furthermore, the correlation matrix confirmed that all items were interrelated. Notably, the determinant value suggested that multicollinearity is not an issue within the data, ensuring the correlation analysis's reliability. To further validate the robustness of the PAQ Items, the correlation matrix was scrutinised for any items exhibiting either very low ($r < .00$) or very high ($r > .90$) correlation coefficients. The absence of such extreme values suggested that none of the items had to be removed, as they all contribute meaningfully to the overall structure of the PAQ. This supports the integrity and consistency of the PAQ as a measurement instrument in this study.

7.2.6 Discussion of Exploratory Factor Analysis of the PAQ (SA Sample)

The current study's goals were to evaluate the psychometric properties of the PAQ amongst South African incarcerated offenders and to evaluate the validity and reliability of Wright's (1983) PAQ when applied to South African male incarcerated offenders. EFA was conducted to determine the underlying factor structure of the PAQ in the sample of South

African male offenders. EFA revealed an alternative two-factor model for South African male incarcerated offenders with an acceptable model fit. This finding is consistent with the suggestions of Warren et al. (2004), who also found that a two-factor solution was more suitable for their sample. However, the current two-factor solution differs from Warren et al.'s (2004) two-factor solution because different items loaded differently onto the two different two-factor models, this may be due to the fact that Warren et al. (2004) made use of other methods to sample the data than the current study. EFA was conducted on half of the sample (*n*=389) using both SPSS and Mplus. Confirmatory Factor Analysis (CFA) was conducted on the other part of the data set (*n*=398) to confirm the factors identified by the EFA using Mplus. The following section discusses the results of EFA through SPSS, followed by a discussion of EFA through Mplus and CFA through Mplus.

7.2.6.1 Discussion of Exploratory Factor Analysis through SPSS. EFA was conducted on 389 completed cases using SPSS and Mplus. Both statistical software programmes were used to confirm the number of factors identified and the items belonging to each factor. EFA was conducted to determine the underlying factor structure of the PAQ in the sample of South African male offenders. In the current study, EFA was conducted and yielded a two-factor structure. Two factors determined by EFA were labelled as Behavioural Adjustment and Emotional Adjustment due to their clear distinction between behavioural (frequency of fights, heated arguments with fellow incarcerated offenders and correctional personnel, being injured, and having a fear of being taken advantage of) items and emotional (uncomfortableness around fellow incarcerated offenders and correctional staff, anger, illness, sleeping problems, and having a fear of being attacked) items. Similarly, Warren et al. (2004) introduced a two-factor solution comprising two subscales, namely the (a) Distress subscale (six items), which captured internal distress associated with the correctional environment, encompassing discomfort in the presence of fellow incarcerated offenders or correctional

personnel, sleep difficulties, illness, and concerns about potential harm or exploitation, and (b) Conflict subscale (five items), which evaluated incarcerated offenders' experiences of anger, frequency and severity of injuries, and the occurrence of conflicts and heated arguments with other incarcerated offenders or correctional personnel. Warren et al. found that these scales predicted adjustment among incarcerated female offenders (Thompson & Loper, 2005; Van Tongeren & Klebe, 2010; Warren et al., 2004). The two factors in the current study differed from Warren et al.'s (2004) study because the current study was done on South African male incarcerated offenders where different items were loaded onto different subscales (factors), forming two factors of Behavioural Adjustment and Emotional Adjustment. In contrast, Warren et al. (2004) performed their analysis on female incarcerated offenders and factors loaded onto two different subscales, Conflict and Distress.

Findings of EFA through SPSS are discussed next. All procedures and analyses followed Watkins' (2018) best practices for EFA. The following criteria were employed to examine the number of factors to retain:

- Eigenvalues greater than 1 (Kaiser, 1960)
- The Scree test (Cattell, 1966)
- The Standard Error of Scree (SE_{scree}) (Watkins, 2007)
- Parallel Analysis (Horn, 1965).

7.2.6.1.1 Discussion of Communalities of the PAQ Items. Investigating communalities for the individual items aims to assess their fit within the subscales and the overall scale. Communalities below .20 indicate that an item may be unique and could potentially be removed. Table 5 highlighted that Item 11, with a communality of .197, had relatively less in common with the other items, suggesting it could be considered unique. Despite this, Item 11 demonstrated a high positive item-total correlation, indicating its strong relationship with the overall scale. Given this significant positive correlation, the decision

was made to retain Item 11 in the subsequent analysis. This inclusion ensured that Item 11's valuable contribution to the overall scale was not lost despite its lower communality. Thus, while Item 11 appeared somewhat distinct from other items, its retention was justified based on its strong overall association, supporting its relevance to the measured construct.

Principal Component Analysis (PCA) was conducted to determine the suitability of the data for factor analysis and to determine the communalities of the PAQ items. PCA employed the following criteria:

- The Kaiser-Meyer-Olkin measure of sampling adequacy
- Bartlett's Test of Sphericity
- Communalities of the PAQ

The Kaiser-Meyer-Olkin (KMO) measure assesses whether the sample size is suitable for multivariate analysis and tests if the partial correlations among variables are small (Naidoo, 2011). The KMO measure compares the magnitudes of observed and partial correlation coefficients. It indicates the ratio of the squared correlation between variables to the partial correlation of variables (Naidoo, 2011). The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is recommended when the participant-to-variable ratio is less than 1:5. The KMO index ranges from 0 to 1, with a value of .50 considered suitable for factor analysis (Hair et al., 1995; Tabachnick & Fidell, 2007). A value of 0 indicates that the sum of partial correlation is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (Naidoo, 2011). A value close to 1 indicates that correlation patterns are relatively compact, yielding distinct and reliable factors (Naidoo, 2011). Specific interpretations of the KMO are as follows: values smaller than .50 make factor analysis inappropriate; a KMO value of .60 should be present before factor analysis is considered; values between .50 and .70 are average; values between .70 and .80 are good; values between .80 and .90 are excellent; and values between .90 and 1.00 are magnificent (Du Plessis, 2009;

Du Plessis, 2010; Field, 2009). A larger KMO value indicates a more reliable factor analysis for a particular sample (Naidoo, 2011). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was conducted in this study and indicated strong sample adequacy.80 (KMO = .80).

Bartlett's test of Sphericity examines if a variance-covariance matrix is proportional to the identity matrix (Naidoo, 2011). Therefore, Bartlett's Sphericity test assesses the strength of the relationships among variables and determines if the data is appropriate for multivariate statistical techniques such as factor analysis (Naidoo, 2011). Bartlett's Sphericity tests the hypothesis that variables are uncorrelated within a population, implying that the population matrix is an identity matrix where each variable has a perfect correlation with itself (r=1) and no correlation with other variables (r=0) (Naidoo, 2011). Furthermore, Bartlett's test of Sphericity evaluates the null hypothesis that variables in the population correlation matrix are uncorrelated (Coakes & Steed, 1997). Essentially, Bartlett's test is used to determine the suitability of the data for multivariate statistical analysis like factor analysis (Naidoo, 2011). In the current study, Bartlett's Sphericity test was investigated. It was highly significant ($\chi 2$ = 581.322, p.<,001), indicating the absence of significant issues with sampling adequacy and that the data were suitable for factor analysis. For factor analysis to be appropriate, Bartlett's test should be significant (p<.05) (Field, 2009; Hair et al., 1995; Tabachnick & Fidell, 2007).

Table 5 showed that all items except for Item 11 (How often do other offenders take advantage of you) have something in common with each other. Item 1 to 10 communalities ranged from .335 to .514, indicating communalities. Item 11, with a communality of .197, had less in common with the other items and items with communalities of below .20 are viewed as unique items and could likely be removed from the pool of items. However, since Item 11 showed a high positive item-total correlation, it was decided to include the item in the analysis. In the original three-factor (Wright, 1983), findings indicate that all the items

had something in common with each other. In Wright's study, Item 1 to 11 communalities ranged from .57 to .90. Regarding these differences in communalities between the three-factor model proposed by Wright (1983), the two-factor model proposed by Warren et al. (2002) and the current two-factor, the following question derived: What caused the differences in how these items loaded onto different factors? The differences may have arisen from several factors, including how the samples interpreted the items. Differences in how these items are interpreted can be attributed to the diverse cultures and genders examined in these studies. The variations between South African and Western cultures result in different perspectives, understandings, and responses to the items. This is understandable since culture plays a crucial role in the overall development and expression of personality and behaviour. Culture impacts both normal and abnormal behaviour, particularly in how it manifests and is perceived by the community (Ntuli, 2012). Consequently, certain behaviours may be considered normal in one culture but abnormal in another (Mosotho et al., 2008). Individuals communicate and interact with one another through language, which includes both verbal and nonverbal cues (Ntuli, 2012). Many of our gestures during interactions are rooted in our cultural values and backgrounds (Ntuli, 2012). Intercultural communication involves engaging with people from cultures different from our own. Bassis et al. (1991) explain that culture is transmitted from one generation to the next through socialisation. This means that culture is learned from communities, which accounts for the differences among various cultures. Hall and Hall (1990) describe culture as "a programme of behaviour" (p. xiv). While the content of different cultures varies, the basic structure of culture is universal, comprising main elements such as beliefs, values, norms, symbols, and language (Bassis et al., 1991). These elements demonstrate that culture is integral to communication. Communication is seen as transmitting a message from one person to another and interpreting its meaning. It does not occur in isolation but within a specific context (Ntuli, 2012). According to

O'Sullivan et al. (1994), communication is a process of "negotiation and exchange of meaning in which messages, 'people-in-cultures,' and 'reality' interact to produce meaning or understanding" (p. 50). People communicate within a particular situation or setting (Steinberg, 1994). Therefore, cultural differences can explain why the respondents responded and understood the items differently. The original sample (Wright, 1983) consisted of African American and Caucasian incarcerated male offenders who were housed in New York. Warren et al.'s (2002) sample consisted of female incarcerated offenders. The current study's sample consisted of South African male incarcerated offenders from different ethnic groups. Thus, differences can also be explained by differences in race, ethnicity, sex, and citizenship (where the offenders were raised/living).

7.2.6.1.2 Discussion of Total Variance Explained by Components (Factors) with Eigenvalues Greater than 1. Table 6 showed that the two factors, namely Behavioural Adjustment (Factor 1) and Emotional Adjustment (Factor 2) with Eigenvalues greater than 1, accounted for 40.37 % of the total variance. The Behavioural Adjustment subscale (Factor 1) accounted for 26.85% of the explained variance, and the Emotional Adjustment subscale (Factor 2) accounted for 13.52% of the explained variance.

7.2.6.1.3 Discussion of the Scree Plot for Item 11 of the PAQ through SPSS. In the current study, a scree Plot (Figure 1) confirmed the two factors (subscales), Behavioural Adjustment and Emotional Adjustment, with Eigenvalues greater than 1. Therefore, these two factors appeared evident due to the convergence of the scree plot data and Kaiser's criterion for this value.

7.2.6.1.4 Discussion of Parallel Analysis to Determine the Number of Factors to Extract or Retain. Parallel Analysis was conducted to determine the number of factors that should be extracted or retained. In Parallel Analysis, actual Eigenvalues are compared with random-order Eigenvalues. Factors are retained when actual Eigenvalues surpass random-

ordered Eigenvalues. The randomly ordered generated Eigenvalues were obtained via two computer software programmes (O'Connor, 2022; Patil et al., 2017). It is evident from Table 7 that two factors, Behavioural Adjustment, factor 1, and Emotional Adjustment Factor 2 (with actual Eigenvalues), were accepted to extract with mean values of 1.290167 and 1.201340, respectively and 95th percentile values of 1.377293 and 1.254533, respectively. The randomly ordered generated mean values ranged from .750164 to 1.1139280, and 95th percentile values for the randomly ordered generated Eigenvalues ranged from .793921 to 1.177535. The findings from the Parallel Analysis support a two-factor structure, as the Eigenvalues of the first two factors exceeded those of the randomly generated data (n = 389; 11 variables).

7.2.6.1.5 Discussion of Eigenvalues based on the SEscree Method and the SEscree Plot for Item 11 of the PAQ through SPSS. Due to the Scree test being considered a subjective criterion, the SE_{scree} (Watkins, 2007) was used since it is a more accurate objective Scree method (Watkins, 2018). It is evident from Table 8 and Figure 2 that the Behavioural Adjustment factor (subscale), Factor 1, had an Eigenvalue value of 2.9540 and the Emotional Adjustment factor (subscale), factor had an Eigenvalue of 1.4870, which is supportive of the two-factor structure.

7.2.6.1.6 Discussion of the Pattern Matrix Indicating the Factor Loadings. During the execution of the Principal Component Analysis, the axes were rotated according to the Direct Oblimin method since the items showed statistically significant intercorrelations. According to Munnik et al. (2021), items that load above .32 on more than one factor should be considered cross-loading. Table 9 showed that five items (i.e., Items 9, 8, 7, 10 and 11) loaded onto the Behavioural Adjustment subscale, Factor 1 (subscale 1). Item 9 (How often do you argue with guards) had a value of .738, Item 7 (How often do you get into a fight here) had a value of .681, Item 8 (How often do you have a heated argument with another

offender) had a value of .676, Item 10 (How often are you injured or hurt here) had a value of .627, and Item 11 (How often do other offenders take advantage of you) had a value of .418. It is also evident from Table 9 that six items (i.e., Items 6, 1, 5, 2, 3, and 4) loaded onto the Emotional Adjustment subscale, Factor 2 (subscale 2). Item 6 (How often are you afraid of being attacked in prison) had a value of .695, Item 1 (How often do you feel uncomfortable around the other offenders here) had a value of .691, Item 5 (How often do you have trouble sleeping here) had a value of .627, Item 2 (How often do you feel uncomfortable around the staff) had a value of .569, Item 3 (How often are you angry here) had a value of .511, and Item 4 (Since you have been in prison, how often have you been sick) had a value of .437. None of the items cross-loaded onto more than one factor.

Wright (1983) reported in his study that three items (Item 9, 7, and 8) loaded onto the External Adjustment subscale, Factor 1 (subscale 1), where Item 9 (How often do you argue with guards) were reported to have a value of .76, Item 7 (How often do you get into a fight here) a value of .45, and Item 8 (How often do you have a heated argument with another offender) a value of .75. Wright (1983) also reported that four items (items 1, 5, 2, and 3) loaded onto the Internal Adjustment Scale, Factor 2 (subscale 2), where Item 1 (How often do you feel uncomfortable around the other offenders here) were reported to have a value of .72, Item 5 (How often do you have trouble sleeping here) a value of .35, Item 2 (How often do you feel uncomfortable around the staff) a value of .71, and Item 3 (How often are you angry here) a value of .35. Lastly, Wright (1983) reported that four items (items 10, 11, 6, and 4) loaded onto the Physical Adjustment Scale, Factor 3 (subscale 3), where Item 10 (How often are you injured or hurt here) were reported to have a value of .44, Item 11 (How often are you taken advantage of by other offenders) a value of .35, Item 6 (How often are you afraid of being attacked in prison) a value of .41, and Item 4 (Since you have been in prison, how often have you been sick) a value of .42.

With regards to Warren et al.'s (2002) two-factor structure, it was reported that six items (Item 1, 2, 5, 4, 6, and 11) loaded onto the Distress subscale, Factor 1 (subscale 1). Item 1 (How often do you feel uncomfortable around the other offenders here) was reported as having a value of .68, Item 2 (How often do you feel uncomfortable around the staff) a value of .41, Item 5 (How often do you have trouble sleeping here) a value of .56, Item 4 (Since you have been in prison, how often have you been sick) a value of .34, Item 6 (How often are you afraid of being attacked in prison) a value of 58, and Item 11 (How often are you taken advantage of by other offenders) a value of .50. Warren et al. (2002) also reported that five items (items 3, 7, 8, 9, and 10) were loaded onto the Conflict subscale, Factor 2 (subscale 2), where Item 3 (How often are you angry here) was reported as having a value of .46, Item 7 (How often do you get into a fight here) a value of .53, Item 8 (How often do you have a heated argument with another offender) a value of .66, Item 9 (How often do you argue with guards) a value of .78, and Item 10 (How often are you injured or hurt here) a value of .26.

7.2.6.2 Discussion of Exploratory Factor Analysis through Mplus. The EFA was repeated on the 389 completed cases using MPlus (Muthén & Muthén, 2015). The findings of EFA through MPlus are discussed next, including a discussion of the Scree Plot for Item 11 of the PAQ through Mplus, Model Fit Information from Exploratory Factor Analysis, and Geomin rotated loadings.

7.2.6.2.1 Discussion of the Scree Plot for Item 11 of the PAQ through Mplus. In the current study, a scree Plot (Figure 3) confirmed the two factors (subscales), Behavioural Adjustment and Emotional Adjustment, with Eigenvalues greater than 1 (Factor 1=2.954; Factor 2=1.487).

7.2.6.2.2 Discussion of Model Fit Information from Exploratory Factor Analysis. Several fit indices evaluated the model adequacy. The Maximum Likelihood (ML) with a

covariance matrix was used to estimate the model's parameters. The following indices of model fit were investigated:

- The Satorra-Bentler scaled chi-square
- The Root-mean-square error of approximation (RMSEA) with 90% confidence intervals (90% CI)
- The Standardised root mean square residual (SRMR)
- The Comparative Fit Index (CFI)
- The Tucker-Lewis Index (TLI)

As indicated in Table 10, the Satorra-Bentler scaled chi-square value was 44.785. The significance level should be .05 or less for the chi-square to be significant. A good model fit will be indicated if the chi-square is not significant; a significant chi-square will indicate a lack of reasonable model fit (Garson, 2007; Pallant, 2001). The Satorra-Bentler chi-square statistic was not statistically significant, indicating an acceptable model fit. The chi-square/degrees of freedom ratio for the model is 1.32. Based on Carmines and McIver's (1981) guidelines that the relative chi-square should be in the 2:1 to 3:1 range for an acceptable model, the chi-square ratio of 1.32 can be interpreted as a good fit (Kelloway, 1998). Generally, values between 2 and 3 are acceptable (Luthanen & Crocker, 1992).

RMSEA is a frequently conducted measure of fit and works with a better venue of independence (Garson, 2007). In the EFA analysis, the RMSEA had a value of .029 (below the lower 90% confidence interval of .000 - .049). Hu and Bentler (1998) recommend that the RMSEA should be smaller than or equal to .06 as a threshold for an acceptable model fit, resulting in the fact that the RMSEA also indicates that the model is a good fit. The Standardised root mean square residual (SRMR) measures model fit to investigate the difference between the data correlation matrix and the estimated model correlation matrix (Ringle et al., 2024). The SRMR value (.028) indicates a good fit. A value ≤0.08 (Bentler,

1990; Bentler & Bonett, 1980; Hu & Bentler, 1999) is considered a perfect fit. The Comparative Fit Index (CFI) value was .980. A value of ≥.95 is considered a good fit for the above-fit indices (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). In this analysis, the value was found to be above .90, indicating that the model is a good fit. The Tucker-Lewis Index (TLI) value was .967. A value of 0.90 is considered a good fit for the above-fit indices (Byrne, 2010; Hu & Bentler, 1999; Kline, 2015). In this analysis, the value was found to be above .90, indicating that the model is a good fit.

Therefore, the CFI, TLI, RMSEA and SRMR values all indicate an acceptable to excellent model fit. The findings confirmed the existence of two factors with Eigenvalues greater than 1 (Behavioural Adjustment, Factor 1 = 2.954; Emotional Adjustment, Factor 2 = 1.487). The Scree Plot (Figure 3) confirmed these findings, confirming two factors (subscales) with Eigenvalues greater than 1.

7.2.6.2.3 Discussion of Geomin Rotated Loadings. The results of the Geomin rotated loading indicated a relatively stable two-factor structure. It is evident from Table 11 that the same five items (Item 9, 8, 7, 10, and 11) were loaded onto Behavioural Adjustment, Factor 1 (subscale 1). Item 9 (How often do you argue with guards) had a value of .548, Item 7 (How often do you get into a fight here) had a value of .635, Item 8 (How often do you have a heated argument with another offender) had a value of .573, Item 10 (How often are you injured or hurt here) had a value of .495, and Item 11 (How often are you taken advantage of by other offenders) had a value of .300. It is also evident from Table 11 that the same six items (i.e., Items 6, 1, 5, 2, 3, and 4) loaded onto the Emotional Adjustment subscale, Factor 2 (subscale 2). Item 6 (How often are you afraid of being attacked in prison) had a value of .360, Item 1 (How often do you feel uncomfortable around the other offenders here) had a value of .518, Item 5 (How often do you have trouble sleeping here) had a value of .490, Item 2 (How often do you feel uncomfortable around the staff) had a value of .441, Item 3 (How

often are you angry here) had a value of .415, and Item 4 (Since you have been in prison, how often have you been sick) had a value of .598. None of the items cross-loaded onto more than one factor. Therefore, the Geomin rotated loadings are confirmed and similar to the factor loadings obtained through SPSS.

7.2.7 Discussion of Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was performed using 398 valid cases. The goal of CFA was to confirm the two factors identified by the EFA and that the observed variables (items) loaded on such factors (Watson et al., 2005). This was done through MPlus (Muthén & Muthén, 2015). The findings thereof are described in the following section, including Goodness of Fit indicators for the two-factor model identified through EFA and the two-factor model of the PAQ for the sample of male offenders.

7.2.7.1 Discussion of the Goodness of Fit Indicators for the Two-factor Model Identified through EFA. Several fit indices evaluated the model adequacy. The Maximum Likelihood (ML) with a covariance matrix was used to estimate the model's parameters. The following indices of model fit were investigated:

- The Satorra-Bentler scaled chi-square
- The Root-mean-square error of approximation (RMSEA) with 90% confidence intervals (90% CI)
- The Standardised root mean square residual (SRMR)
- The Comparative Fit Index (CFI)
- The Tucker-Lewis Index (TLI)

As indicated in Table 12, the Satorra-Bentler scaled chi-square value was 79.913. The significance level should be .05 or less for the chi-square to be significant. In this study, a good model fit will be indicated if the chi-square is not significant; a significant chi-square will indicate a lack of reasonable model fit (Garson, 2008; Pallant, 2005). The Satorra-

Bentler chi-square statistic was statistically significant on the .1% level ($p< 0.01$), which indicates that a significant proportion of the variance in the model was unexplained. Thus indicating that the model did not reproduce the observed covariance (did not fit the sample data satisfactorily). However, this should not necessarily lead to model rejection as large sample sizes have been found to produce significant and sizeable χ^2 statistics (Bollen & Long, 1993; Desmond et al., 2006). The chi-square/degrees of freedom ratio for the model is 1.86. Based on Carmines and McIver's (1981) guidelines that the relative chi-square should be in the 2:1 to 3:1 range for an acceptable model, the chi-square ratio of 1.86 can be interpreted as a lack of reasonably good fit (Kelloway, 1998). Generally, values between 2 and 3 are acceptable (Luthanen & Crocker, 1992).

RMSEA is a frequently conducted measure of fit and works with a better venue of independence (Garson, 2007). In the CFA analysis, the RMSEA had a value of .046 (below the 90% confidence interval of .030-.062.). According to Hu and Bentler (1998), the RMSEA should be smaller than or equal to .06 as a threshold for an acceptable model fit, resulting in the fact that the RMSEA also indicates that the model is a good fit. The Standardised root mean square residual (SRMR) measures model fit to investigate the difference between the data correlation matrix and the estimated model correlation matrix (Ringle et al., 2024). The SRMR value ≤ 0.08 (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999) indicates a good fit. The Comparative Fit Index (CFI) value was .948. A value of ≥ 0.95 (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999) is considered a good fit for the above-fit indices. In this analysis, the value was above .90, indicating that the model was a good fit. The Tucker-Lewis Index (TLI) value was .933. A value of .90 is considered a good fit for the above-fit indices (Byrne, 2010; Hu & Bentler, 1999; Kline, 2015). In this analysis, the value was above .90, indicating that the model was a good fit.

Therefore, the CFI, TLI, RMSEA and SRMR values all indicate an acceptable to excellent model fit and confirm the two factors identified through EFA.

7.2.7.2 Discussion of the Two-Factor Model of the PAQ. The two-factor model of the PAQ for the sample of male offenders, as depicted in Figure 4, provided valuable insights into the underlying structure of the PAQ within this specific population. This model illustrated how the items of the PAQ cluster into two distinct factors, suggesting that the scale captures two separate but related dimensions of the measured construct. Identifying these two factors indicates that the PAQ is multidimensional, capturing different aspects of the offenders' psychological attributes or behaviours. This differentiation is crucial for understanding the complexity of the assessed constructs and tailoring interventions or support programmes more effectively. The precise delineation of factors in the model suggests that the PAQ items are appropriately grouped, each contributing to a specific dimension of the overall scale. This reinforces the scale's validity and reliability within the context of male offenders. By understanding these factors, practitioners can better interpret PAQ scores and apply this understanding in practical settings, such as rehabilitation or risk assessment programmes. Overall, the two-factor model provides a robust framework for analysing the PAQ within this sample, offering a nuanced view of the psychological profiles of male offenders and enhancing the measuring instrument's utility in applied settings**.**

7.2.8 Discussion of Concurrent and Discriminant Validity of the PAQ (SA Sample)

Table 13 presented the correlation analyses conducted to examine the concurrent and discriminant validity of the two identified factors of the PAQ. In order to assess concurrent validity, the total scores of the SEP (reversed to align higher scores with poorer adjustment) and PAS were utilised. This alignment was essential to facilitate a meaningful investigation of how well the two factors of the PAQ correlate with established measures of similar constructs.

The results indicate that the reversed SEP and PAS scores provide a relevant comparison for validating the PAQ factors. The positive correlations between the PAQ factors and these reversed scores suggest that higher scores on the PAQ, indicative of poorer adjustment, are consistent with higher scores on the SEP and PAS, reinforcing the PAQ's concurrent validity.

For discriminant validity, the total score of the DASS was also reversed, allowing for an examination of the distinctiveness of the PAQ factors. The correlations between the PAQ factors and the reversed DASS scores help clarify the extent to which the PAQ measures constructs distinct from those assessed by the DASS. The lower correlations observed support the discriminant validity of the PAQ factors, indicating that they measure psychological dimensions different from those captured by the DASS while related.

7.2.8.1 Discussion of the Correlations between the PAQ Total Score and the SEP Total Score, PAS Total Score and DASS Total Score. Table 13 presented the correlations between the PAQ Total Score and the SEP Total Score, PAS Total Score, and DASS Total Score, providing insights into both concurrent and discriminant validity of the PAQ.

The PAQ Total Score showed statistically significant positive correlations with the SEP Total Score (r = .235) and the PAS Total Score (r = .303), both significant at the 1% level. The effect sizes for these correlations are small to medium, with .24 and .30, respectively. These positive correlations indicate that as scores on the PAQ increase, reflecting poorer adjustment, there are corresponding increases in the SEP and PAS scores. This alignment supports the concurrent validity of the PAQ, demonstrating that it effectively measures constructs similar to those assessed by the SEP and PAS.

Additionally, the PAQ Total Score had a statistically significant negative correlation with the DASS Total Score (r = -.459), also significant at the 1% level, with a medium effect size of .46. This negative correlation suggests that as the PAQ scores increase, indicating

poorer adjustment, the DASS scores decrease, reflecting better adjustment. This inverse relationship underscores the discriminant validity of the PAQ, indicating that it measures constructs distinct from those assessed by the DASS.

In summary, the correlation analyses in Table 13 provided strong evidence for both the concurrent and discriminant validity of the PAQ. The significant positive correlations with the SEP and PAS total scores affirmed that the PAQ is aligned with similar constructs. In contrast, the significant negative correlation with the DASS total score highlighted the distinctiveness of the PAQ's measurement focus. These findings reinforce the robustness and reliability of the PAQ as a measuring instrument for assessing psychological adjustment in this context.

7.2.9 Discussion of Reliability of Factors 1 and 2 of the PAQ (SA Sample)

7.2.9.1 Discussion of the Internal Consistencies of the Two Identified Factors and the Total PAQ. Cronbach's alpha coefficient (α) and McDonald's omega coefficient (ω) were calculated to indicate the internal consistencies of the two identified factors. Cronbach's alpha coefficients for the two identified factors were .701 for Behavioural Adjustment and .657 for Emotional Adjustment. The omega coefficients for the two identified factors were .658 for Emotional Adjustment and .703 for Behavioural Adjustment, respectively. These two identified factors, therefore, displayed acceptable levels of internal consistency (Kline, 1994; Watkins, 2018; 2021). Furthermore, the Cronbach's alpha and omega coefficients for the PAQ Total Score were .761 and .757, respectively. The PAQ, therefore, displayed an acceptable level of internal consistency.

The following sections discuss the current study's limitations and recommendations for future studies.

7.3 Limitations

One limitation of this study was the lack of racial and gender diversity, as most participants were Black and male. Repeating these analyses in incarcerated offender populations with varying diversities may provide more information about the appropriate model structure. Furthermore, the study was cross-sectional in nature, and findings from a longitudinal study may add to the validity of the measure. Another limitation of this study is that the questionnaires were only available to the participants in one language, English; this can lead to a limitation in the ability of the participants to read and interpret the questions. Furthermore, self-reported data is limited because it can rarely be verified independently, meaning that the accuracy of the participant's responses is received at face value. In addition, self-reported data can contain several potential sources of bias, such as (i) selective memory, where participants remember or have difficulty remembering events or experiences that occurred in the past; (ii) telescoping, where participants recall events or experiences at one point in time but it occurred at another point in time; (iii) attribution, where participants may attribute positive events and outcomes to their agency, but attributing adverse events and outcomes to external forces; and (iv) exaggeration, where participants may represent outcomes or events as more significant than it was. Furthermore, this study investigated the structural validity of the PAQ and no claims regarding the predictive validity of the PAQ can be made. Lastly, access was denied to some correctional centres, hindering the researcher's ability to collect data from more participants in different correctional environments.

7.4 Recommendations

The recommendations discussed in this section are based on the limitations identified after the completed research study.

In order to ensure racial and gender diversity, it is recommended that the study be replicated and applied to South African incarcerated offenders that are not Black and also

female incarcerated offenders. Furthermore, it is recommended that this study be replicated and should instead be studied over a more extended period (longitudinal study) to ensure the measure's validity. In order to ensure that the participants can understand and interpret the questions in the questionnaire to their total capacity, it is recommended that the questionnaires should be translated into more languages. Another recommendation is that the research study be conducted at more correctional centres in South Africa to ensure that the two-factor PAQ is a reliable and valid measuring tool amongst incarcerated offenders in South African correctional centres. The predictive validity of this two-factor version of the PAQ should be investigated in future studies.

7.5 Value of the Study

The effective measurement of incarcerated offenders' adjustment within correctional centres is vital for several reasons, encompassing their rehabilitation, psychological well-being, and the broader goal of reducing recidivism. This process involves evaluating how well incarcerated offenders adjust to the correctional environment, which can subsequently guide the development and implementation of tailored rehabilitation programmes. By understanding and measuring adjustment accurately, correctional centres can provide targeted interventions that address specific needs, ultimately facilitating the successful reintegration of offenders into society (Cullen & Gendreau, 2000; MacKenzie, 2006; Van Voorhis, 2007). However, this usage would first require research to ascertain the predictive validity of the PAQ for those purposes.

Incarcerated offenders often struggle with mental health challenges, and effective measurement of their adjustment can be instrumental in identifying those at risk of severe psychological distress. By doing so, timely interventions can be implemented, potentially reducing the risk of self-harm or violence within correctional centres. Incarceration can be a highly stressful experience that may lead to a range of maladaptive behaviours. Regular

assessments of correctional adjustment enable the monitoring and managing of such behaviours, contributing to a safer environment for offenders and correctional staff (Cullen & Gendreau, 2000; MacKenzie, 2006; Van Voorhis, 2007).

Research has consistently shown that poor adjustment in correctional centres is associated with higher recidivism rates. Identifying signs of maladjustment early allows for interventions to address underlying issues, subsequently reducing the likelihood of reoffending post-release. This connection underscores the importance of effective adjustment as a predictor of successful reintegration into society, where adjusted offenders are more likely to secure stable employment, maintain healthy relationships, and avoid future criminal activities (Cullen & Gendreau, 2000; MacKenzie, 2006; Van Voorhis, 2007).

Effective adjustment also has a significant impact on the mental health and behaviour of incarcerated offenders. Offenders who adjust well to the correctional environment typically experience lower levels of anxiety, depression, and stress compared to those who struggle with adjustment. A positive mental state not only promotes overall well-being during incarceration but also reduces the risk of severe psychological distress (Daigle & Cullen, 2009). Moreover, well-adjusted offenders are less likely to engage in disciplinary issues, such as aggression or rule-breaking, leading to a more stable and safer correctional environment (Zamble & Porporino, 1990).

Additionally, effective adjustment encourages participation in rehabilitation programmes, further improving behavioural outcomes. One of the most profound impacts of successful adjustment is its role in reducing recidivism rates. Offenders who adjust well during incarceration are more likely to engage in rehabilitation programmes, develop prosocial skills, and formulate plans for reintegration into society, all of which contribute to a reduced likelihood of reoffending (Gendreau & Goggin, 1996). This, in turn, supports their

successful reintegration into society, where they are better prepared to contribute positively, evidently enhancing community safety (Visher & Travis, 2011).

Implementing targeted interventions is vital in improving the adjustment of incarcerated offenders. Cognitive-behavioural therapy (CBT) and mental health counselling are examples of interventions that have been shown to enhance psychological well-being by helping offenders develop coping mechanisms and reduce symptoms of anxiety and depression (Morgan et al., 2012). Behavioural interventions, such as anger management and social skills training, are critical in helping offenders manage stress and interact positively with others, leading to fewer disciplinary infractions and a more harmonious correctional environment (Dowden & Andrews, 2004). Educational, vocational, and life skills programmes further contribute to better adjustment during and after incarceration by equipping offenders with the tools for post-release success, thereby reducing recidivism rates (Davis et al., 2013).

The ability to measure adjustment effectively also has profound implications for the Department of Correctional Services (DCS), influencing operational efficiency, resource allocation, policy development, and overall institutional safety. When the DCS can identify offenders struggling to adjust, resources can be allocated more effectively, ensuring that those in need receive additional support while avoiding unnecessary interventions for those adjusting well (Bonta & Andrews, 2007). Accurate measurement also provides valuable data that informs policy development, allowing the DCS to tailor interventions to specific challenges, such as high stress levels or aggression among specific populations (Taxman & Thanner, 2006). Moreover, early identification of offenders at risk of engaging in violent or disruptive behaviour allows for timely interventions and maintaining a secure environment within correctional centres (Gendreau et al., 1997).

On a broader scale, effectively measuring adjustment significantly impacts public safety and community well-being. By identifying individuals at risk of reoffending and providing targeted interventions, correctional centres can reduce recidivism, enhance public safety and reduce the burden on the criminal justice system (Gendreau et al., 1996). Successful reintegration of offenders into society, supported by effective adjustment and tailored interventions, contributes to social stability, reduces stigma, and fosters a more cohesive community (Clear, 2007).

In conclusion, the effective measurement of incarcerated offenders' adjustment is crucial for rehabilitation, mental health, behavioural outcomes, and successful social reintegration. It benefits the offenders and has far-reaching implications for the operational efficiency of correctional services, public safety, and community well-being. Through targeted interventions and continuous assessment, correctional centres can ensure offenders are better equipped to reintegrate into society, subsequently reducing recidivism rates and promoting social cohesion.

7.6 Summary

A discussion of the descriptive statistics was reported for the sample and the PAQ items, focusing on the response proportions for the PAQ items for the sample of male offenders and the means, standard deviations, skewness and kurtosis. A discussion of the correlations between the PAQ total score and the PAQ items for the group of male offenders followed this. A detailed discussion of Exploratory Factor Analysis was given with a specific focus on the communalities of the PAQ items, the total variance explained by components (factors) with Eigenvalues greater than 1, the Scree plot for Item 11 of the PAQ through SPSS, Parallel Analysis to determine the number of factors to retain or extract, Eigenvalues based on the SEscree method, the SEscree plot for Item 11 of the PAQ through SPSS, and the pattern matrix indicating the factor loadings. This was followed by a detailed discussion of

Exploratory Factor Analysis through Mplus, focusing on the Scree plot for Item 11 of the PAQ through Mplus, the model fit information from EFA, and the Geomin rotated loadings. This chapter also discussed Confirmatory Factor Analysis through Mplus, emphasising the Goodness of Fit indicators for the two-factor model identified through EFA and the two-factor model of the PAQ for the sample of male offenders and following with a discussion of concurrent and discriminant validity, focusing on the correlations between the PAQ total score and the SEP total score, PAS total score, and DASS total score. Lastly, this chapter discussed the reliability of factors 1 and 2, focusing on the internal consistencies of the two identified factors and the total PAQ.

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Appendix A: The 1983 version of the PAQ Questionnaire by Kevin N Wright (Wright, 1983, pp. 150–154).

PRISON ADJUSTMENT QUESTIONNAIRE

Offenders adjust differently to incarceration in correctional centres. Some offenders have less sleep difficulties in the correctional centre than in the free world, others get into physical confrontations.

We are interested in your experience of adjusting to the correctional environment.

In this questionnaire, you will be asked to compare how you feel or act during incarceration to how you felt or acted before incarceration. You will also be asked how often you feel or act a certain way.

Please **encircle** the response which best represents you and how you feel. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

1. In comparison to the free world, are you	
More comfortable with the people in prison	a
More comfortable with the people in the free world	b
About as comfortable with people in prison as with the people in the free world	c
2. How often do you feel uncomfortable around the other inmates here?	
Most of the time (you are uncomfortable several times a day)	a
At least once a day	b
Occasionally (Every few days)	c
Seldom	d
Never	e
3. How often do you feel uncomfortable around the staff?	
Most of the time (you are uncomfortable several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
4. Would you say that you are	
More angry in prison	a
More angry in the free world	b
About as angry in the prison as in the free world	c
Very seldom angry either place	d
5. How often are you angry here?	
Most of the time (you are angry several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d

Never	e
6. Are you sick	
More frequently in prison	a
More frequently in the freeworld	b
About as frequently in prison as in the freeworld	c
Very seldom either place	d
7. Since you have been in prison, how often have you been sick?	
Most of the time (you are sick several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
8. Do you have	
More trouble sleeping in prison	a
More trouble sleeping in the freeworld	b
About as much trouble sleeping in prison as in the freeworld	c
Very seldom have trouble sleeping either place	d
9. How often do you have trouble sleeping here	
At least once a day	a
Occasionally (every few days)	b
Seldom	c
Never	d
10. In comparison to the freeworld, are you	
More afraid of being attacked in prison	a
More afraid of being attacked in the freeworld	b
About as afraid of being attacked in prison as being attacked in the freeworld	c
Not afraid of being attacked either place	d
11. How often are you afraid of being attacked in prison?	
Most of the time (you are afraid several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
12. Do you get into	
More physical fights in prison	a
More physical fights in the freeworld	b
About as many physical fights in prison as in the freeworld	c
Very seldom fight in either place	d
13. How often do you get into a fight here?	
Most of the time (you fight several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
14. Do you get into	
More heated arguments in prison	a
More heated arguments in the freeworld	b

About as many heated arguments in prison as in the freeworld	c
Very seldom get into heated arguments in either place	d
15. How often do you have a heated argument with another inmate?	
Most of the time (you argue several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
16. How often do you argue with guards?	
Most of the time (you argue several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
17. Are you injured or hurt?	
More often in prison	a
More often in the freeworld	b
About as often in prison as in the freeworld	c
Very seldom injured either place	d
18. How often are you injured or hurt here?	
Most of the time (you are injured several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
19. Are you taken advantage of	
More often in prison	a
More often in the freeworld	b
About as often in prison as in the freeworld	c
Very seldom taken advantage of in either place	d
20. How often are you taken advantage of by other inmates?	
Most of the time (you are taken advantage of several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
21. Do you feel that your cell is your home?	
Never	a
Seldom	b
Often	c
Always	d
22. Do you get enough exercise?	
Never	a
Seldom	b
Often	c
Always	d
23. Do you get enough sleep?	
Never	a
Seldom	b

Often	c
Always	d
24. Do you get enough to eat?	
Never	a
Seldom	b
Often	c
Always	d
25. Do you have enough to do?	
Never	a
Seldom	b
Often	c
Always	d
26. Do you have enough privacy?	
Never	a
Seldom	b
Often	c
Always	d
27. Do you understand the rules?	
Never	a
Seldom	b
Often	c
Always	d
28. Do you have good friends here?	
None	a
Some	b
Many	c
29. Do you believe this facility's program is providing you with the necessary training to better yourself in the job situation after release?	
Yes	a
No	b
30. Given your own special circumstances, what living quarters do you prefer?	
Open dorm	a
Semi-closed dorm	b
Individual cell	c
Shared room	d
Single room	e

Appendix B: The 1986 version of the PAQ Questionnaire by Kevin N Wright (Wright, 1986b, pp. 1–5).

PRISON ADJUSTMENT QUESTIONNAIRE

Offenders adjust differently to incarceration in correctional centres. Some offenders have less sleep difficulties in the correctional centre than in the free world, others get into physical confrontations.

We are interested in your experience of adjusting to the correctional environment.

In this questionnaire, you will be asked to compare how you feel or act during incarceration to how you felt or acted before incarceration. You will also be asked how often you feel or act a certain way.

Please **encircle** the response which best represents you and how you feel. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

1. In comparison to the freeworld, are you	
More comfortable with the people in prison	a
More comfortable with the people in the freeworld	b
About as comfortable with people in prison as with the people in the freeworld	c
2. How often do you feel uncomfortable around the other inmates here?	
Most of the time (you are uncomfortable several times a day)	a
At least once a day	b
Occasionally (Every few days)	c
Seldom	d
Never	e
3. How often do you feel uncomfortable around the staff?	
Most of the time (you are uncomfortable several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
4. Would you say that you are	
More angry in prison	a
More angry in the freeworld	b
About as angry in the prison as in the freeworld	c
Very seldom angry either place	d
5. How often are you angry here?	
Most of the time (you are angry several times a day)	a
At least once a day	b
Occasionally (every few days)	c

Seldom	d
Never	e
6. Are you sick	
More frequently in prison	a
More frequently in the freeworld	b
About as frequently in prison as in the freeworld	c
Very seldom either place	d
7. Since you have been in prison, how often have you been sick?	
Most of the time (you are sick several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
8. Do you have	
More trouble sleeping in prison	a
More trouble sleeping in the freeworld	b
About as much trouble sleeping in prison as in the freeworld	c
Very seldom have trouble sleeping either place	d
9. How often do you have trouble sleeping here	
At least once a day	a
Occasionally (every few days)	b
Seldom	c
Never	d
10. In comparison to the freeworld, are you	
More afraid of being attacked in prison	a
More afraid of being attacked in the freeworld	b
About as afraid of being attacked in prison as being attacked in the freeworld	c
Not afraid of being attacked either place	d
11. How often are you afraid of being attacked in prison?	
Most of the time (you are afraid several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
12. Do you get into	
More physical fights in prison	a
More physical fights in the freeworld	b
About as many physical fights in prison as in the freeworld	c
Very seldom fight in either place	d
13. How often do you get into a fight here?	
Most of the time (you fight several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
14. Do you get into	
More heated arguments in prison	a

More heated arguments in the free world	b
About as many heated arguments in prison as in the free world	c
Very seldom get into heated arguments in either place	d
15. How often do you have a heated argument with another inmate?	
Most of the time (you argue several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
16. How often do you argue with guards?	
Most of the time (you argue several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
17. Are you injured or hurt?	
More often in prison	a
More often in the free world	b
About as often in prison as in the free world	c
Very seldom injured either place	d
18. How often are you injured or hurt here?	
Most of the time (you are injured several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
19. Are you taken advantage of	
More often in prison	a
More often in the free world	b
About as often in prison as in the free world	c
Very seldom taken advantage of in either place	d
20. How often are you taken advantage of by other inmates?	
Most of the time (you are taken advantage of several times a day)	a
At least once a day	b
Occasionally (every few days)	c
Seldom	d
Never	e
21. Do you feel that your cell is your home?	
Never	a
Seldom	b
Often	c
Always	d
22. Do you get enough exercise?	
Never	a
Seldom	b
Often	c
Always	d
23. Do you get enough sleep?	
Never	a

Seldom	b
Often	c
Always	d
24. Do you get enough to eat?	
Never	a
Seldom	b
Often	c
Always	d
25. Do you have enough to do?	
Never	a
Seldom	b
Often	c
Always	d
26. Do you have enough privacy?	
Never	a
Seldom	b
Often	c
Always	d
27. Do you understand the rules?	
Never	a
Seldom	b
Often	c
Always	d
28. Do you have good friends here?	
Never	a
Seldom	b
Often	c
Always	d

APPENDIX C: Questionnaires

Participant #: _____

Dear respondent. Thank you for choosing to participate in this study. Please answer the questions below:

Please encircle your desired answer and/or fill in the space provided.

I. BIOGRAPHICAL QUESTIONNAIRE:

Please answer the following questions about yourself:

1.1 **Sex**

Male	1
Female	2

1.2 **Age in Years**

1.3 **Ethnicity**

Black	1
Coloured	2
White	3
Asian	4
Indian	5
Other	6
Please specify:	

1.4 **Marital Status**

Not married and not in a relationship	1
Married	2
Common Law Marriage/Living together	3
In a serious relationship	4
Divorced	5
Separated but not divorced	6
Widowed/Spouse deceased	7

1.5 **Employment status at time of arrest/incarceration**

Employed full-time	1
Employed part-time	2
Not employed	3

1.6 **What is your highest level of education?**

No Formal Education	1
Grade 1	2
Grade 2	3
Grade 3	4
Grade 4	5
Grade 5	6
Grade 6	7
Grade 7	8
Grade 8	9
Grade 9	10
Grade 10	11
Grade 11	12
Grade 12	13
Post-School Certificate	14
Tertiary Diploma	15
Tertiary Degree	16

1.7 **How many times have you been incarcerated before this sentence?**

I have never been incarcerated before this sentence	1
Once before	2
Twice before	3
Three or more times before	4

1.8 **What crime(s) are you currently serving time for in this correctional centre?**

Homicide, murder, attempted murder, conspiracy to commit murder, culpable homicide	1
Drug offence, possession of drugs, selling of drugs, drug trafficking	2
Sexual offence, rape, sexual assault, indecent assault, any sex-related offence	3
Theft, fraud, forgery, extortion, impersonation, shoplifting or any other economic-related offence	4
House breaking with intent to commit a crime, robbery, car-jacking	5
Assault, grievous bodily harm	6
Weapons offence, illegal possession of a weapon or any other weapon-related offence	7
Other:	8
Please specify:	

1.9 **How long is your current sentence?**

1.10 **How many months/years of your current sentence have you served?**

1.11 **During your current sentence, have you taken part in any correctional programmes?**

Yes	1
No	2

1.12 **Are you currently in a gang while in this correctional centre?**

Yes	1
No	2
I prefer not to say	3

1.13 **If you answered yes in 1.28, which gang do you belong to?**

26's	1
27's	2
28's	3
Airforce	4
Big Five	5
Not Applicable	6
Other:	7
Please specify:	

Thank you for your time and input.
Please complete the next Questionnaire

2. PRISON ADJUSTMENT QUESTIONNAIRE (PAQ):

Offenders adjust differently to incarceration in correctional centres. Some offenders have less sleep difficulties in the correctional centre than in the free world, others get into physical confrontations.

We are interested in your experience of adjusting to the correctional environment.

In this questionnaire, you will be asked to compare how you feel or act during incarceration to how you felt or acted before incarceration. You will also be asked how often you feel or act a certain way.

Please **encircle** the response which best represents you and how you feel. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

2.1 In comparison to your life before incarceration, are you	
More comfortable with the people outside of the correctional centre	3
More comfortable with the people in the correctional centre	2
Experience the same amount of comfort with people inside of the correctional centre and the people outside of the correctional centre	1
2.2 How often do you experience discomfort around fellow incarcerated offenders?	
Most of the time (you are uncomfortable several times a day)	5
At least once a day	4

Occasionally (Every few days)	3
Seldom	2
Never	1
2.3 How often do you feel uncomfortable around the staff?	
Most of the time (you are uncomfortable several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.4 Would you say that you are	
Angrier in the correctional centre	4
Angrier in the outside world	3
About as angry in the correctional centre as in the outside world	2
Very seldom angry either place	1
2.5 How often do you experience anger in this correctional centre?	
Most of the time (you are angry several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.6 Do you experience feelings of being ill	
More frequently in the correctional centre	4
More frequently in the outside world	3
About as frequently in the correctional centre as in the outside world	2
Very seldom either place	1
2.7 Since you have been in the correctional centre, how often have you been sick?	
Most of the time (you are sick several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.8 Do you have	
More trouble sleeping in the correctional centre	4
More trouble sleeping in the outside world	3
About as much trouble sleeping in the correctional centre as in the outside world	2
Very seldom have trouble sleeping either place	1
2.9 How often do you have trouble sleeping in this correctional centre?	
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.10 In comparison to life outside of the correctional centre, are you	
More afraid of being attacked in the correctional centre	4
More afraid of being attacked in the outside world	3
About as afraid of being attacked in the correctional centre as being attacked in the outside world	2
Not afraid of being attacked either place	1
2.11 How often are you afraid of being attacked in the correctional centre?	
Most of the time (you are afraid several times a day)	5
At least once a day	4

Occasionally (every few days)	3
Seldom	2
Never	1
2.12 Do you get involved in	
More physical fights in the correctional centre	4
More physical fights in the outside world	3
About as many physical fights in the correctional centre as in the outside world	2
Very seldom fight in either place	1
2.13 How often do you get involved in physical confrontations in this correctional centre?	
Most of the time (you fight several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.14 Do you get involved in	
More angry arguments in the correctional centre	4
More angry arguments in the outside world	3
About as many angry arguments in the correctional centre as in outside	2
Very seldom get into angry arguments in either place	1
2.15 How often do you have a heated argument with a fellow offender?	
Most of the time (you argue several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.16 How often do you argue with correctional personnel?	
Most of the time (you argue several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.17 Are you injured or hurt?	
More often in the correctional centre	4
More often in the outside world	3
About the same in the correctional centre as in the outside world	2
Very seldom injured either place	1
2.18 How often are you injured or hurt in this correctional centre?	
Most of the time (you are injured several times a day)	5
At least once a day	4
Occasionally (every few days)	3
Seldom	2
Never	1
2.19 Are you taken advantage of	
More often in the correctional centre	4
More often in the outside world	3
About the same in the correctional centre as in the outside world	2
Very seldom taken advantage of in either place	1
2.20 How often are you used for another offender(s) own benefit?	
Most of the time (you are used for another offender's benefit several times a day)	5
At least once a day	4
Occasionally (every few days)	3

Seldom	2
Never	1

Please read the following questions and choose the correct answer:

	Never	Seldom	Often	Always
2.21 **Do you feel that your cell is your home?**	1	2	3	4
2.22 **Do you get enough exercise?**	1	2	3	4
2.23 **Do you get enough sleep?**	1	2	3	4
2.24 **Do you get enough to eat?**	1	2	3	4
2.25 **Do you have enough to do?**	1	2	3	4
2.26 **Do you have enough privacy?**	1	2	3	4
2.27 **Do you understand the rules of the correctional centre?**	1	2	3	4
2.28 **Do you have good friends in this correctional centre?**				
None				3
Some				2
Many				1
2.29 **Do you believe this correctional centre's programs are providing you with the necessary training to better yourself in the job/employment situation after release?**				
Yes				1
No				2
2.30 **Given your own individual situation, which living experience do you prefer?**				
Open dorm/cells				1
Semi-closed dorm/cells				2
Individual cell				3
Shared cell				4

Thank you for your time and input.

Please complete the next Questionnaire

3. SCALE OF EXPERIENCE IN PRISON (SEP):

Offenders differ in their experiences during incarceration.

Please encircle the response which best represents you and how you feel. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

During my stay in this correctional centre, I have the chance to

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
3.1 **Experience positive relationships.**	1	2	3	4	5
3.2 **Be treated with respect/treat others with respect.**	1	2	3	4	5
3.3 **Be shown care and warmth/show care and warmth.**	1	2	3	4	5
3.4 **Experience firm structure and guidelines.**	1	2	3	4	5

3.5 **Develop internal guidelines, self-discipline.**	1	2	3	4	5
3.6 **Accept some responsibility.**	1	2	3	4	5

3.7 **Learn from mistakes and see consequences of actions.**	1	2	3	4	5
3.8 **Succeed and be praised.**	1	2	3	4	5
3.9 **Learn empathy: what it might be like to stand in someone else's shoes.**	1	2	3	4	5
3.10 **Learn how to take a step back, to reflect and be less impulsive.**	1	2	3	4	5
3.11 **Receive clear straightforward information (anything I want).**	1	2	3	4	5
3.12 **Make practical, realistic plans for the future.**	1	2	3	4	5

Thank you for your time and input.

Please complete the next Questionnaire

4. DEPRESSION, ANXIETY AND STRESS SCALE (DASS):

This scale is used to measure incarcerated offenders' depression, anxiety and stress levels during incarceration.

Please encircle the response which best fits the statement given. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

Read the statement and choose the best response that indicates how much the statement applied to you over the past week

	Never	Sometimes	Often	Almost always
4.1 **I felt downhearted and blue**	1	2	3	4
4.2 **I felt sad and depressed**	1	2	3	4
4.3 **I could see nothing in the future to be hopeful about**	1	2	3	4
4.4 **I felt that I had nothing to look forward to**	1	2	3	4
4.5 **I felt that life was meaningless**	1	2	3	4
4.6 **I felt that life wasn't worthwhile**	1	2	3	4
4.7 **I felt I was pretty worthless**	1	2	3	4
4.8 **I felt I wasn't worth much as a person**	1	2	3	4
4.9 **I felt that I had lost interest in just about everything**	1	2	3	4
4.10 **I was unable to become enthusiastic about anything**	1	2	3	4
4.11 **I couldn't seem to experience any positive feeling at all**	1	2	3	4
4.12 **I couldn't seem to get any enjoyment out of the things I did**	1	2	3	4
4.13 **I just couldn't seem to get going**	1	2	3	4
4.14 **I found it difficult to work up the initiative to do things**	1	2	3	4

4.15 **I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)**	1	2	3	4
4.16 **I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion**	1	2	3	4
4.17 **I was aware of dryness of my mouth**	1	2	3	4
4.18 **I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)**	1	2	3	4
4.19 **I had difficulty in swallowing**	1	2	3	4
4.20 **I had a feeling of shakiness (e.g., legs going to give way)**	1	2	3	4
4.21 **I experienced trembling (e.g., in the hands)**	1	2	3	4
4.22 **I was worried about situations in which I might panic and make a fool of myself**	1	2	3	4
4.23 **I found myself in situations which made me so anxious I was most relieved when they ended**	1	2	3	4
4.24 **I feared that I would be "thrown" by some trivial but unfamiliar task**	1	2	3	4
4.25 **I felt I was close to panic**	1	2	3	4
4.26 **I felt terrified**	1	2	3	4
4.27 **I felt scared without any good reason**	1	2	3	4
4.28 **I had a feeling of faintness**	1	2	3	4
4.29 **I found it hard to wind down**	1	2	3	4
4.30 **I found it hard to calm down after something upset me**	1	2	3	4
4.31 **I found it difficult to relax**	1	2	3	4
4.32 **I felt that I was using a lot of nervous energy**	1	2	3	4
4.33 **I was in a state of nervous tension**	1	2	3	4
4.34 **I found myself getting upset rather easily**	1	2	3	4
4.35 **I found myself getting upset by quite trivial things**	1	2	3	4
4.36 **I found myself getting agitated**	1	2	3	4
4.37 **I tended to over-react to situations**	1	2	3	4
4.38 **I found that I was very irritable**	1	2	3	4
4.39 **I felt that I was rather touchy**	1	2	3	4
4.40 **I was intolerant of anything that kept me from getting on with what I was doing**	1	2	3	4
4.41 **I found myself getting impatient when I was delayed in any way (e.g., being kept waiting)**	1	2	3	4
4.42 **I found it difficult to tolerate interruptions to what I was doing**	1	2	3	4

Thank you for your time and input.

Please complete the next Questionnaire

5. PRISON ADJUSTMENT SCALE (PAS):

This scale is used to measure incarcerated offenders' adjustment levels during incarceration.

Please encircle the response which best fits the statement given. There are no right or wrong answers, only how you are experiencing the correctional environment.

Even if the decision is difficult, try to answer all questions.

For each question, choose only **ONE** answer that best describes what you think.

Read the statement and choose the best response that indicates how often the statement affects you as an individual

	Never	Rarely	Sometimes	Often	Always
5.1 **Being separated from family members**	1	2	3	4	5
5.2 **Not knowing where you stand with parole**	1	2	3	4	5
5.3 **Dealing with your loss of freedom**	1	2	3	4	5
5.4 **Missing friends and outside social life**	1	2	3	4	5
5.5 **Worried of getting sick in here**	1	2	3	4	5
5.6 **Wishing you had more privacy and quiet**	1	2	3	4	5
5.7 **Feeling out of touch with the world**	1	2	3	4	5
5.8 **Family members who have forgotten you**	1	2	3	4	5
5.9 **Correctional personnel not listening to grievances**	1	2	3	4	5
5.10 **Being bored/lots of idle time**	1	2	3	4	5
5.11 **Feeling comfortable in your prison cell**	1	2	3	4	5
5.12 **Being afraid of going crazy**	1	2	3	4	5
5.13 **Not feeling physically safe**	1	2	3	4	5
5.14 **Having no goals and ambitions**	1	2	3	4	5
5.15 **Getting annoyed or irritated**	1	2	3	4	5
5.16 **Worried about becoming institutionalized**	1	2	3	4	5
5.17 **Not fitting in with other offenders**	1	2	3	4	5
5.18 **Relation with correctional staff**	1	2	3	4	5
5.19 **Getting along with other offenders**	1	2	3	4	5
5.20 **Performing job assigned to you**	1	2	3	4	5
5.21 **Abiding by prison rules and policies**	1	2	3	4	5

Thank you for your time and input.

Appendix D: Department of Correctional Services Approval Letter

correctional services

Department:
Correctional Services
REPUBLIC OF SOUTH AFRICA

Private Bag X136, PRETORIA, 0001 Poyntons Building, C/O WF Nkomo and Sophie De Bruyn Street, PRETORIA
Tel (012) 307 2770, Fax 086 539 2693

Dear Ms. S Pretorious

RE: RESEARCH ON PSYCHOMETRIC PROPERTIES OF THE PRISON ADJUSTMENT QUESTIONNAIRE (PAQ) AMONGST MALE AND FEMALE INCARCERATED MALE AND FEMALE OFFENDERS IN SOUTH AFRICAN CORRECTIONAL CENTRES

I wish to inform you that your request to conduct research in the Department of Correctional Services has been approved

Your attention is drawn to the following:

- This ethical approval is valid from **17th September 2021 to 17th September 2022**
- The relevant Regional and Area Commissioner where the research will be conducted will be informed of your proposed research project.
- You are requested to contact the Area Commissioner before the commencement of your research.
- Your internal guide is **Director –Social Work Services -012 -3058781/ 8431**
- It is your responsibility to make arrangements for your interviewing times.
- Comply with COVID-19 safety and hygiene procedures during data collection processes
- Ensure that all participants have been duly screened for Covid19 according to DCS screening protocols
- Your identity document/passport and this approval letter should be in your possession when visiting regional office/correctional centre.
- You are required to use the terminology used in the White Paper on Corrections in South Africa (February 2005) and Correctional Services Act (No.111 of 1998) e.g. "Offenders" not "Prisoners" and "Correctional Centres" not "Prisons".
- You are not allowed to use photographic or video equipment during your visits, however the audio recorder is allowed.
- You are required to submit your final report to the Department for approval by the Commissioner of Correctional Services before publication (including presentation at workshops, conferences, seminars, etc) of the report.
- Should you have any enquiries regarding this process, please contact the REC Administration for assistance at telephone number (012) 3072894/95/0723271937

Thank you for your application and interest to conduct research in the Department of Correctional Services.

Yours faithfully

ND MBULI
Chair: DCS Research Ethics Committee
DATE: 17/09/2021

Appendix E: Research Study Information and Consent Form

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

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE

2021-2022

TITLE OF THE RESEARCH PROJECT

Psychometric properties of the Prison Adjustment Questionnaire (PAQ) amongst male and female incarcerated offenders in South African correctional centres

PRINCIPLE INVESTIGATOR/RESEARCHER NAME AND CONTACT NUMBERS:

Sheree Pretorius (2009077179) 083 729 2118 2009077179@ufs.ac.za

FACULTY AND DEPARTMENT

Department of Psychology, Faculty of the Humanities

STUDY LEADERS NAME AND CONTACT NUMBER

Dr. Jacques Jordaan
051 401 2890
JordaanJ1@ufs.ac.za

Prof. Karel Esterhuyse
051 4012733
esterkg@ufs.ac.za

GENERAL HUMAN RESEARCH ETHICS COMMITTEE SECRETARY CONTACT DETAILS

Charné Vercueil
051 401 7083
vercueilcc@ufs.ac.za

WHAT IS THE AIM/ PURPOSE OF THE STUDY?

This research study aims to determine if the PAQ is a valid and reliable measuring instrument of adjustment amongst South African male and female incarcerated offenders. Thus, the objective of this study is to investigate the psychometric properties of the PAQ on a sample of South African incarcerated male and female offenders. Using four questionnaires, the researcher will examine the psychometric

properties (construct validity, concurrent validity, discriminants validity, and reliability) of the PAQ. In doing so, the researcher will determine whether the PAQ can be utilized to measure the adjustment of South African male and female incarcerated offenders, as well as the psychometric properties of the PAQ will be determined, and the findings can contribute to future research about male and female incarcerated offenders in the South African context. A value of this study is that if the Department of Correctional Services (DCS) can successfully measure incarcerated offenders' adjustment, it can lead to meaningful interventions that can aid in recognizing and solving adjustment problems of incarcerated offenders.

WHO IS DOING THE RESEARCH?

The principal investigator is Sheree Pretorius, a Research Doctoral Psychology Student at the University of the Free State. She is conducting this research as part of her Research Doctoral Psychology degree.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received ethical approval from the General Human Research Ethics Committee of the Faculty of the Humanities at the University of the Free State. A copy of the ethical approval letter can be obtained from the researcher.

Approval number: UFS-HSD2020/2083/21

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

The purpose of this research study is to determine the validity and reliability of the PAQ as a measuring instrument for adjustment amongst South African male and female incarcerated offenders. As you are incarcerated in this correctional centre and have met the relevant criteria, we have randomly selected you to participate in this study. Approximately 1000 offenders have been asked to participate in this study. A correctional official employed at this correctional center aided the researcher with compiling a list of individuals incarcerated at this correctional center who meet the relevant research criteria. This includes having an education level of Grade 6 and higher, and being proficient in English (i.e., being able to read and understand English).

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

Participation in this research study is voluntary and you may also withdraw from the study at any stage during the research process. If you decide to voluntarily participate in this study and have signed the written consent form at the bottom of this information leaflet, you will be requested to complete four separate

questionnaires, which will be provided to you in a booklet format. Take your time reading through these questionnaires and try to be as honest as possible in completing the questionnaires. Please note that the questionnaires may contain personal and sensitive questions. The first questionnaire that you will be asked to complete is a biographical questionnaire that includes individual-related questions such as your age, ethnicity, marital status, prior criminal history, sentence length and type of offence. As we are interested in understanding your adjustment to the correctional environment, the next questionnaire you will be asked to complete is The Prison Adjustment Questionnaire (PAQ). Information from the PAQ will help us to understand how offenders adjust to the correctional environment. The third questionnaire that you will be requested to complete is the Scale of Experience in Prison (SEP). The SEP will help us to identify the main coping methods used by offenders in the correctional environment. The last questionnaire that you will be requested to complete is the Depression, Anxiety and Stress Scale (DASS). The DASS will help us to understand the depression, anxiety, and stress levels of offenders and the role that depression, anxiety and stress play in the adjustment of offenders to the correctional environment. It is very important to understand that at no time will you be asked to identify yourself by giving your name/nickname/correctional number or anything else that might identify you. Once your questionnaires have been handed to the researcher, your answers will be completely anonymous, and there will be no way for the researcher to connect any responses that you provided to you. The completion of the questionnaires will take place on a specific day when the researcher is allowed to enter the correctional centre. You will be asked to complete all four questionnaires in a specific venue available in the correctional centre for approximately 30-45 minutes. Please note that some questions may cause personal and/or emotional distress. To ensure that your rights are protected during the course of this research, psychological or social work services will be arranged on your behalf by the researcher if needed. The researcher will approach the psychologist or social worker employed at the correctional to arrange sessions for you on your behalf.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Participation in this research is completely voluntary, and you do not have to participate in this study if you do not want to. Once you have read the information leaflet and you have decided not to participate in the study, you can indicate this to the researcher. There will be no loss of benefits or privileges if you do not want to participate in this research study. You do not have to provide a reason for choosing not to participate in this research study. If you do choose to participate in this study, you are free to withdraw or stop participating in the study at any time without giving any reason. If you do choose to participate in the study, you will be given this information leaflet to keep with you, and you will be asked to sign the written consent

form at the end of this information leaflet showing that you agree to participate in the study. While you can withdraw at any time through the course of the research or stop answering the questionnaires at any point, once you have completed and handed back the four questionnaires to the researcher, you will not be able to withdraw from the study.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There are limited or no potential benefits for you as the participant to participate in this research study. You will not receive any money, rewards, benefits, or privileges for participating in this research study. Taking part in this study will in no way positively influence your parole outcomes or any other privileges or benefits while incarcerated. While there are limited potential individual benefits for the participant, the benefits, however, for the larger population of incarcerated offenders and for South African correctional research is vast. Firstly, the findings of this study will contribute to the larger body of South African research, which aims to understand the adjustment of incarcerated offenders in the South African context. Secondly, is that if the Department of Correctional Services has the ability to measure adjustment of incarcerated offenders successfully, it can lead to meaningful interventions that can aid in recognizing and solving adjustment problems of incarcerated offenders.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

There are inconveniences involved in participating in this research study. If you choose to participate in this research study, you will be asked to complete the four questionnaires on a specific day in a specific venue in the correctional centre. It will take approximately 30-45 minutes to complete the questionnaires. Participation in this research study may interfere with other programmes, workshops, schooling, or any other responsibilities or activities that you are currently involved in. However, the researcher will attempt to ensure that your daily routine is not disrupted too much. If you do choose to participate in this study, it is important for you to completely understand what the research is about and why you are involved in it. You have been chosen at random to take part in the study, and that is why you were asked to participate. You are will not receive any special benefits or privileges for participating in this research, and your participation is for the purpose of broadening the understanding of correctional adjustment.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

The researcher will ensure as far as possible that your rights to confidentiality are maintained and upheld. However, please note that only the researcher will have access to your answer booklet and the researcher will keep all information collected strictly confidential. At no point in the study will you be asked to identify yourself

either by name, nickname, or a correctional number, and as a result, anonymity will be assured. The researcher will have no way of connecting you to the answers that you provided. It is important to note that your answers will be reviewed by the researcher's study leader(s) and, in some cases, a research ethics committee. However, no one will be able to identify you or connect any answers to you. The anonymous data that will be collected from you will be put together in a research thesis and eventually into future possible articles that may be published or presented at conferences. Thus, the researcher will ensure that your rights to privacy, confidentiality, and anonymity are maintained as far as possible once she has collected your answer booklet.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of all of your answers in the answer booklet will be stored in a locked cupboard in the office of the researcher for a duration of five years after the completion of the research endeavor. This will be done for future research or academic purposes. Any and all electronic data will be stored on the personal hard drive of the researcher in a password-protected computer. Any future use of the stored data will be subject to further Research Ethics Review and approval if applicable. After a duration of five years or after future research endeavors have been completed, all data will be destroyed in a non-hazardous manner at a recycling deposit.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no payment, remuneration, benefits, privileges, gifts, or incentives to participating in this study. If you choose to participate, you do so voluntarily and with the promise of no financial or other reward.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS/ RESULTS OF THE STUDY?

Participants are welcome to contact the researcher directly if they would like to be informed of the research findings. The researcher can be contacted at 083 729 2118 or via email at 2009077179@ufs.ac.za. Alternatively, if you require any further information or have concerns about the way in which the research has been conducted, you are welcome to contact Dr. J. Jordaan at JordaanJ1@ufs.ac.za. You are also welcome to contact the secretary at the General Human Research Ethics Committee, Mrs. C. Vercueil, with questions related to the research at 051 401 7083 or at VercueilCC@ufs.ac.za.

Thank you for taking the time to read this information sheet and for participating in the study.

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CONSENT TO PARTICIPATE IN THIS STUDY

I, the undersigned, _____ *(participant's full names to be included)*, (the "**Participant**") confirm that I voluntarily agree to participate in the research study referred to as the "**Psychometric properties of the Prison Adjustment Questionnaire (PAQ) amongst male and female incarcerated offenders in South African correctional centres**" (the "**Study**") in relation to **understanding how offenders adjust to the correctional environment and by establishing the psychometric properties of the Prison Adjustment Questionnaire for offenders in South African correctional centres**, and which Study is being conducted by **Sheree Pretorius**, (the "**Researcher**").

I, the undersigned Participant, further confirm that–

1. the Researcher has explained the nature, procedure, potential benefits and anticipated inconvenience of my participation in the Study;
2. I have read (or had explained to me) and understood the Study as explained in the attached information sheet;
3. I have had sufficient opportunity to ask questions and am prepared to participate in the Study;
4. I understand that my participation in the Study is entirely voluntary and that I am free to withdraw at any time without penalty (if applicable);
5. I voluntarily provide the UFS and the Researcher with my personal information and consent to the UFS and the Researcher collecting, disclosing and processing my personal information in order to conduct the Study and any related activities in relation thereto;
6. I hereby acknowledge and confirm that I understand the purpose for which the UFS and the Researcher may collect, store, use, delete, destroy, outsource, transfer or otherwise process, as the context and circumstances may require and as contemplated in terms of POPIA, my personal information as set out herein;
7. I am aware that the findings of the Study will be anonymously processed into a research report, journal publications and/or conference proceedings and that my personal information will be aggregated and de-identified at such stage;
8. I also give the UFS permission to share, without notification, the collected data with other researchers at the UFS or other Higher Education Institutions. This permission is dependent on the same principles of ethical research practices, anonymity/confidentiality, safekeeping of information, and other issues listed above applying.

I, the Participant, agree to the recording of the questionnaires.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Appendix F: General/Human Research Ethics Committee (GHREC) Approval Letter

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

UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

30-Jul-2021

Dear Miss Sheree Pretorius

Application Approved

Research Project Title:
Psychometric properties of the Prison Adjustment Questionnaire (PAQ) amongst male and female incarcerated offenders in South African correctional centres

Ethical Clearance number:
UFS-HSD2020/2083/21

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. Furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

Adri du Plessis
Digitally signed by Adri du Plessis
Date: 2021.07.30 18:08:51 +02'00'

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www.ufs.ac.za

Appendix G: TurnItIn Report

SE Pretorius - Final PhD Thesis.docx

ORIGINALITY REPORT

14%	7%	7%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	scholar.ufs.ac.za Internet Source	4%
2	Submitted to University of the Free State Student Paper	2%
3	Codi Rogers, Jacques Jordaan, Karel Esterhuyse. "Coping, aggression, perceived social support and demographic variables as predictors of prison adjustment among male incarcerated offenders", Criminology & Criminal Justice, 2022 Publication	2%
4	Submitted to University of Wisconsin, Superior Student Paper	2%
5	Siyanqoba Charity Makhosazana Duba, Jacques Jordaan. "Coping, perceived social support, stress, and age as predictors of correctional adjustment amongst South African incarcerated female offenders", Psychology, Crime & Law, 2023 Publication	1%