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Research Report

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Automatic Racial Assumptions: Investigating the Relationship Between Implicit Racial Bias and Experiences of Affective Reactions to Racialized Others in a South African Population

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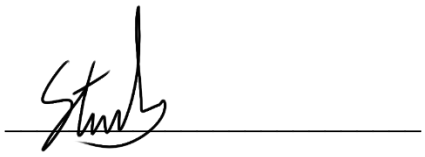
Signed: 

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Table of Contents

Abbreviations List

IAT – Implicit Association Task

AARB – Attitudinal and Affective Racial Bias Scale

Att. – Attitudinal Bias

Aff. – Affective Bias

AB – Anti-Black Bias

AW – Anti-White Bias

SAARF – South African Advertising Research Foundation

LSM – Living Standards Measure

SES – Socio-Economic Status

WIT – Weapon Identification Task

WEIRD – Western, Educated, Industrialised, Rich and Democratic

UK – United Kingdom

LGBTQI+ – Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex and more

NB – Non-Binary, or Gender Non-Conforming

MODE – Motivation and Opportunity as Determinants Model

QUAD Model – Quadruple Process Model

AC – Association Activation

OB – Overcoming Bias

D – Discriminability

G – Guessing

List of Figures

List of Tables

Abstract

Background: There is evidence to suggest that one's social context is critical in shaping the automatic affective responses that one has to their own and other racial groups. However, to date, research into explicit and implicit racial biases has largely investigated this phenomenon in predominantly White populations within the global North. Furthermore, while there is evidence to suggest that people possess a tacit awareness of their implicit racial biases, a study is yet to demonstrate a direct link between self-reported experiences of one's own biases and implicit measures of bias. This may be due problems inherit with existing self-report measures of bias, which focus on beliefs and attitudes regarding race, rather than asking individuals to reflect on their own affective experiences regarding their interactions with people of their own and other races.

Aims and Methods: Using an ex post facto correlational design, this study investigated the relationship between implicit racial bias, explicit affective responses to racial groups and consciously held beliefs and attitudes about racial groups, and whether there were any between-group differences across any of these variables within a sample of self-identified Black (N = 25) and White (N = 20) South African adults. Data was collected using an adapted version of the Racial Implicit Association Test (IAT) for use in the South African context and a novel self-report scale that measures both explicit Attitudinal and Affective Racial Bias (AARB), with both measures investigating White- and Black-directed racial biases.

Results and Discussion: This study demonstrates significant between-group differences in explicit, but not implicit, measures of racial bias based on self-identified race in this sample. Providing evidence for the distinction between attitudinal and affective forms of explicit racial bias and suggesting that the direct comparison between biases directed towards Black and White racial groups may not be appropriate in diverse settings, given that there is only a relationship between these two forms of racial bias with the White identified participants, but no direct relationship between these biases were found within the sample of Black identified participants. Finally, the results of this study suggest that self-report measures of affective racial bias may demonstrate a stronger correlation with implicit biases as measure by the IAT than traditional measures of attitudinal bias.

Keywords: Implicit racial bias, explicit racial bias, affective, implicit association test, racial prejudice

Chapter 1: Introduction and Literature Review

1.1. Background

Racial prejudice, whether in the form of implicit (i.e. unconscious) affective responses to members of particular racial groups, or explicitly held beliefs and attitudes regarding race, persist and have had continued legal, social and political consequences globally (Gravett, 2017). As such, it is important that social cognitive research that underpins our understanding of racial bias provides insights into not only the underlying cognitive mechanisms of bias, but how these biases impact our cognitive processes and social behaviour. Furthermore, it is important that the research looking into racial bias is focused on further understanding how these racial biases initial develop as a product of our interactions with our social environment, and how various intrapersonal, social, and environmental factors interact with an individual's existing beliefs and attitudes regarding race, their affective cognitive processes, and their social position, to cause lasting change in their social and cognition behaviour.

Considering that, globally, psychological research has in the past been used to advance an agenda of scientific racism, it is important that the research within this field remains critical of the underlying assumptions regarding race and racial bias (Winston, 2020). This is particularly important within the South African context, in which psychological research was used by the Apartheid regime in order to justify separate development policies based on biased research that served to produce body of quantitative evidence in support of essential racial differences (Dubow, 2015)[1]. With this in mind, it is important to consider the ways in which prior research may have been based off of racist assumptions prevalent at the time, and how these assumptions may have directly, or indirectly, had a lasting impact on our conceptual understanding of racial bias today. As such, any research into race, and by extension racial bias, must be conducted in a critical manner, with the knowledge that some of the ways in which racial bias is presently understood may need to be re-examined[2]. With this in mind, the present study aimed to critically explore the ways that explicit and implicit forms racial bias were theoretically understood and operationalised within the field of social

[1] As argued by Dubow (2015), there was a concerted effort by some Apartheid era psychologists to produce evidence to justify an ideology of white supremacy, which was in support of the notion that there were essential social, psychological and, cognitive differences between races with some races being superior to others.
[2] As noted by Winston (2020), it is important that any race-related research works to dismantle narratives of race essentialism.

cognition, with a specific focus on the distinctions drawn between implicit and explicit forms of racial bias.

Within the present body of literature, explicit racial biases are understood as our consciously held beliefs and attitudes regarding race (Greenwald, 1998; Newheiser et al., 2014; Oswald et al., 2013; Qian et al., 2021). In contrast, implicit forms of racial bias are typically understood as our automatic affective responses to, or evaluative processing of, racially coded social stimuli (Amodio & Swencionis, 2018; Conrey et al., 2005; Meissner et al., 2019; Oswald et al., 2013). Within this distinction, it has historically been assumed that implicit forms of racial bias operate outside of our conscious awareness, and as such that they are not introspectively accessible (Greenwald, 1998; Nosek et al., 2002; Oswald et al., 2013). As such, implicit racial biases are typically assessed using performance-based measures such as the popular racial implicit association task (Racial IAT; Gawronski et al., 2006; Greenwald, 1998), whereas the assessment of explicit racial biases rely on various self-report measures, such as the modern racism scale (McConahay, 1986), or the subtle and blatant prejudice scale (Pettigrew & Meertens, 1995). However, this theoretical distinction has its origins in early racial IAT research (Greenwald, 1998; McConnell & Leibold, 2001) that demonstrated little-to-no correlation between explicit and implicit measures, with these early results being taken as evidence in support of this theoretical distinction. However, this line of reasoning is circular, in that it takes the absence of a relationship between explicit and implicit measures as evidence in support of this theoretical distinction, and argues for the validity of the racial IAT as being evidenced by this theoretically expected lack of correlation (Greenwald, 1998). Considering that the racial IAT is poorly correlated with other measures of implicit racial bias (Ito et al., 2015), such as the weapon identification task (WIT; Payne, 2001), and the first-person shooter task (Correll et al., 2002), the construct validity of the racial IAT task is only ever inferred from its consistent results across various methodological conditions and social contexts.

1.2. Rationale

As such, there is still a great need to establish evidence in support of the construct validity of the racial IAT task. In the years following the establishment and use of the racial IAT as the 'gold standard' measurement of implicit racial bias there has been much debate surround what define these biases as 'implicit', with Gawronski et al. (2006) arguing that the degree to which implicit biases, as measured by the racial IAT, operated at an unconscious level was largely assumed and not fully supported by the body of evidence (Greenwald, 1998; Greenwald et al., 2003; McConnell & Leibold, 2001; Nosek et al., 2002). With more recent studies providing evidence that contradicts this early assumption, with Hahn and colleagues demonstrating that respondents have to some degree an ability to predict their implicit biases (2014). In part, this assumption that implicit biases operate unconsciously is evidenced by the poor correlation between self-report measures and implicit tests, in which these findings are used as evidence in support of the argument that implicit biases are unconsciously held (Greenwald, 1998; Greenwald et al., 2015).

However, as noted within the introduction, this theoretical assumption is circular, in that it takes the absence of any relationship as evidence for the distinction and uses theory to justify the results without considering alternative explanations (Greenwald, 1998). As such, it has been argued that the poor correlation between explicit and implicit measures of racial bias may be due to conceptual differences, with self-report measures typically focusing on an individual's consciously held beliefs and attitudes regarding racial groups (Oswald et al., 2013) that is at odds with the understanding that implicit biases operated automatically and impact one's affective and evaluative processes (Gawronski et al., 2006; Monteith & Mark, 2005). Given that most recent studies making use of the racial IAT forgo explicit measures (Amodio & Swencionis, 2018; Hahn et al., 2014; Ito et al., 2015), or rely on, or adapt, dated measures (Oswald et al., 2013; Rezaei, 2011), it is important that we begin to critically re-evaluate how racial bias is operationally defined within self-report measures, and begin to update out self-report measures to be more in-line with our present understandings of racial bias.

Furthermore, it is important to note that studies that have looked at individuals self-reported experiences of their own racial biases tend to make use of samples consisting of only one racial identity, typically White-identified, and make use of self-report measures that are only concerned with biases directed towards racial 'others' (Newheiser et al., 2014; Oswald et al., 2013; Qian et al., 2016, 2021), neglecting biases that individuals may have with regards to

their own racial biases. While it is important to note that not all studies make use of White-identified participants (Newheiser et al., 2014; Qian et al., 2016, 2021), and that doing so is not in and of itself problematic, there is presently a gap within the existing body of literature looking at the relationship between self-reports of one's own- and other-race directed biases. Furthermore, while implicit studies often make use of multiracial samples (Amodio & Swencionis, 2018; Greenwald, 1998; Hahn et al., 2014; Ito et al., 2015), there does not appear to be any studies looking at the relationship between explicit measures of own- or other-directed racial bias and implicit racial bias within a multiracial sample group. Considering that internalised forms of racial bias (own-directed racial bias) is a common, and well documents, phenomenon experiences by individuals who identify with historically marginalized racial and ethnic groups (Brown & Segrist, 2016; Choi et al., 2017; Graham et al., 2016; Mouzon & McLean, 2017), investigating these phenomena may provide valuable insights into the nature of implicit and explicit forms of racial bias and how racial biases are experienced differently by different groups of people.

Additionally, the majority of implicit racial bias studies have been conducted using what has come to be known as highly 'WEIRD' (western, educated, industrialised, rich, democratic) samples (Henrich et al., 2010), with only a handful of studies making use of the racial IAT task having looked at populations outside of the global north (Álvarez-Mosquera, 2017; Newheiser et al., 2014; Qian et al., 2016, 2021). Given that 'WEIRD' samples perform differently on a variety of psychological measures when compared to their non-WEIRD counterparts, it becomes important to conducted studies outside of these WEIRD settings to enrich better enrich our understanding. Furthermore, considering that differences have been found in racial IAT scores in similar racial/ethnic groups across different geographic locations (Newheiser et al., 2014; Oswald et al., 2013; Qian et al., 2016, 2021), it is important to gain a better understanding of how racial IAT scores may differ across various social contexts for different racial groups. Here, South Africa presents as a unique social and political context from which scores could be compared to, which may provide further insights into the impact that one's social, historical, and political context may have in shaping their explicit and implicit racial biases.

1.3. Aims and Objectives

Using a sample of Black- and White-identified university students, this study assesses individuals held implicit and explicit racial biases directed toward Black and White people in a sample of adult South Africans. Therefore, the two main research question that guided this

study was whether a qualitative distinction could be drawn between explicit attitudinal and explicit affective forms of racial bias and whether there are between-group differences regarding explicit and implicit forms of racial bias. Using the racial IAT to assess implicit racial biases, this study provides a first look at implicit biases within this sample to be compared to studies conducted in the global north. Furthermore, expanding on research that suggests people have a tacit awareness of their implicit biases, this study made use of a novel approach to assessing explicit racial biases using the Attitudinal and Affective Racial Bias Scale (AARB), a measure that distinguishes between abstract beliefs and attitudes regarding racial groups and an individual's own experiences of their affective reactions towards people of a perceived racial identity.

Chapter 2: Literature Review

In this study, racial bias is defined as the influence that exposure to racial stimuli has on one's own social, cognitive and affective processes and how such influences may bias decisions making outcomes and social behaviour (Calanchini & Sherman, 2013; Conrey et al., 2005; Gawronski et al., 2006; Greenwald, 1998; Hahn et al., 2014; Oswald et al., 2013; Rivers & Hahn, 2019). However, a distinction must be made between racial bias and racial discrimination. Racial bias is the underlying cognitive, social, and affective processes that influences behaviour, whereas racial discrimination is the subsequent harmful behaviour towards an individual as a result of their racial identity. However, the causal relationship between racial bias and discriminatory behaviour is complex and numerous social, cognitive, and environmental factors play a role in determining whether one's own biases may result in them behaving in prejudicial ways (Blanton et al., 2009; Blanton & Mitchell, 2011; Greenwald et al., 2015; Heider & Skowronski, 2007; Meissner et al., 2019; Oswald et al., 2013, 2015). However, the focus of this study, and this literature review, will be to assess how racial bias is operationally defined and measured, to critically assess the current body of evidence for the impact that social, cultural and political context has on the developments of implicit and explicit forms of racial bias, and to review the findings of racial IAT research that has been conducted in within and outside of the South African context.

2.1.1. The Implicit-Explicit Distinction

In the literature, racial bias is typically understood as being made up of two distinct constructs: explicit racial bias and implicit racial bias. In short, explicit racial bias is defined as consciously held beliefs and attitudes about race that play a conscious and active role in one's thoughts, decision making and behaviour (Greenwald, 1998; Greenwald et al., 2015; Oswald et al., 2013). In contrast, implicit racial bias is commonly defined as automatically activated associations in response to racialized stimuli that is assumed occur outside of one's conscious awareness and control, and that exert influence over one's evaluations of and responses to racialized stimuli (Calanchini & Sherman, 2013; Conrey et al., 2005; Gawronski et al., 2006; Greenwald, 1998; Greenwald et al., 2015; Oswald et al., 2013). In part, this distinction between implicit and explicit forms of bias is motivated by differences in how the two are measured. Explicit measures of bias are typically self-report scales, whereas implicit measures of bias are typically performance-based tasks, with scores based on one's observed performance in the test (Gawronski et al., 2006; Greenwald, 1998).

This early understanding of racial bias and the distinction between implicit and explicit forms of bias are in large part informed by the Dual Attitudes Model (Greenwald, 1998), which argued that the key distinction between implicit and explicit biases, were that implicit forms of bias were not introspectively accessible and as such, participants were unable to alter their performance consciously, or unconsciously. Through this framework, the poor corelation between implicit and explicit measures of racial bias is taken as evidence in support for the validity of the racial IAT task. Furthermore, a common rationale and justification for the use and development of implicit measures of bias, such as the Racial IAT, are based on the common criticism that self-report measures of racially prejudiced beliefs and attitudes are vulnerable to numerous forms of testing bias and the assumption that implicit measures of racial bias are not (Gawronski et al., 2006; Greenwald, 1998; Heider & Skowronski, 2007; McConnell & Leibold, 2001; Ziegert & Hanges, 2005). Notably, due to the sensitive nature of the questions, self-presentation biases do affect the reliability of self-report measures of prejudicial beliefs and attitudes. Respondents are likely to under-report the presence and severity of their prejudices due to the socially unacceptable nature of such beliefs. This is due to social-desirability issues, in which respondents have a desire to either present themselves more favourable to the experimenters, or more favourable to themselves (Greenwald, 1998; Monteith & Mark, 2005).

In addition, self-report measures of racial bias are unable to detect the presence of bias in the case in which a respondent may simply lack insight into the prejudiced nature of their beliefs or be unable to appreciate the discrepancy between their consciously held beliefs that are egalitarian in nature and their discriminatory behaviour (Gawronski et al., 2006; Monteith & Mark, 2005). As such, to address these limitations numerous implicit measures of racial bias were developed that made use of performance-based tasks that measures response time intervals (Conrey et al., 2005; Gawronski et al., 2006; Greenwald, 1998). The rationale being that performance on such tasks would be hard to fake, would be immune to self-presentation bias and unaffected by the presence of an attitude-behaviour discrepancy (Conrey et al., 2005; Greenwald, 1998; Monteith & Mark, 2005).

However, not all theorists argue for the implicit/explicit distinction. The Motivation and Opportunity as Determinants (MODE) model (Olson & Fazio, 2008), argues that prejudicial behaviour is the result of both the presence of prejudicial bias (implicit and/or explicit) and the opportunity for that bias to manifest as prejudicial behaviour (bias responding). While this model does not specifically distinguish between prejudice as a result of conscious action

based on propositional beliefs, and prejudice as a result of the unintentional activation of racial stereotypes or associations that unconsciously influences behaviour, the MODE model does argue for the influential role of motivation to control prejudice, and the degree to which one is able to inhibit their biases in this process as contributing to biased responding. Specifically, that bias responding is moderation by contextual social factors (such as whether prejudicial behaviour is tolerated in the current social environment), intrapsychic factors (intrinsic, or extrinsic motivation to inhibit bias responding) and the strength of one's held bias (the automaticity of activated racial associations, whether they are attitudinal or affective, or if they have recently been primed).

It is my assertion that the hard distinction between these two constructs is the result of historically poor operationalisations of racial bias within self-report measure, rather than the product of any actual distinction. While this study will make use of the terms *explicit-* and *implicit-bias* throughout, the use of these two terms is done for the sake of convention, so as to better locate this study within the existing field of research in which these terms are commonly used. However, this study will operate using the assumptions of the MODE model, as this model does not assume a theoretical distinction between implicit and explicit forms of bias. In doing so, this model offers a theoretical framework from which to investigate the conceptual overlap between what is often assumed to be two conceptually distinct forms of racial bias.

2.1.2. The Racial Implicit Association Test

The Racial IAT, developed by Greenwald et al. (1998) is one of the most widely used measures of implicit racial bias. The Racial IAT is a computer-based task that measures time discrepancies between sorting tasks for target stimuli across numerous trails. The test uses a block design, in which a participant is asked to sort two target stimuli (e.g., Black faces vs White faces) with evaluative words (e.g., positive words vs negative words) across two pairing conditions. The first evaluation-stimulus pairing is chosen randomly (e.g., Black-positive, White-negative), and pairings are reverse for the subsequent pairing-condition (e.g., White-positive, Black-negative). The difference in sorting speed for both target-stimuli across the two pairing conditions is then used to calculate a bias score (Referred to as D_2), which represents the degree to which one target stimuli is more quickly associated with positivity than negativity in relation to the second stimuli. In trials where the target-stimuli and

evaluations are congruent (e.g., flower-positive, insect-negative)[3], automatic associations assist responding. Whereas, in incongruent trials, the association incongruency between the stimuli-evaluation pairing (e.g., insect-positive, flower-negative) required respondents to overcome their associative biases to ensure accurate responding and this need to overcome associative bias in the incongruent trial results measurable response bias. This response bias is due to the influence that associative processes have on task responses caused by the difference between how closely each target-stimuli are associated with positive and/or negative evaluations in one's cognitive processes (Greenwald, 1998; Olson & Fazio, 2008; Oswald et al., 2013). The Racial IAT provides evidence for the influence that implicit racial associations have in biasing cognitive processes and, by extension, decisions making. Hence, the Racial IAT is often referred to as a measure of implicit racial bias, and is considered the gold standard (Calanchini & Sherman, 2013; Conrey et al., 2005; Gawronski et al., 2006; Greenwald, 1998).

Greenwald et al. (1998) characterised these associations as implicit due to the theoretical assumption that associations measured by the IAT occur automatically in response to relevant stimuli, influence evaluative processes outside of own's conscious awareness and that the influence of automatic associations on cognitive processing occurs prior to the influence of executive inhibitory control (Gawronski et al., 2006). However, subsequent research indicates that people have varying degrees of awareness into the presence and influence of automatic associations and can reliably predict their IAT results prior to testing (Hahn et al., 2014; Rivers & Hahn, 2019, 2019). In addition, Conrey et al. (2005) argued that the traditional scoring method of the IAT is unable to distinguish between highly-biased individuals who could easily overcome the influence of their automatic associations, and moderately-biased individuals who were less able to.

2.1.3. The Quadruple Process Model

To investigate the extent to which IAT performance was influenced by non-associative processes, such as inhibition and perception, Conrey et al. (2005) developed the Quadruple process model (QUAD model). The QUAD model is an alternative analysis procedure of the

[3] Flower-Insect IATs are common practice trial and has reliably demonstrated a pro-flower bias across numerous populations (Calanchini & Sherman, 2013; Conrey et al., 2005; Greenwald, 1998; Hahn et al., 2014)

IAT task that is based on the theoretical assumptions set out by the MODE model[4] and is an accuracy-based scoring system that measures the influence of 4 distinct cognitive processes on IAT performance across both practice and stimulus-pairing conditions. Conrey et al. (2005) argued that for a respondent to successfully sort a stimulus they must accurately and quickly discriminate between which categories the stimulus belongs to (Discriminability; D) and that this process of discrimination is influenced by the activation of an associative (Association Activation, AC). In congruent trials, activated associations assist in response accuracy, while in incongruent trials participants must actively overcome their associative bias (Overcoming Bias; OB) to responding correctly. Finally, in the case where a respondent fails to identify the correct response, they must resort to guessing (Guessing; G). Conrey et al.'s (2005) study found that the racial IAT was both sensitive to AC and OB[5] and concluded that, while the racial IAT was able measure associative bias, test performance was also impacted by other extraneous variables, such as inhibition and as such the IAT was not a process-pure measurement of implicit racial bias.

Subsequent research, using both the standard and QUAD scoring methods, confirms the finding that the IAT is sensitive to non-associative processes, such as executive function and methodological conditions, such as time constraints and or being under the influence of alcohol (Conrey et al., 2005; Sherman et al., 2008). In addition, response-latency scores (D_2) and the AC parameter (used in response-accuracy scoring methods, such as the QUAD model, or the Dual-Process model) have been demonstrated to measure similar but distinct constructs, and have the same relationship with executive function factors such that poor task-switching is associated with higher AC and D_2 scores, and there is no significant relationship between these scores and memory or inhibition (Ito et al., 2015; Klauer et al., 2010). For the QUAD model, alcohol use has been associated with reduction on OB, but not AC parameter (Sherman et al., 2008), and strict time limits to complete the IAT have been associated with a decrease in D and OB and, but not change in G (Conrey et al., 2005). Additionally, using the QUAD model there is no significant relationship between racial group and OB, but there is a significant difference in AC across racial groups (Gonsalkorale et al.,

[4] To note, the MODE model (Olson & Fazio, 2008) was a proposed theoretical model based on the review of existing IAT literature, but it had yet to be formally operationalized within a study. The QUAD model, developed by Conrey and colleagues (2008) is a methodological and statistical approach to operationalize the MODE model.

[5] Conrey et al. (2005) did not find a significant influence on test performance with the G and D parameters under standards IAT test conditions.

2010). These findings are consistent with the theoretical assumptions of the QUAD model and provides evidence to suggest that the AC parameter, and to a lesser extent, the D_2 score are measuring associative bias, but that this measure is in part influenced by extraneous variables.

2.1.4. Criterion-Related Validity of the Racial IAT

However, the Racial IAT shows poor correlations with other measures of implicit (Affective Priming Task; Fazio et al., 1995; Gawronski et al., 2006; Ito et al., 2015; Weapon Identification Task; Payne, 2001), and explicit racial bias (Attitudes Towards Blacks; Brigham, 1993; Motivation to Control Prejudiced Reactions Scale; Dunton & Fazio, 1997; Gawronski et al., 2006; Ito et al., 2015; Modern Racism Scale; McConahay, 1986). Furthermore, this relationship does not significantly improve when AC measures are used (Ito et al., 2015). The poor correlation between the IAT and other measures of implicit racial bias may be due to how each test is tapping a different aspect of implicit bias. For instance, when the QUAD model is applied to the weapon identification task, performance is influence more by D and G factors and less by the OB factor (Ito et al., 2015). In contrast, the poor correlation between explicit and implicit measures is often cited as evidence that implicit measures are tapping unconsciously held beliefs, whereas explicit measures are not (Gawronski et al., 2006). Such a claim often assumes that explicit and implicit measures are tapping the same underlying construct, albeit with varying degrees of process-purity (Gawronski et al., 2006). However, Gawronski et al. (2006) argues that implicit and explicit measures tap different domains of racial bias. Specifically, that implicit measures appear to be tapping more affective dimensions of bias, such as immediate reactions to racial stimuli, whereas explicit measures appear to tap propositional aspects of bias such as thoughts and beliefs (Gawronski et al., 2006; Monteith & Mark, 2005). As evidence for this claim, Gawronski et al. (2006) notes a study conducted by Banse et al. (2001) that found a higher correlation between homosexual-straight IAT scores and self-reported attitudes towards Gay and Lesbian people when response items where affective in nature (e.g., ‘I feel uncomfortable nearby two men kissing each other.’), as oppose to reflecting personal attitudes and beliefs (e.g., ‘Gay men should not work with children or adolescents.’).

Gawronski et al.’s (2006) distinction between affective and propositional forms of rational bias poses an interesting question and across my review of the literature there does not appear to be a study conducted on the relationship between implicit measures of racial bias and affective, as oppose to propositional, self-report measures of bias. As Hahn et al. (2014)

illustrated, people are at least to some extend aware of their automatic racial associations, and are able to reliably predict their IAT results. However, it is unclear whether this is due to individuals having some degree of introspective access to their automatic associations, or whether this is due to one's ability to reflect on their own experiences and infer that they have racial biases. Regardless, if automatic racial associations cause affective responses to racial stimuli and someone has introspective access to these affective responses, then they may be able to report their affective responses in a self-report scale. In addition, if the racial IAT is tapping a more affective dimension of racial bias, then the racial IAT should show a higher correlation between affective self-report items than propositional self-report items.

2.1.5. Racial Differences in Race IAT Scores

However, to investigate this phenomenon, one also needs to understand typical IAT scores, and the relationship between IAT scores, self-identified race, and social context. Across American and European contexts, White populations show a significant in-group preference in Black/White Racial IATs (Amodio & Swencionis, 2018; Hahn et al., 2014; Ito et al., 2015; Nosek et al., 2002; Walker & Hewstone, 2008). However, it is notable that a majority of studies using the racial IAT in racially diverse samples tend to have a significant underrepresentation of non-White racial groups (Amodio & Swencionis, 2018; Hahn et al., 2014; Ito et al., 2015), with studies that make specific use of non-White samples investigating racial biases within groups of Japanese/Korean Americans (Greenwald, 1998), or South Asian Populations (Walker & Hewstone, 2008). As such, very few studies specifically look at racial IAT scores in Black-identifying adult populations within a specific context. As such, our understanding of how Black-identified people in the Global North respond in racial IAT tasks largely comes from the long running Project Implicit website, in which it has been which found that Black-identified people tend to report a small pro-White bias in Black-White racial IAT conditions (Nosek et al., 2002). However, given that the Project Implicit Website has continued to gather data, future studies using more recent portions of the dataset (2008 – 2012), found that this finding does not appear to be consistent across geographical locations, IAT scores varying significantly from state to state, with White-Identifying Americans generally scoring within the range of a small to moderate pro-White bias, and African Americans scoring largely within neutral ranges (Rae et al., 2015)[6].

Interestingly, when the racial IAT looked at between-group preferences in minority populations in Western contexts, Racial IAT scores tend to show a strong preference for one's in-group (Japanese/Korean Americans; Greenwald, 1998). This own-race preference has been demonstrated in the UK context with South Asian, White and Black populations when assessing between group IAT scores (Walker & Hewstone, 2008). However, Walker & Hewstone (2008) note that American South Asian populations show a significant anti-Black bias in White/Black IATs in comparison to UK South Asian populations who showed no

[6] While Rae and colleagues largely related these geographical variances to differences in racial demographics between each state, it is plausible to assume that these differences in racial IAT scores by race are likely due to social, political and historical factors.

significant bias (Nosek et al., 2002). Considering that Racial IAT scores also vary within Black- and White-identifying populations based on geographical location within the United States (Rae et al., 2015), this suggests that racial IAT scores may be highly influenced by contextual factors. This is further evidenced by a study conducted by Walker & Hewstone (2008), which found that people, regardless of their self-identified race, had less biased IAT scores when they had less intergroup anxiety (fears, social threat, etc.) and had more individuation experiences with racial out groups (positive social contact).

However, IAT research in South Africa has been significantly limited, with only 2 studies having been conducted using the racial IAT prior to beginning this study. Newheiser et al. (2014) looked at racial IAT scores for primary school children (N = 78; Black-, White- and Coloured-identifying children) from a low- middle-income context and found that children of all racial groups showed that Black, White and Coloured children (ages 6-12) all demonstrated a strong pro-White bias in IAT scores, that Coloured children showed less pro-White bias in the White-Coloured condition than the White-Black condition and that Black children showed no significant difference in pro-White bias between the White-Black and White-Coloured condition. However, it is worth noting that Racial IAT scores for children are typically not representative of scores for adult populations, as demonstrated by Qian et al. (2016). Álvarez-Mosquera (2017) looking at the utility of the IAT for sociolinguistic purposes in a small adult sample (N = 13). However, this study did not look at group differences, and primarily focused on correlation between one's individual IAT scores and their sociolinguistic background.

However, a recent study was published that looking at the relationship between IAT scores and explicit measures of bias in a sample of South African university students based in the Western Cape (Corno et al., 2022). While the operationalisation of explicit bias within that study differs from this one, they found that there was little to no correlation between IAT scores and explicit bias measures within the sample which is in-line with existing literature. However, of particular interest to this study, was that similar trends in implicit bias scores were found with regards to self-identified race, with White students on average demonstrating a pro-White implicit bias, and Black identified students reporting bias scores within the range of neutral. Furthermore, in-line with the findings of Walker & Hewstone (2008), this study found that social proximity (in the form of having a same- or other-race roommate), was associated with less biased IAT scores in White-identifying student, but had no effect on IAT scores in the sample of Black-Identifying students (Corno et al., 2022).

Taken together, there appears to be compelling evidence to suggest that social factors play an important role in influencing implicit and explicit bias scores. However, it is notable that our present understanding of how these extraneous social factors interact with self-identified race and racial bias is limited. As a consequence, our present understanding of explicit and implicit racial bias, and the role that one's environment may play in shaping them, is largely informed by a body of literature that makes use of predominantly White-identifying samples from Western contexts. Given that one's individual experiences with narratives surrounding race and their personal experiences of their own (and other people's) racial biases largely depends on the racialised position they occupy, it is important that we begin to understand how racial bias is experiences differently by people based on the racial identities and how this may complicate their experiences of their own explicit and implicit biases. Thus, South Africa serves as a unique social, political, and historical context for which to investigate these phenomena and may thus provide valuable insights insight into the generalizability of the existing body of literature towards our context and shed more light on the relationship between own- and other-race directed explicit and implicit racial biases and racial identity.

2.1.6. Research Questions

As such, the main research question guiding this study was:

What is the relationship between implicit racial bias, explicit attitudinal racial bias and explicit affective racial bias in self-identified Black and White South African adults?

Drawing from this main research question, this study answered the following sub-questions:

1. What were the implicit, explicit-attitudinal and explicit-affective racial bias scores for the overall sample and for the two racial groups?
2. Were there between-group differences in any of the racial bias scores based on self-identified race?
3. What was the strength, direction, and significance of correlations between these racial bias scores within both racial groups.
4. Does self-identified race depict overall differences in implicit and explicit racial IAT scores.

Chapter 3: Research Methods

3.1. Research Design

The present study employed a non-experimental ex-post facto correlational design to investigate between-group differences in measures of explicit and implicit racial bias in a sample of Black- and White-identified participants (Figgou & Pavlopoulos, 2015; Karasz & Singelis, 2009). Self-identified race functioned as the main independent variable of the study, and three continuous variables functioned as the dependent variables, namely: implicit racial bias, explicit-attitudinal racial bias, and explicit-affective racial bias. Implicit racial bias was measured using an adapted version of the Racial IAT (Greenwald, 1998), whereas explicit-attitudinal and explicit-affective racial bias were assessed using the novel AARB scale, with some items of the explicit-attitudinal subscale adapted from the Subtle and Blatant Prejudice Scale (Pettigrew & Meertens, 1995). Furthermore, both the attitudinal and affective racial bias measures of the AARB scale comprised two subscales, namely anti-Black and anti-White bias would each be independently considered for analysis and the sum of attitudinal and affective racial bias scales was used to calculate an overall explicit racial bias score. However, these additional measures played a minor role in the overall research design and were primarily used to evaluate the psychometric properties of the AARB scale and to provide further context to the main findings of the study.

3.2. Sampling and Response Rate

Due to financial and time constraints of the project this study utilised non-probabilistic, volunteer-based sampling strategies, relying on convenience and snowball sampling methods due to their ability to reach a relatively large population of potential participants (Hanges & Wang, 2012; Scholtz, 2021). Most participants were recruited from the student body of the University of the Witwatersrand due to the accessibility of the population and its diverse and multicultural makeup. Furthermore, to ensure that the minimum recruitment goal of 20 Black- and 20-White identified participants was met, the study was also advertised outside of the university setting via social media.

To be eligible to take part in the study participants met the following inclusion criteria:

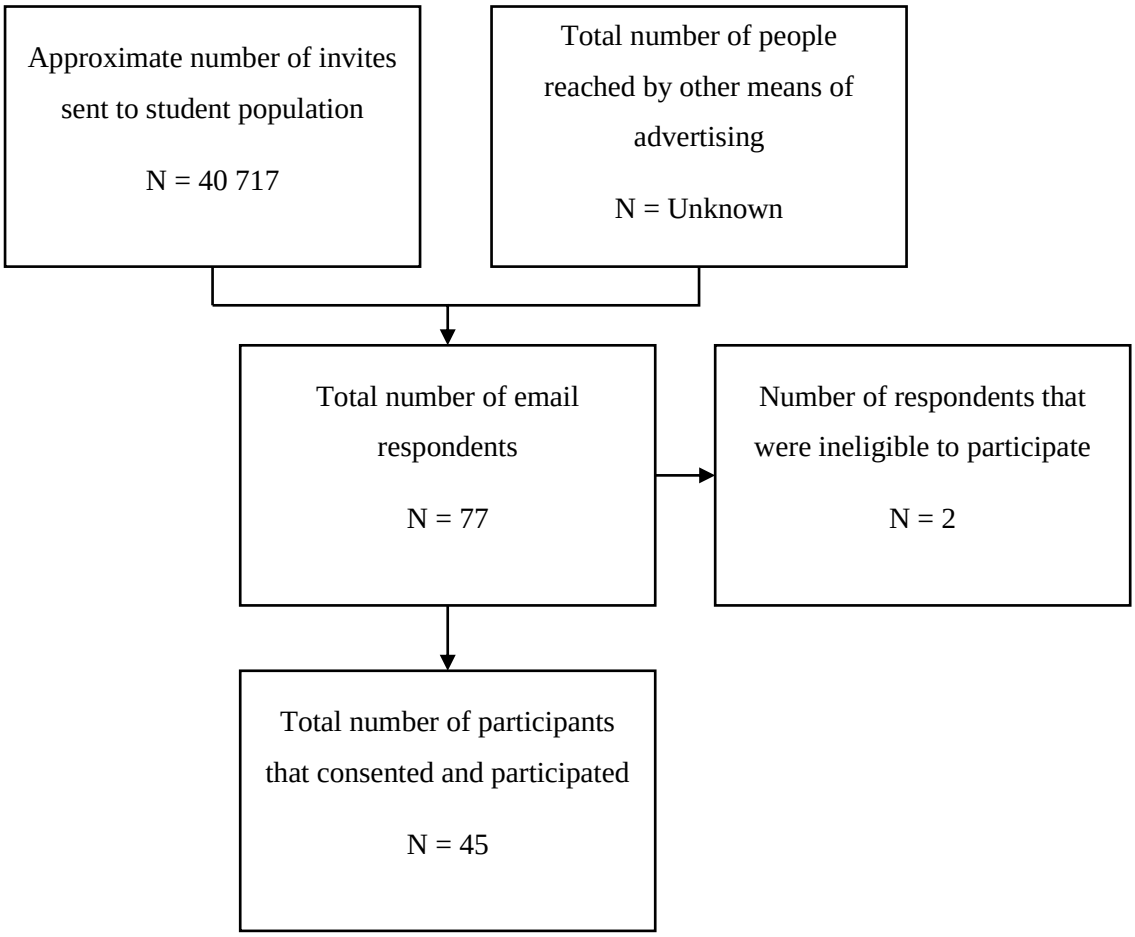
a) Be 18 years of age or older.
b) English speaking.
c) Self-identify as either White or Black.

The exclusion criteria for this study were:

a) History of cognitive impairments, or other neurological conditions that may impact their performance (e.g., impaired hand mobility or vision).

With permission from the University Registrar (See Appendix A), an email was sent to 40 717 students presently enrolled at the university, which served as the primary mode of recruitment for the study. Additionally, a poster was created and distributed via social media and online student platforms to advertise the study. As a result of the above recruitment strategies, a total of 77 individuals expressed interest in participating. From this initial pool of respondents, 45 consented and participated in the study, with 25 participants self-identifying as Black and 20 as White. A detailed description of the sampling process is presented in Figure 1.

Figure 1
Sampling Process



3.3. Instruments

3.3.1. Demographic Questionnaire

A demographic questionnaire was used to captured basic socio-demographic information, such as their age, self-identified race, self-identified gender, and home language (See Appendix B). This questionnaire was designed and completed electronically using the RedCap survey platform.

3.3.2. Living Standards Measure (LSM)

3.3.2.1. Test Structure and Scoring

Socio-economic Status (SES) was assessed using a modified version of the 2011 Living Standards Measure, a validated measure of household living standards developed by the South African Advertising Research Foundation (SAARF, 2011). The LSM scale is a weighted 29-item checklist, in which are respondent are asked to indicate whether their household meets specific geographic criteria associated with wealth, and whether the household possesses a variety of good and amenities associated with a high standard of living (e.g., "I have the following items in my household: TV Set"; SAARF, 2011). An overall score is calculated by summing the weighted score of each checked item, along with a constant of -0.81052 to produce a raw score, with a final outcome score based on the range within which the raw score fell. LSM scores range from 1 – 10, with higher LSM scores indicating higher standards of living.

3.3.2.2. Adjustments Made to the Measure

To ensure that the 2011 LSM (SAARF, 2011) was appropriate for use in 2022, the following modifications were made to two of the items to ensure that they were more relevant: VCR changed to Swimming Pool; Hi-Fi changed to Air Conditioner. In addition, while adapting the measure for use on the RedCap platform, some minor modifications were made to the wording on some items to ensure that they better captured living standard characteristics (e.g. M-Net/DStv subscription was modified to include other popular content streaming platforms such as Netflix). Furthermore, test piloting highlights a few ambiguities in some of the items and as such specifications were added to a selection of items to improve the overall clarity of the items. For a full list of the items used in the measure, see Appendix C.

3.3.3. Racial Implicit Association Task (Racial IAT)

3.3.3.1. Background

The Racial IAT is a computerised sorting task developed by Greenwald, Mcghee & Schwartz (1998) and is widely considered to be the gold standard measure of implicit racial bias. The IAT measures the strength of associations between two sets of target-concepts (e.g., Black faces and White faces) and two sets of evaluative words (e.g., positive words, and negative words) and produces an overall bias score that indicates to what degree the participant preferentially responded to one set of evaluative pairings as opposed to another. In the case of racial bias research, the Racial IAT makes use of racially-coded stimuli, most commonly faces. As such, a participant who is faster/slower at sorting words with faces during the one stimulus condition, (e.g., Black faces with positive words, White faces with negative words) when compared to the other (e.g., White faces with positive words, Black faces with negative words) is said to show an associative bias in favour of one of the two racial groups.

3.3.3.2. Psychometric Properties

Recent literature indicates that the Racial IAT has a good level of internal consistency across the two main trials ($r = 0.87$-0.80; $p < 0.001$), indicating that the time difference measured by the Racial IAT is largely consistent during the administration of the test. However, with regards to test-retest reliability, the IAT performs relatively poorly ($r = 0.50$), indicating that IAT scores can vary substantially between administrations, even during the same session of testing (Greenwald & Lai, 2020; Ito et al., 2015). As noted within the literature review with regards to validity, the IAT framework reliably demonstrates expected preferential biases across a variety of neutral stimulus pairings, most common of which is the flower/insect IAT which indicates that the IAT (Greenwald & Lai, 2020). Furthermore, various studies have demonstrated reliable and expected differences in racial preferences in a variety of social contexts and that, within these contexts, there a significant group differences in racial biases that vary by race (Walker & Hewstone, 2008). Furthermore, while there is limited evidence with regards to the criterion-related validity of the racial IAT task, there is evidence to suggests that the Racial IAT, along with other measures of implicit racial bias, do appear to be tapping a common factor relating to associative bias (Hahn et al., 2014; Ito et al., 2015).

3.3.3.3. Adjustments Made to the Measure

As noted in the literature review, there does not appear to be a standard wordlist used across all racial IAT studies, as such the wordlist used in the project implicit (Nosek et al., 1998,

2002)[7] website was adapted and expanded upon for use in this study. Furthermore, due to a lack of an existing standardised version of the Racial IAT framework, a framework was sourced from Github (Scaife et al., 2020). A check was made to ensure that the scoring algorithm was in line with recommended scoring practices outline by Greenwald and Colleagues (2003) and appropriate modifications were made to the python script. In addition, the following adjustments were made to ensure that the form and content of the test were relevant and appropriate for use in the South African context: First, the list of words on the Project Implicit website (Nosek et al., 1998) were updated and expanded upon to ensure that the words used had more culturally neutral connotations, e.g., *Diamond* was replaced with *safe*. Second, some evaluation words that are less commonly used in the South African context or may not be familiar to a non-native English speaker were replaced with more common and accessible words to ensure that the test was accessible to all participants, e.g., *Agony* was replaced with *pain*. Lastly, considering that White and Black-identified South Africans show differences in their ability to discriminate between Black and White American faces and Black and White South African faces (Chiroro et al., 2008)[8], to ensure that the faces used in the test was representative of the actual people living in South Africa, new images were sourced from a databased of South African faces (Milborrow et al., 2010), and to be consistent with the racial IAT as presented on the Project Implicit website, faces cropped to include only faces, and were edited to be greyscale. For a list of the words and faces used, seep Appendix D.

3.3.3.4. Test Structure and Scoring

The Racial IAT used in this study consisted of five blocked trails, in which respondents are presented with words (positive or negative), and/or images of faces (Black and White faces), and are instructed to sort them on either the left or right of the screen based on a set of rules for each trial. For a detailed summary of the sorting rules for each trial see Table 1. Notably, trials one, two and four serve as practice trials to ensure that participants are able to familiarise themselves with the structure of the test, with only the response times for trials three and five being used to calculate final outcome scores. These trials are referred to as the

[7] The Project Implicit website hosts a free version of the Racial IAT, with a list of the words easily accessible using the following link: https://implicit.harvard.edu/implicit/user/agg/blindspot/indexrk.htm

[8] It is often assumed that White and Black racial groups are homogenous, and that they share similar facial features between continents, or that Black/White faces from American populations can be used interchangeable with White/Black faces in other geographical contexts. However, this is not true, there are subtle morphological differences in faces between supposedly racially comparable population groups between these contexts, and as demonstrated by Chiroro and colleagues (2008), this can impact performance on facial recognition tasks.

evaluation pairing conditions, in which participants are asked to either White faces with positive words and Black faces with negative words (referred to as the congruent trial), or are asked to sort Black faces with positive words and White faces with negative words (referred to as the incongruent trial). However, the trial that is termed as congruent is arbitrary, and is largely considered to be the trial that is hypothesised to be completed more quickly (i.e., the expected association). As such, in line with the findings of prior studies, the White-positive trial was termed as congruent within the context of this study[9].

Using the revised scoring method as outlined by Greenwald and colleagues (2003) a D_2 score was calculated by subtracting the average time taken to respond to each stimulus for the congruent trial from the incongruent trial, with an overall negative outcome score indicating a negative implicit bias towards White-coded faces and a positive outcome score indicating a negative implicit racial bias towards Black-coded faces. In line with the revised scoring methods, errors in responding incurred a penalty of 300ms, responses that occurred under 150ms were excluded to avoid including accidental and/or rapid random responses from the calculation, and responses that took longer than 3000ms were capped at 3000ms to ensure that significant delays in responding did not disproportionately affect the outcome score.

Table 1
Racial IAT Test Structure

Trial	Practice 1	Practice 2	Stimulus Pairing 1	Practice 3	Stimulus Pairing 2
Task Description	Evaluation Discrimination	Target-Concept Discrimination	First Paired Evaluation-Concept Discrimination	Reversed Target-Concept Discrimination	Reversed Paired Evaluation-Concept Discrimination
"Congruent" First Condition	● Positive Negative ●	Black ● ● White	Black ● ● Positive ● White Negative ●	● Black White ●	● Black ● Positive White ● Negative ●
"Incongruent" First Condition	● Positive Negative ●	● Black White ●	● Black ● Positive White ● Negative ●	Black ● ● White	Black ● ● Positive ● White Negative ●

[9] However, it is important to note that this coding convention is somewhat problematic as it frames these negative implicit biases directed towards one racial group as 'expected' or 'normal', and the biases directed towards the other group as 'deviant'.

3.3.4. Affective and Attitudinal Racial Bias (AARB) Scale

3.3.4.1. Scale Content

Some items for the attitudinal bias subscale were adapted from the UK version of the Blatant and Subtle Prejudice Scale (Pettigrew & Meertens, 1995; See Appendix E), which has been demonstrated to be reliable in a variety of European contexts for measuring the self-reported beliefs and attitudes of White-identifying European populations towards ethnic minorities and immigrant communities within their respective contexts (r = 0.87 – 0.90). To ensure the suitability of the individual items for use in a South African context, there were a number of modifications made to the content and structure of these items which ranged from minor word changes for basic questions ("*West Indians have jobs the British should have*" changed to "*I feel that too many White/Black South Africans hold jobs that could have been given to other South Africans*") to larger changes in content for questions that pertained to the unique British social and political context ("*Most West Indians living here who receive support from welfare could get along without it if they tried*" changed to "*I feel that BEE is unfairly providing opportunities for Black South Africans at the expense of other South Africans*" and "*I feel that most White South Africans have not had to work as hard to secure well-paying jobs as other South Africans*"). However, due to the lack of existing racial bias measures tapping more affective dimensions of explicit racial bias, the items used within the affective racial bias scale were not designed in reference to any specific or existing measure. Instead, the majority of items for the affective bias subscale were designed in relation to the working definition outline in the literature review, and took inspiration from items described in a study investigating levels of self-reported comfort with, and acceptance of, LGBTQI+ people and relationships in a sample of heterosexual people (Banse et al., 2001). For a final list of items used with the AARB, see Appendix F.

3.3.4.2. Test Structure

The AARB is a 5-point Likert Scale with 26 items and consists of two sets of subscales, namely the attitudinal/affective subscales, and the anti-Black/anti-White subscales which differ based on the way in which items are grouped during scoring. The attitudinal and affective bias subscales each consist of twelve and fourteen 5-point-Likert-type-scale items respectively, with responses for the affective subscale questions ranging from: never (1), seldom (2), sometimes (3), often (4) and very often (5), and responses for attitudinal questions ranging from: strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly

agree (5). The anti-Black and anti-White bias subscales are derived from the above subscales, categorising items according to which racial category is the subject of the item content. Due to four of affective items containing direct comparison questions ("*I am more likely to assume that someone is acting with bad intentions if they are White, rather than Black*"), these items are excluded from the scoring of anti-Black and anti-White subscales as they are not racially specific. As such, the anti-Black and anti-White subscales each contain 12 items.

3.3.4.3. Scoring Method

Scores for the Affective and Attitudinal Bias subscales are calculated by reverse scoring the relevant items and calculating the mean scores for each participant, with a positive score indicating that participants reported higher levels of anti-Black bias in relation to anti-White bias. Furthermore, overall explicit racial bias is calculated as the sum of means of both subscales ($Overall\ Bias = Mean_{Attitudinal\ Bias} + Mean_{Affective\ Bias}$; Effective Range = [-10;10]). The overall anti-Black and anti-White bias subscales are calculated by summing the mean scores for the relevant attitudinal/affective subscale, (e.g., $Overall\ Anti\text{-}White\ Bias = Mean_{Anti\text{-}White\ Attitudinal} + Mean_{Anti\text{-}White\ Affective}$; Effective Range = [0;10]).

3.3.4.4. Psychometric Properties

Due to the scale of the adaptation of items for use in the attitudinal subscale, and the use of novel items for both subscales of the measure, the reliability and validity of the AARB could not be assessed prior to conducting the study.

3.4. Research Procedure

3.4.1. Equipment and Software

The booking of participants was primarily handled using an online booking platform which was shared by email with respondents, with participants who did not wish to use the booking platform scheduling appointments via email instead. Once an appointment was scheduled, a private room was booked using a physical booking system and all face-to-face sessions were conducted in a one-on-one setting in a well-ventilated room, with all health and safety protocols with regards to COVID-19 followed as per the university guidelines (See Appendix G).

The demographic questionnaire and self-report measures were completed electronically using an online survey platform (RedCap) and were completed on the participants private mobile device, or on the laptop provided. Following the completion of the self-report measures, the racial IAT task was completed on the laptop provided. Of note, the laptop was password

protected and all digital data was kept in a secure folder and uploaded onto the recap platform to at the end of each session.

3.4.2. Session Protocol

Prior to the session, participants were provided with a digital copy of the Participant Information Sheet (PIS; See Appendix H), and Consent Form (See Appendix I). The sessions were conducted in a private, well-ventilated room and the language of administration was English. Furthermore, to ensure that the descriptions of the measures and the administration of the tests were standardised across all administrations, a script was used. During the session, participants were provided with a physical copy of the PIS and consent form. Furthermore, to ensure that informed consent was established, participants were given a verbal summary of both documents, as well as a brief description of the measures to be used, their general purpose and the nature of their content. Following this, participants were given the opportunity to ask any questions pertaining to the study prior to being asked to sign the consent form.

Once informed, written consent was obtained, the researcher asked the participant to complete the demographic questionnaire, the LSM and the AARB on the laptop provided or to scan the QR code and complete the self-report measures on their mobile device. Following the completion of the self-report measures, participants were asked to complete the racial IAT task on the laptop provided, with the block order used for the IAT being chosen pseudo-randomly to ensure an even distribution of block order throughout the sample. Following the completion of the assessments, participants were debriefed on the procedure, with the purpose of each measure, and their limitations, being explained to the participants in more detail and participants were given the opportunity to provide feedback on the procedure or to ask any final questions.

3.5. Ethical Considerations

Prior to the collection of data, permission to conduct the study was sought from the Human Research Ethics Committee (non-medical) of the University of the Witwatersrand (See Appendix J for Ethics Certificate). The researcher also participated in formal ethics training at the Department of Psychology. Informed written consent was obtained from each participant. Participants were allowed and informed of their right to withdraw from the study at any time and all personal information was anonymised. Furthermore, as data collection took place during the COVID-19 pandemic, steps were taken to ensure that health and safety

protocols were followed as per the university rules (See Appendix G). In addition, testing took place in a well-ventilated space and care was taken to ensure that all equipment and desktop surfaces were sanitized between each testing procedure. Finally, with regards to data management, steps were taken to ensure that no identifiable information was stored alongside participant data to maintain the anonymity of responses and appropriate steps were taken to ensure compliance with the POPI act.

3.6. Data Analysis

Data was exported from RedCap, and entered into IBM SPSS 28 for further processing (IBM Corp., 2021). The dataset was cleaned and checked for missing data entries. Descriptive statistics for the demographic variables and the various outcome measures were generated for the overall sample, and for the two sample groups. Furthermore, to control for the unequal distribution of race throughout the sample, additional descriptive statistics were generated that weighting the data by race. To assess the internal reliability of the AARB scale, Cronbach alpha scores were generated for both sample groups, the overall sample and for the weighted sample for the overall measure and for each of the subtotals and subscales.

A series of independent sample t-tests and chi-squared tests of association were conducted to assess the degree to which demographic variables and outcome measures varied by the self-identified race of the participants in the sample Furthermore, the relationship between variables were assessed using a series of simple correlations, to assess the degree to which each variable was correlated with each other variable within the overall sample and within both sample groups. Due to the small sample used within this study, and the exploratory nature of the project, an alpha coefficient of 0.05 was used in determining significance. It is noted that, when making multiple comparisons is recommended that the Bonferroni correction is applied (alpha = 0.025) but given that the purpose of this study was to identify potentially significant relationships to inform a future study, the decision was made to not apply the correction so that these potentially significant relationships could be discussed. Furthermore, due to the low number of participants who did not specify their self-identified gender or identified as gender non-conforming (n = 3), self-identified gender was coded as a dichotomous variable for some portions of the analysis, and participants who did not specify their self-identified gender or identified as gender non-conforming were excluded for any analyses that included self-identified gender as a dichotomous variable.

Finally, to assess whether self-identified race was a predictor of implicit racial bias, and the two domains of explicit racial bias, the data was checked to ensure it met the assumptions to run a MANOVA. It was noted that there was no linear relationship between implicit racial bias (as measured by the racial IAT) and affective and attitudinal racial bias which violated the assumption of collinearity. However, the inclusion of the racial IAT scores within the model did not meaningfully impact the outcome. As such, for the purposes of fully answering the research questions, two MANOVA's were conducted, with one that excluded racial IAT scores from the model. For both models, an alpha coefficient of 0.05 was used.

Chapter 4: Results

The following chapter will present an analysis of the data obtained from the face-to-face assessment procedure for the present study on measuring implicit and explicit racial bias in a sample of adult South African students. As noted above, a total of 45 participants were recruited for this study (Black-identified: n = 25, White-identified: n = 20). As self-identified race was a variable of interest within this study, the sample was weighted by self-identified race where specified.

4.1. Socio-Demographic Characteristics of Sample

The following section summarises the descriptive statistics and between group differences found for each of the socio-demographic variables. For a summary of the frequency data see Table 2, for descriptive statistics and between-group comparisons see Table 3, and for the results of the chi-squared tests of association see Table 4.

Table 2
Frequency Table for Socio-Demographic Variables

		Weighted Sample		***Black-Identified***		***White-Identified***	
		n	%	n	%	n	%
Self-Identified Gender	Male	13	30%	5	20%	8	40%
	Female	29	63.50%	18	72%	11	55%
	NB/Unspecified	3	6.50%	2	8%	1	5%
Home Language	English	19	47%	1	4%	18	90%
	isiZulu	8	16%	8	32%	-	-
	isiXhosa	4	8%	4	16%	-	-
	Afrikaans	2	5%	-	-	2	10%
	Sepedi	4	8%	4	16%	-	-
	Setswana	1	2%	1	4%	-	-
	Sesotho	1	2%	1	4%	-	-
	Xitsonga	1	2%	1	4%	-	-
	siSwati	1	2%	1	4%	-	-
	Tshivenda	1	2%	1	4%	-	-
	Shona	3	6%	3	12%	-	-
LSM	Level 6	5	10%	5	20%	-	-
	Level 7	6	13%	4	16%	2	10%
	Level 8	5	10%	5	20%	-	-
	Level 9	8	18%	4	16%	4	20%
	Level 10	21	49%	7	28%	14	70%

LSM = Living Standards Measure 2011 (SAARF, 2011); NB = Non-binary; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.

Controlling for self-identified race, the mean age of the sample was 22.40 years (SD = 3.01). 63.50% of the sample self-identified as female (n = 29), while 30% self-identified as male (n = 13), and three participants who self-identified as non-binary, or did not specify their gender identity (6.50%). With regards to home languages, White-identifying participants reported speaking either English or Afrikaans as a home language (n = 18; n = 2), whereas Black-

identified participants reported one of nine of the eleven official languages as their home language, with Afrikaans and Ndebele being notable exceptions and isiZulu being the most common home language reported (32%, *n* = 8). Notably, Shona was the fourth most reported home language for Black-identified participants despite not being included in the list of default response (*n* = 3, 12%). Finally, with regards to SES, the mean LSM score for the sample was 8.83 (*SD* = 1.42, range: 6-10), indicating that participants for the study predominantly reported from coming from middle to upper income backgrounds, with 49% of participants (*n* = 21) reporting the highest LSM score of 10.

Table 3

Descriptive Statistics of Socio-Demographic Variable with Between-Group Comparisons by Self-Identified Race

	Weighted Sample					***Black-Identified***			***White-Identified***			***Independent t-test***			
	n	Mean	SD	Skew.	Kurt.	N	Mean	SD	n	Mean	SD	*t*	*df*	*p*	Cohen's *d*
Age[ac]	48	22.40	3.01	.932	1.13	24	21.63	3.75	18	23.17	2.09	-1.57	37.35	.125	-.489
Gender[bc]	46	-	.471	-.802	-1.42	23	-	.422	19	-	.507	1.40	35.01	.171	.462
LSM	50	8.83	1.42	-.863	-.698	25	8.16	1.52	20	9.5	.946	-3.62	40.8	<.001**	-1.03

LSM: Living Standards Measure 2011 (SAARF, 2011); Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.
a. Three outliers were identified for age [values: 34;39;66] and excluded in the analysis.
b. Excluded participants who identified as gender non-conforming or did not specify their gender identity.
c. Equality of variance not assumed

Table 4

Chi-Square Tests for Socio-Demographic Variables

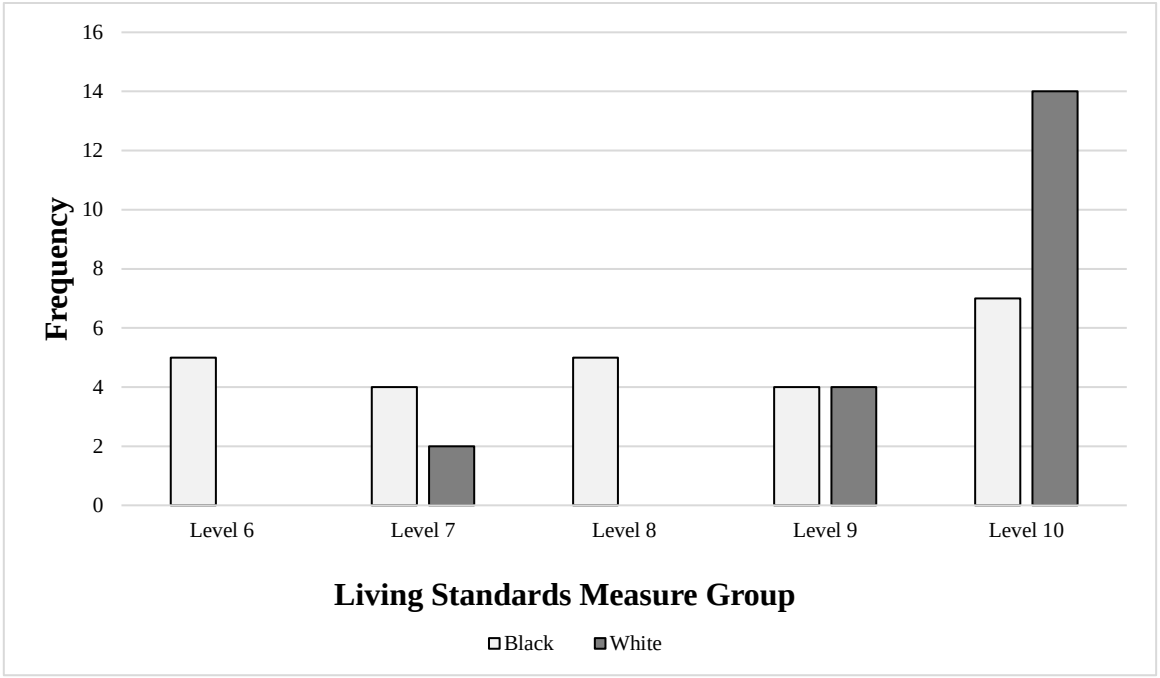
	n	X^2	*df*	*p*
Gender	45	2.86[a]	3	.413
Home Language	45	41.16[b]	10	<.001**
LSM	45	12.60[c]	4	.013*

LSM: Living Standards Measure 2011 (SAARF, 2011).
a. 4 cells (50%) have expected count less than 5. The minimum expected count is .44.
b. 20 cells (90.9%) have expected count less than 5. The minimum expected count is .44.
c. 8 cells (80%) have expected count less than 5. The minimum expected count is .44.

Looking at group differences (See Table 3 and Table 4), there were no significant group difference found with regards to the age of participants across the two sample groups (t = 1.57, p = .125, d = -.489), but Black-identifying participants were found to be younger on average (M = 21.63, SD = 3.75) than White-identifying participants (M = 23.17, SD = 2.09). Furthermore, there were no significant group differences found with regards to self-identified gender when taking into consideration participants who did not identify themselves or identified as gender non-binary X^2 (10, N = 45) = 41.16, p = <.001, and when excluding participants these participants in order to compare gender as a dichotomous variable, t(35.01) = 1.40, p = .171, d = .462. However, there was a significant between-group difference found with regards to reported home language, X^2 (10, N = 45) = 41.16, p = <.001, and SES as measured by the LSM, t(40) = -3.62, p = <.001, d = 1.30, with Black-identified participants

reporting a greater diversity of home languages and, on average, coming from lower SES backgrounds (M = 8.16, SD = 1.52), in comparison to White-identified participants (M = 9.5, SD = .946). Furthermore, there were notable differences in the distribution of LSM scores by self-identified race (See Figure 2), with Black-identified participants reporting an even distribution of LSM scores ranging from six to ten (*Skewness* = -.138, *Kurtosis* = -1.42), but with LSM scores for White-identified participants highly skewed towards higher levels of SES (*Skewness* = -2.07, *Kurtosis* = 3.61).

Figure 2
Living Standards Measure Group Frequencies by Self-Identified Race



4.1.1. Correlation Analysis of Socio-Demographic Factors

Looking at Table 5, there was no significant correlation found between age and self-identified gender in the overall sample, $r(38) = -.024$, $p = .882$, but there was a significant correlation between LSM scores and gender in the White-identified sample, $r(40) = .289$, $p = .063$. However, specific analysis of the relationship between gender and SES within the White-identified sample found that White-male-identified participants reported higher SES scores than White-female-identified participants. As such, this correlation is likely due to a sampling bias. Finally, with regards to the correlation between age and SES, there was a trend towards significance, $r(40) = .281$, $p = .071$, with older participants reporting higher levels of SES on average when compared to their younger counterparts. Taken together, it is plausible to assume that the sample recruited for this study is adequately representitive of the broader South African student population.

Table 5
Correlation Matrices of Socio-Demographic Factors by Self-Identified Race

			***Age*[a]**	***Gender*[b]**	***LSM***
Weighted Sample	*Age*	*r*	1		
		p			
		n	48		
	Gender	*r*	-.037	1	
		p	.812		
		n	44	46	
	LSM	*r*	.271	-.217	1
		p	.062	.148	
		n	48	46	50
Black-Identified	*Age*	*r*	1		
		p			
		n	24		
	Gender	*r*	.126	1	
		p	.575		
		n	22	23	
	LSM	*r*	.276	-.11	1
		p	.192	.617	
		n	24	23	25
White-Identified	*Age*	*r*	1		
		p			
		n	18		
	Gender	*r*	-.147	1	
		p	.562		
		n	18	19	
	LSM	*r*	-.095	-.478*	1
		p	.707	.038	
		n	18	19	20

LSM: Living Standards Measure 2011 (SAARF, 2011); Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.
a. Three outliers were identified for age [values: 34;39;66] and excluded in the analysis.
b. Excluded participants who identified as gender non-conforming or did not specify their gender identity.
**. Correlation is significant at the 0.05 level (2-tailed).*
**. Correlation is significant at the 0.01 level (2-tailed).

4.2. Results of the AARB

In order to assess the internal consistency of the AARB, and to identify any potentially problematic items, Cronbach alpha and alpha-if-deleted scores were calculated for the overall measure and each subscale (For initial reliability statistics, see Appendix K). With two problematic items identified and removed, Cronbach alpha scores were recalculated to assess the internal consistency of the adjusted measure (See Table 6). Furthermore, descriptive statistics and between-group analysis was conducted to assess the presence of group difference (See Table 7) and a series of simple correlations were conducted to determine whether the relationships between each of the subscales aligned with theoretical expectations across the weighted sample (See Table 8), and within both racial groups (See Table 9). Finally, analysis was conducted to assess the degree to which socio-demographic factors may have influence AARB scores (See Table 10 and

Table ***11***)

4.2.1. Analysis of Alpha-if-Deleted Item Scores

Items two ("*I would be willing to have a sexual relationship with a White South African",* White-Identified Attitudinal Bias: *Item-Total Correlation* = -.214), and seven ("*I would be willing to have a sexual relationship with a Black South African",* Black-Identified Attitudinal Bias: *Item-Total Correlation* = -.524) of the attitudinal racial bias subscale were found to be statistically problematic when the content of the items referred to a racial group that differed from the participant's self-identified race. While both items were directly adapted from item eight of the Blatant Prejudice Scale (*"I would be willing to have a sexual relationship with a West Indian"*), upon analysis of the content of these items, they were deemed to be insensitive and inappropriate for use within our present context. With no other problematic items identified within the AARB and with the intended factor of these items more appropriately and sensitively covered by the items eight (*"I would not mind if a Black person who had a similar economic background joined my close family through marriage"*) and eleven (*"I would not mind if a White person who had a similar economic background joined my close family through marriage"),* the decision was made to remove these two items from the measure.

4.2.2. Assessment of Internal Reliability

Following the removal of the two problematic items, Cronbach Alpha scores were recalculated for the AARB, and each the subscales (See Table 6). The AARB demonstrated a good internal consistency across the weighted sample (a = .790), with both the attitudinal and affective subscales demonstrated acceptable levels of internal consistency that bordered on ideal (Attitudinal: α = .664, Affective: α = .665), and the overall anti-Black and anti-White bias subtotals (i.e., levels of affective, and attitudinal racial bias towards a target racial group) demonstrated ideal and near-ideal reliabilities respectively (Anti-Black: α = .747, Anti-White: α = .688). When considering anti-Black and anti-White items independently for each subscale, anti-Black and anti-White attitudinal items demonstrated moderate and ideal levels of internal consistency respectively (Anti-Black: α = .595, Anti-White: α = .719), whereas only anti-Black affective items demonstrated an ideal level of reliability (a = .762, with anti-White affective items demonstrating a poor internal consistency that fell below acceptable levels (a = .440).

Within the White-identified sample group, the AARB demonstrated good internal reliability (α = .812), with the attitudinal and affective bias subscales demonstrating good, and near-ideal levels of internal consistency respectively (Attitudinal: α = .797, Affective: *a* = .683) and overall anti-Black and anti-White subtotals demonstrating good, and near-ideal levels of internal consistency respectively (Anti-Black: α = .766, Anti-White: *a* = .628). Notably, anti-White, and anti-Black attitudinal items performed less reliably when considered separately (Anti-Black Attitudinal: a = .670 Anti-White Attitudinal: a = .634), than when they were considered together under the overall attitudinal bias subscale (α = .797). However, this trend was not observed in the affective bias subscale, with anti-Black affective bias items demonstrating better reliability (*a* = 775) than the overall subscale (*a* = .683), and anti-White affective bias items demonstrating a slightly worse, but still acceptable, level of reliability (a = .597).

Table 6
Reliability Statistics for the AARB Scale

		AARB OVERALL			***ATT. BIAS***			***AFF. BIAS***		
		Anti-Black	*Anti-White*	*Total*	*Anti-Black*	*Anti-White*	*Total*	*Anti-Black*	*Anti-White*	*Total*
WEIGHTED SAMPLE	α	.747	.688	.790	.595	.719	.664	.762	.440	.665
	n	10	10	24	5	5	10	5	5	14
BLACK-IDENTIFIED	α	.634	.720	.632	.533	.743	.400	.550	.550	.500
	n	10	10	24	5	5	10	5	5	14
WHITE-IDENTIFIED	α	.766	.628	.812	.670	.634	.797	.775	.597	.683
	n	10	10	24	5	5	10	5	5	14

A: STANDARDISED CRONBACH ALPHA COEFFICIENT; AARB: AFFECTIVE AND ATTITUDINAL RACIAL BIAS, AB: ANTI-BLACK BIAS, AW: ANTI-WHITE BIAS, ATT: ATTITUDINAL BIAS, AFF: AFFECTIVE BIAS; WEIGHTED SAMPLE REFERS TO THE OVERALL SAMPLE WHEN WEIGHTED BY SELF-IDENTIFIED RACE TO CONTROL FOR UNEVEN SAMPLE GROUPS.

Within the Black-identified sample group, the AARB demonstrated an adequate level of internal reliability (α = .632), with the affective bias subscale demonstrating a poor but moderate level of internal consistency (α = .500), but the attitudinal bias subscale demonstrating poor internal consistency that was below an acceptable level (α = .400), and both the anti-Black and anti-White subscales demonstrated acceptable and ideal levels of internal consistency respectively (Anti-Black: α = .634, Anti-White: *a* = .720). When considered separately, both anti-Black and anti-White attitudinal items (Anti-Black: α = .533, Anti-White: *a* = .743) demonstrated higher levels of reliability than the overall attitudinal bias subscale (α = .400), with anti-White attitudinal items demonstrating a notably ideal level of internal consistency. With regards to the affective bias items, a similar trend was observed,

with anti-White and anti-Black affective items demonstrating slightly higher levels of internal consistency (a = .550, a = .550), which fell within the range of poor but acceptable.

4.2.3. Analysis of Weighted Sample Scores

Table 7 provides a summary of the descriptive statistics for AARB scores, and the related subscales, across the weighted sample and within both sample groups. Across the overall sample, participants on average reported neutral levels of affective and attitudinal racial bias showing no significant preference in favour of one racial group over another (M = -.118, SD = .447). Looking specifically at the two subscales, participants on average reported holding similar beliefs and attitudes with regards to both racial group, with a small attitudinal bias in favour of a Black racial identity (M = -.257, SD = .510), and on average reported neutral levels of affective racial bias, with no discernible bias found with regards to conscious experiences of automatic affective reactions to members of either racial groups (M = .022, SD = .508).

Table 7
Descriptive Statistics and Group Comparisons of AARB Scores by Self-Identified Race

	Weighted Sample				***Black-Identified***		***White-Identified***		***Independent Samples t-test***			
	Mean	SD	Skew.	Kurt.	Mean	SD	Mean	SD	*t*	*df*	*p*	Cohen's *d*
AARB Total	-.118	.447	.521	-.132	-.330	.351	.095	.440	-3.61**	43	.001	.391
AB Total	2.53	.635	.401	.095	2.21	.517	2.85	.591	-3.86**	43	<.001	.551
AW Total	2.75	.547	.069	-.626	2.92	.605	2.59	.436	2.06*	43	.046	.537
Att. Total	-.257	.510	.613	-.047	-.404	.413	-.110	.565	-2.02*	43	.050	.486
AB-Att. Total	2.36	.621	.584	-.043	2.23	.585	2.48	.647	-1.35	43	.185	.613
AW-Att. Total	2.87	.678	-.230	-.459	3.04	.726	2.70	.596	1.69	43	.099	.672
Aff. Total	.022	.508	.382	.403	-.256	.418	.300	.438	-4.34**	43	<.001	.427
AB-Aff. Total	2.70	.905	.213	-.274	2.18	.716	3.21	.785	-4.58**	43	<.001	.746
AW-Aff. Total	2.63	.675	-.353	.060	2.79	.760	2.47	.548	1.59	43	0.119	.675

AARB: Affective and Attitudinal Racial Bias, AB: Anti-Black bias, AW: anti-White bias, Att: Attitudinal bias, Aff: Affective bias; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.
**. Mean Difference is significant at the 0.05 level (2-tailed).*
***. Mean Difference is significant at the 0.01 level (2-tailed).*

4.2.4. Summary of Between-Group Differences based on Self-Identified Race

To assess whether there were group differences in AARB scores based on self-identified race, a series of independent-sample t-tests were conducted (See Table 7). The results showed that there was a small, but significant, between-group differences in overall AARB scores, $t(43)$ = -3.61, p = .001, d = .391, with Black-identified participants reporting a small pro-Black bias (M = -.330, SD = .351), and White identified participants reporting a slight pro-White bias (M = .095, SD = 440). Looking at the attitudinal bias subscale, a similar trend could be observed, with results showing a moderate, and significant, group differences in overall attitudinal bias

scores, $t(43) = -2.02$, $p = .050$, $d = 486$, with Black-identified participants reporting a small pro-Black attitudinal bias ($M = -.404$, $SD = .413$), and White identified participants reported a slight pro-White attitudinal bias ($M = -.110$, $SD = .565$). As for the affective bias subscale, results showed a moderate, and significant, group differences in overall affective bias scores, $t(43) = -4.34$, $p = <.001$, $d = .427$, with Black-identified participants reporting a small pro-Black bias in affective responses ($M = -.256$, $SD = .418$), and White identified participants reported a small pro-White bias ($M = .300$, $SD = .438$).

Furthermore, looking specifically at biases directed towards each group, significant group differences were found in response to both the anti-Black, $t(43) = -3.86$, $p = <.001$, $d = .551$, and anti-White sets of questions, $t(43) = 2.06$, $p = .046$, $d = .537$, with participants reporting a lower level of explicit bias in response to items regarding their own racial group (Black-Identified Anti-Black Bias: $M = 2.21$, $SD = .517$; White-Identified Anti-White Bias: $M = 2.59$, $SD = .436$), than items regarding the 'other' racial group (Black-Identified Anti-White Bias: $M = 2.92$, $SD = .605$; White-Identified Anti-Black Bias: $M = 2.85$, $SD = .591$). However, when looking at differences response to sets of anti-Black and anti-White questions within the attitudinal and affective bias subscales, it was found that only the set of anti-Black affective bias questions demonstrated a significant between group differences with a large effect size, $t(43) = -4.58$, $p = <.001$, $d = .746$, with no significant group differences found in response to the set of anti-White affective bias questions, $t(43) = 1.59$, $p = .119$, $d = .675$, and the sets of anti-Black, $t(43) = -1.35$, $p = .185$, $d = .613$, and anti-White attitudinal bias questions, $t(43) = 1.69$, $p = .099$, $d = .672$.

4.2.5. Summary of Subscale Correlations

To assess the degree to which the subscales of the AARB were related, a series of inter-subscale correlations were conducted for the weighted sample (See Table 8), and for both sample groups (See Table 9). The results demonstrated that there was a significant moderate correlation between self-reported levels of attitudinal racial bias and affective racial bias, $r(50) = .546$, $p = <.001$, that there was a small but significant correlation between anti-Black attitudinal bias and anti-Black affective bias, $r(50) = .364$, $p = .009$, and that a similarly small, but significant, correlation was found between anti-White attitudinal and anti-White affective bias, $r(50) = .307$, $p = .030$. Notably however, there was no significant correlation between anti-Black and anti-White attitudinal bias, $r(50) = -.230$, $p = .108$, nor was there any significance in the correlation between anti-Black and anti-White affective bias in the overall sample, $r(50) = .098$, $p = .500$. Along with the good internal consistency scores, these results

suggest a strong internal reliability for the AARB, as evidenced by the significant, but moderate, correlation between overall attitudinal and affective racial bias which aligns with theoretical expectations.

Furthermore, this moderate, but highly significant, correlation implies that these two factors are significantly related to one another, but qualitatively distinct. Furthermore, the AARB reliably demonstrated that anti-Black and anti-White biases (altitudinal or affective in nature) are not significantly correlated with one another, particularly within the sample of Black-identified participants. This suggests that the negative and/or positive biases that one may have in relations to Black racial identities are independent to the biases that one may have with regards to White racial identity. When the above series of correlations were conducted within the two sample groups a similar moderate, and significant, correlation was found between attitudinal and affective racial bias (Black-Identified: $r(25) = .425$, $p = .034$; White-Identified: $r(20) = .531$, $p = .016$), with no significant correlation found between overall anti-Black and anti-White racial bias between the two groups (Black-Identified: $r(25) = .259$, $p = .210$, White-Identified: $r(20) = -.394$, $p = .086$).

Table 8

Correlation Matrix of AARB Scores using a Weighted Sample

		AARB Total	***AB Total***	***AW Total***	***Att. Total***	***AB-Att. Total***	***AW-Att. Total***	***Aff. Total***	***AB-Aff. Total***	***AW-Aff. Total***
AARB Total	*r*	1								
	p									
	N	50								
AB Total	*r*	.783**	1							
	p	<.001								
	N	50	50							
AW Total	*r*	-.732**	-.182	1						
	p	<.001	.206							
	N	50	50	50						
Att. Total	*r*	.880**	.665**	-.662**	1					
	p	<.001	<.001	<.001						
	N	50	50	50	50					
AB-Att. Total	*r*	.653**	.748**	-.204	.762**	1				
	p	<.001	<.001	.156	<.001					
	N	50	50	50	50	50				
AW-Att. Total	*r*	-.725**	-.314*	.809**	-.805**	-.230	1			
	p	<.001	.026	<.001	<.001	.108				
	N	50	50	50	50	50	50			
Aff. Total	*r*	.879**	.713**	-.625**	.546**	.385**	-.468**	1		
	p	<.001	<.001	<.001	<.001	.006	.001			
	N	50	50	50	50	50	50	50		
AB-Aff. Total	*r*	.652**	.890**	-.115	.410**	.364**	-.283*	.736**	1	
	p	<.001	<.001	.424	.003	.009	.046	<.001		
	N	50	50	50	50	50	50	50	50	
AW-Aff. Total	*r*	-.459**	.021	.807**	-.264	-.099	.307*	-.543**	.098	1
	p	.001	.884	<.001	.064	.494	.030	<.001	.500	
	N	50	50	50	50	50	50	50	50	50

AARB: Affective and Attitudinal Racial Bias, AB: Anti-Black bias, AW: anti-White bias, Att: Attitudinal bias, Aff: Affective bias; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.

**. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Table 9

Correlation Matrices of AARB Scores by Self-Identified Race

Group			AARB Total	AB Total	AW Total	Att. Total	AB-Att. Total	AW-Att. Total	Aff. Total	AB-Aff. Total	AW-Aff. Total
Self-Identified Black	AARB Total	r	1								
		p									
		N	25								
	AB Total	r	.494*	1							
		p	.012								
		N	25	25							
	AW Total	r	-.690**	0.259	1						
		p	<.001	.210							
		N	25	25	25						
	Att. Total	r	.842**	.416*	-.571**	1					
		p	<.001	.039	.003						
		N	25	25	25	25					
	AB-Att. Total	r	.373	.743**	.192	.515**	1				
		p	.067	<.001	.359	.008					
		N	25	25	25	25	25				
	AW-Att. Total	r	-.658**	.126	.804**	-.723**	.221	1			
		p	<.001	.549	<.001	<.001	.289				
		N	25	25	25	25	25	25			
	Aff. Total	r	.846**	.418*	-.594**	.425*	.117	-.389	1		
		p	<.001	.038	.002	.034	.578	0.054			
		N	25	25	25	25	25	25	25		
	AB-Aff. Total	r	.409*	.837**	.218	.180	.256	.001	.508**	1	
		p	.042	<.001	.295	.389	.217	.995	.009		
		N	25	25	25	25	25	25	25	25	
	AW-Aff. Total	r	-.469*	.293	.823**	-.218	.094	.324	-.572**	.346	1
		p	.018	.156	<.001	.296	.654	.114	.003	.091	
		N	25	25	25	25	25	25	25	25	25
Self-Identified White	AARB Total	r	1								
		p									
		N	20								
	AB Total	r	.871**	1							
		p	<.001								
		N	20	20							
	AW Total	r	-.771**	-.394	1						
		p	<.001	.086							
		N	20	20	20						
	Att. Total	r	.906**	.768**	-.756**	1					
		p	<.001	<.001	<.001						
		N	20	20	20	20					
	AB-Att. Total	r	.850**	.783**	-.597**	.916**	1				
		p	<.001	<.001	.005	<.001					
		N	20	20	20	20	20				
	AW-Att. Total	r	-.794**	-.605**	.784**	-.900**	-.649**	1			
		p	<.001	<.005	<.001	<.001	.002				
		N	20	20	20	20	20	20			
	Aff. Total	r	.839**	.758**	-.574**	.531*	.526*	-.434	1		
		p	<.001	<.001	.008	.016	.017	.056			
		N	20	20	20	20	20	20	20		
	AB-Aff. Total	r	.610**	.859**	-.101	.401	.355	-.375	.707**	1	
		p	.004	<.001	.672	.079	.125	.103	<.001		
		N	20	20	20	20	20	20	20	20	
	AW-Aff. Total	r	-.362	.032	.737**	-.222	-.242	.158	-.440	.248	1
		p	.117	.893	<.001	.346	.303	.506	.052	.292	
		N	20	20	20	20	20	20	20	20	20

AARB: Affective and Attitudinal Racial Bias, AB: Anti-Black bias, AW: anti-White bias, Att: Attitudinal bias, Aff: Affective bias.

**. Correlation is significant at the 0.05 level (2-tailed).*

***. Correlation is significant at the 0.01 level (2-tailed).*

4.2.6. Relationship Between AARB Scores and Socio-Demographic Factors

As shown in Table 10 and

Table ***11***, there was no significant correlation between overall AARB scores and age, $r(48) = .078$, $p = .599$, and no significant group differences in levels of overall, attitudinal, and affective, racial bias found with regards to self-identified gender, *AARB Total:* $t(40) = 1.51$, $p = .139$, $d = .481$; *Att. Total:* $t(14.64) = 1.73$, $p = .196$, $d = .489$; *Aff. Total:* $t(15.86) = 1.90$, $p = .137$, $d = .414$. However, a significant positive correlation was found between SES and overall explicit racial bias, $r(50) = .326$, $p = .021$, and affective racial bias, $r(50) = .352$, $p = .012$, but no significant correlations were found when looking within the two sample groups, *Black-Identified AARB Total*: $r(25) = -.069$, $p = .745$; *White-Identified AARB Total*: $r(20) = -.397$, $p = .083$.

Table 10

Descriptive Statistics of AARB Scores with Between-Group Comparisons

	Weighted Sample				***Male-Identified***		***Female-Identified***		***Independent Sample t-test***			
	Mean	SD	Skew.	Kurt.	Mean	SD	Mean	SD	*t*	*df*	*p*	Cohen's *d*
AARB Total	-.118	.447	.521	-.132	.050	.562	-.212	.331	1.51	40	.139	.481
Att. Total	-.257	.510	.613	-.047	-.092	.585	-.335	.429	1.73	14.64	.196	.489
Aff. Total	.022	.508	.382	.403	.192	.714	-.090	.349	1.90	15.86	.137	.414

AARB: Affective and Attitudinal Racial Bias, Att: Attitudinal bias, Aff: Affective bias; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.

Table 11

Correlations Between AARB Scores, Age and LSM by Self-Identified Race

Group			***Age***	***LSM***	***AARB Total***	***Att. Total***	***Aff. Total***
Weighted Sample	*Age*	*r*	1	.271	.078	.009	.128
		p	-	.062	.599	.953	.385
		N	48	48	48	48	48
	LSM	*r*	.271	1	.326*	.222	.352*
		p	.062	-	.021	.121	.012
		N	48	50	50	50	50
Black-Identified	*Age*	***r***	1	.276	-.134	-.164	-.063
		p		.192	.531	.443	.768
		N	24	24	24	24	24
	LSM	***r***	.276	1	-.069	-.152	.035
		p	.192	-	.745	.469	.869
		N	24	25	25	25	25
White-Identified	*Age*	*r*	1	-.095	.014	-.003	.033
		p	-	.707	.955	.989	.896
		N	18	18	18	18	18
	LSM	*r*	-.095	1	.397	.414	.263
		p	.707	-	.083	.070	.263
		N	18	20	20	20	20

LSM: Living Standards Measure 2011 (SAARF, 2011), AARB: Affective and Attitudinal Racial Bias, AB: Anti-Black bias, AW: anti-White bias, Att: Attitudinal bias, Aff: Affective bias; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

4.3. Results of the Adapted Racial IAT

As noted in Table 12 the mean racial IAT score was -.022s (M = .022, *SD* = .443) for the weighted sample, indicating that on average participants were 22ms faster at sorting stimuli during the 'congruent' trial than the 'incongruent' trial. Given that the stimulus pairing of the congruent trial was White-faces with positive words and Black-faces with negative words, the sample, on average, the mean score suggests that there was a small pro-White implicit racial bias in the overall sample group, but that this result is considered within the range of neutral. Furthermore, there was no significant between-group difference found in racial IAT scores based on self-identified race, t (41) = 1.18, p = .246, d = 456, with near-neutral mean scores for both sample groups. However, both groups showed a small own-race preference, with the mean score for Black-identified participants indicating a small pro-Black bias, responding 61ms faster for the 'incongruent' trial than the 'congruent' trial, *M* = .061, *SD* = .485, and the mean score for White-identified participants indicating a small pro-White bias, responding 105ms faster in the 'congruent' than the 'incongruent' trial, *M* = -.105, *SD* = .391.

Table 12
Descriptive Statistics and Group Comparison of Racial *IAT Scores by Self-Identified Race*

	Weighted Sample				***Black-Identified***		***White-Identified***		***Independent Sample t-test***			
	Mean	SD	Skew.	Kurt.	Mean	SD	Mean	SD	*t*	*df*	*p*	Cohen's *d*
Racial IAT	-.022	.443	.011	-.672	-.061	.485	-.105	.391	1.24	43	.220	.446

Racial IAT (Greenwald, 1998); Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.
***. Mean Difference is significant at the 0.01 level (2-tailed).*
**. Mean Difference is significant at the 0.05 level (2-tailed).*

4.3.1. Analysis of Block-Order Effect

During data collection steps were taken to ensure a balanced distribution of block order across the overall sample in terms of both self-identified race and self-identified gender. This was to counterbalance any effects that race, and gender, may have had on the degree to which block order impacted IAT scores (See Table 13). To the assess the presences of group difference in IAT scores based on block order, a series of independent sample t-tests were conducted (See Table 14). The results suggest that block order had a significant and moderate effect on racial IAT scores across the overall sample, t(48) = 3.07, p = .004, d = .409, with participants who completed the results congruent trial before the incongruent trial more likely to report a slight pro-White bias (*M* = 1.52, *SD* = .437), whereas participants who completed the incongruent trial first were more likely to report a pro-Black bias (*M* = -.203, *SD* = .379),

with block order predicted 40.95% of the variance in IAT scores across the overall sample. Looking specifically at the two sample groups, this difference was only significant within the sample of Black-identified participants, $t(23) = 2.51$, $p = .020$, $d = .439$, with block order demonstrating no significant impact on IAT scores in the sample of White-identified participants, $t(18) = 1.57$, $p = .135$, $d = .377$.

Table 13
Cross-Tabulation of Block Order by *Self-Identified Race and Self-Identified Gender*

	Overall Sample			***Black-Identified***			***White-Identified***		
	'Congruent'	*'Incongruent'*		*'Congruent'*	*'Incongruent'*		*'Congruent'*	*'Incongruent'*	
Gender	*First*	*First*	*Total*	*First*	*First*	*Total*	*First*	*First*	*Total*
Male	6	7	13	2	3	5	4	4	8
Female	14	15	29	9	9	18	5	6	11
NB/Unspecified	3	0	3	2	0	2	1	0	1
Total	23	22	45	13	12	25	10	10	20

Racial IAT (Greenwald, 1998), 'Congruent' First: Block order in which participants are asked to sort White-faces with positive words together, and, Black-faces with negative words first, 'Incongruent' First: Block order in which participants are asked to sort Black-faces with positive words together and, White-faces with negative words first

Table 14
Descriptive Statistics and Group Comparisons of IAT Scores by Self-Identified Race and Block Order

	Racial IAT				***'Congruent' First***		***'Incongruent' First***		***Independent Sample t-test***			
Group	Mean	SD	Skew.	Kurt.	Mean	SD	Mean	SD	*t*	*df*	*p*	Cohen's *d*
Weighted Sample	-.022	.443	.011	-.672	1.52	.437	-.203	.379	3.07	48	.004	.409
Black-Identified	-.061	.485	.015	-1.32	.273	.435	-.168	.444	2.51	23	.020	.439
White-Identified	-.105	.391	-.389	.128	.027	.422	-.237	.325	1.57	18	.135	.377

Racial IAT (Greenwald, 1998), 'Congruent' First: Block order in which participants are asked to sort White-faces with positive words together, and, Black-faces with negative words first, 'Incongruent' First: Block order in which participants are asked to sort Black-faces with positive words together and, White-faces with negative words first
a. Three outliers were identified for age [values: 34;39;66] and excluded in the analysis
b. Excluded participants who identified as gender non-conforming or did not specify their gender identity
c. Equality of variance not-assumed

4.4. Relationship Between Explicit and Implicit Racial Bias

4.4.1. Simple Correlation Analysis

As shown in Table 15, there was no significant correlation between IAT scores and explicit racial bias scores in the overall sample, $r(48) = -.167$, $p = .248$) and within the two sample groups (Black-identified: $r(23) = -.076$, $p = .719$; White-identified: $r(18) = -.104$, $p = .663$). However, in line with theoretical expectations, there was a non-significant, and small, negative correlation between IAT scores and attitudinal ($r(48) = -.092$, $p = .525$) and affective racial bias ($r(48) = -.201$, $p = .161$) in the overall sample. Furthermore, while neither AARB subscales were significantly correlated with IAT scores, the affective bias subscale ($r(48) = -$

.201, p = .161) had a stronger correlation with IAT scores than the attitudinal subscale (r(48) = -.092, p = .525) across the overall sample and within the White-identified sample group (attitudinal bias: r(18) = .004, p = .988; affective bias: r(18) = -.213, p = .367), but not the Black-identified sample group (attitudinal bias: r(23) = -.089, p = .719; affective bias: r(23) = -.040, p = .851).

Table 15
Correlation Matrices of Implicit and Explicit Racial Bias by Self-Identified Race

Group			***Racial IAT***	***AARB***	***Att. Bias***	***Aff. Bias***
Weighted Sample	*Racial IAT*	*r*	1			
		p				
		n	50			
	AARB	*r*	-.167	1		
		p	.248			
		n	50	50		
	Att. Bias	*r*	-.092	.880**	1	
		p	.525	<.001		
		n	50	50	50	
	Aff. Bias	*r*	-.201	.879**	.546**	1
		p	.161	<.001	<.001	
		n	50	50	50	50
Black-Identified	*Racial IAT*	*r*	1			
		p				
		n	25			
	AARB	*r*	-.076	1		
		p	.719			
		n	25	25		
	Att. Bias	*r*	-.089	.842**	1	
		p	.674	<.001		
		n	25	25	25	
	Aff. Bias	*r*	-.040	.846**	.425*	1
		p	.851	<.001	.034	
		n	25	25	25	25
White-Identified	*Racial IAT*	*r*	1			
		p				
		n	20			
	AARB	*r*	-.104	1		
		p	.663			
		n	20	20		
	Att. Bias	*r*	.004	.906**	1	
		p	.988	<.001		
		n	20	20	20	
	Aff. Bias	*r*	-.213	.839**	.531**	1
		p	.367	<.001	.016	
		n	20	20	20	20

Racial IAT (Greenwald, 1998), *AARB: Affective and Attitudinal Racial Bias, Att: Attitudinal bias, Aff: Affective bias; Weighted Sample refers to the overall sample when weighted by self-identified race to control for uneven sample groups.*
*. *Correlation is significant at the 0.05 level (2-tailed).*
**. Correlation is significant at the 0.01 level (2-tailed).

4.4.2. One-Way MANOVA

To assess the degree to which there were group differences in explicit-affective, explicit-attitudinal and implicit bias based on self-identified race, the data was checked to ensure that

the assumptions to run a one-way MANOVA were met. The steps taken to ensure that assumptions were met are discussed below, followed by a discussion of the results. A summary of the results of the MANOVA can be found in Table 16 and

Table **17**, with the summary of the post hoc tests contained within Appendix M due to their similarity with the results of the between-group and correlational analysis detailed above.

4.4.2.1. Testing Assumptions

As noted above, the dataset was approximately normally distributed (See Table 7 and Table 12), with only one significant univariate outlier identified (See Appendix L). However, given that this outlier did not meaningfully impact the results of the model, the outlier was included within the final model. Furthermore, using Mahalanobis distance, there were no multivariate outliers identified. As noted previously, both affective racial bias and attitudinal racial bias were linearly related at both levels of the independent variable (See Table 9). However, there was no linear relationship between explicit biases and implicit bias (See Table 9), violating the assumption of linearity. However, given that the primary aim of the study was to investigate the degree to which racial IAT scores and self-report measures of racial bias predicted self-identified race, it was found that the inclusion of racial IAT scores did not meaningful change the predictive power of the model. As such, in order to fully answer the main research question, implicit racial bias was included within the MANOVA model, with the results discussed below. However, for the summary of the results of a MANOVA in which implicit bias was excluded from the model, see Appendix N.

4.4.2.2. Summary of Multivariate Analysis

A One-Way MANOVA was conducted to examine the degree to which the self-identified race of the participants (IV), was associated with a significant multivariate effect on implicit racial bias and self-reported levels of affective and attitudinal racial bias (DVs). The results of the One-Way MANOVA can be found in Table 16, and indicate that there was a significant multivariate effect between the self-identified race of the participants and the three independent variables (White-identified versus Black identified: p = .001; Hotelling's Trace: partial eta squared = .312). Analysis of between-subject effects (See

Table **17**) found that, of the three factors included, significant multivariate effects were found for both attitudinal (F = 4.07, p = .002, η^2 = .205) and affective bias factors (F = 18.85, p = <.001, η^2 = .305), but not the implicit bias factor (F = 1.55, p = .220, η^2 = .035). These findings suggests that there were significant differences in both explicit-affective and

explicit-attitudinal bias factors based on self-identified race, that self-identified race was a stronger predictor of the explicit-affective factor than the explicit-attitudinal factor, and that the implicit factor did not meaningfully contribute to the model. Taken together, these result confirm the theoretical assumption that the explicit-affective factors is a more sensitive predictor of group differences than the traditional explicit-attitudinal factor.

Table 16
Results of MANOVA[a]

Effect		*Value*	*F*	*Hypothesis df*	*Error df*	*p*	*Partial Eta Squared*
Intercept	Pillai's Trace	.609	21.32[b]	3	41	<.001	.609
	Wilks' Lambda	.391	21.32[b]	3	41	<.001	.609
	Hotelling's Trace	1.56	21.32[b]	3	41	<.001	.609
	Roy's Largest Root	1.56	21.32[b]	3	41	<.001	.609
Self-Identified Race	Pillai's Trace	.312	6.19[b]	3	41	.001	.312
	Wilks' Lambda	.688	6.19[b]	3	41	.001	.312
	Hotelling's Trace	.453	6.19[b]	3	41	.001	.312
	Roy's Largest Root	.453	6.19[b]	3	41	.001	.312

a. Design: Intercept + Self-Identified Race
b. Exact statistic

Table 17
MANOVA *Tests of Between-Subject Effects*

Source		*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*p*	*Partial Eta Squared*
Corrected Model	Att. Bias	.960[a]	1	.960	4.07	.050	.086
	Aff. Bias	3.44[b]	1	3.44	18.85	<.001	.305
	Racial IAT	.308[c]	1	.308	1.55	.220	.035
Intercept	Att. Bias	2.62	1	2.62	11.12	.002	.205
	Aff. Bias	12.10	1	12.10	66.37	<.001	.607
	Racial IAT	.022	1	.022	.109	.743	.003
Self-Identified Race	Att. Bias	.960	1	.960	4.07	.050	.086
	Aff. Bias	3.44	1	3.44	18.85	<.001	.305
	Racial IAT	.308	1	.308	1.55	.220	.035
Error	Att. Bias	10.15	43	.236			
	Aff. Bias	7.84	43	.182			
	Racial IAT	8.56	43	.199			
Total	Att. Bias	13.42	45				
	Aff. Bias	22.13	45				
	Racial IAT	8.87	45				
Corrected Total	Att. Bias	11.11	44				
	Aff. Bias	11.28	44				
	Racial IAT	8.86	44				

Racial IAT (Greenwald, 1998), AARB: Affective and Attitudinal Racial Bias, Att: Attitudinal bias, Aff: Affective bias.
a. R Squared = .086 (Adjusted R Squared = .065)
b. R Squared = .305 (Adjusted R Squared = .289)
c. R Squared = .035 (Adjusted R Squared = .012)

4.4.2.3. Summary of the Post-Hoc Analysis

For a summary of the post-hoc analysis, see Appendix L. In line with the results of the univariate testing contained within Sections 4.2 and 4.3, post hoc testing found significant group differences in attitudinal ($F = 4.07$, $p = .002$, $\eta^2 = .205$) and affective racial bias scores

(F = 18.85, p = <.001, η^2 = .305), but not racial IAT scores (F = 1.55, p = .220, η^2 = .035). Furthermore, as discussed in the findings of Section 4.4, post-hoc analysis found a notable own-race preference in both explicit racial bias measures, with Black-identified participants reporting lower racial bias scores towards Black people than White people (Attitudinal bias: M = .096, SD = .413; Affective bias: M = .244, SD = .331) when compared to the White-identified sample group (Attitudinal bias: M = .350, SD = .523; Affective bias: M = .694, SD = .309).

Chapter 5: Discussion Section

5.1. Introduction

The results of this study provide insights into the relationship between our conscious awareness and experience of our own racial biases, as well as how our awareness of these biased affective experiences may relate to differences in the processing of racially coded sensory stimuli based on the race associated with that stimulus. The following section locates these findings within the broader context of existing literature surrounding the measurement of explicit and implicit forms of racial bias and provides a first look at a novel approach to conducting racial bias research using a multiracial sample group within a racially diverse non-Western context. Using a sample of South African Black- and White-identified university students, this study assesses the degree to which there are between-group differences in explicit and implicit racial biases towards Black and White individuals, and whether self-reported experiences of affective racial bias correlate more highly with implicit racial bias scores than traditional attitudinal measures of racial bias. Furthermore, this study serves as a preliminary investigation into the use of the racial IAT task on adult samples within the South African context and serves as a pilot for a novel self-report racial bias scale, the AARB, designed to distinguish between abstract beliefs and attitudes about, and affective experiences of bias towards, members of specific racial groups.

Overall, the results of this study are promising. The results of the AARB scale highlight significant group differences in explicit racial bias based one's self-identified race and demonstrated that attitudinal and affective forms of explicit racial bias are independently observable and qualitatively distinct psychological constructs that can be reliably measured in a multiracial sample. Furthermore, this study demonstrates that self-reported experiences of affective racial bias directed towards White and Black racial identities do not correlate with one another in a sample of Black-identified students, suggesting that the convention of directly comparing affective evaluations of two racial groups to arrive at an overall bias score may not be appropriate for use outside of a White-identified population. Additionally, in line with existing research, this study demonstrated that there is little-to-no correlation between Racial IAT scores and explicit measures of attitudinal racial bias, but that explicit-affective measures of racial bias showed a small correlation with IAT scores, that trended towards statistical significance. Demonstrating that explicit-affective racial bias measures were more sensitive in detecting group differences in racial bias based on self-identified race, than existing measures of explicit and implicit bias, and showing for the first time that individuals

possess the capacity to reflect directly on their affective experiences of their own racial biases and that these experiences may related to their implicit associations with race as measured by the racial IAT.

The following section presents a more comprehensive discussion of these above findings within the context of existing literature, followed by a discussion of the broader theoretical implications of these results and concluding with a discussion of the limitations of this study and potential directions for future research.

5.2. Findings in Relation to Existing Literature

5.2.1. Psychometric Properties of the AARB

The AARB performed reliably across the overall sample, with the attitudinal and affective racial bias subscales demonstrating good internal consistencies. However, the reliability of the AARB varied between the two groups, with both the affective and attitudinal bias subscales demonstrating good-to-excellent levels of internal consistency within the White-identified sample group, but only moderate-to-poor levels of internal consistency within the Black-identified group. On the surface, this may suggest that the AARB is a less reliable measure for Black-identified participants. However, given that the anti-Black and anti-White bias subtotals performed reliably within this sample group, this may suggest that the use of difference scores (between anti-Black and anti-White in this case) for bias measures is inherently problematic, as it arbitrarily conflates two potentially distinct psychological constructs. Considering that most explicit and implicit measures of racial bias rely on direct comparison items (Racial IAT: Greenwald, 1998; Modern Racism Scale: McConahay, 1986; Subtle and Blatant Prejudice Scale: Pettigrew & Meertens, 1995), in which total bias scores are calculated by finding the difference between biases directed towards one group relative to the other (or by use of direct comparisons), this suggests a need for future research to further interrogate this assumption.

With regards to the internal validity of the measure, the AARB demonstrated an expected moderate between attitudinal and affective bias, which was present within the overall sample and across both sample groups. Given that this correlation was highly significant but only moderate, this may suggest that attitudinal and affective forms of racial bias are qualitatively distinct, but related, psychological factors of explicit racial bias. Notably, there was no relationship between AARB scores and age, but there was a significant correlation between affective racial bias scores and SES, with participants from higher SES backgrounds

demonstrating higher levels of anti-Black affective, but not attitudinal, racial bias which is consistent with prior findings (Oswald et al., 2015). Taken together, these findings suggests that the AARB may be an appropriate measure of explicit racial bias, that is able to discriminate between abstract beliefs and attitudes relating to a target racial group, and automatic affective responses to members of that target group.

However, in line with reliability statistics, there was no significant correlations found between responses to anti-Black items and anti-White items within both subscales and across the overall measure. This trend was present across the overall sample and within both sample groups. However, there was a correlation between race-specific affective and attitudinal biases across both the anti-Black and anti-White items, with anti-Black affective items showing a small, but significant, correlation with anti-Black attitudinal questions, and anti-White affective items showing a small, but significant, correlation with anti-White attitudinal questions. Taken together, this suggests that while affective and attitudinal forms of explicit racial bias are related, this is only true for biases that refer to the same racial group, with biases that are directed toward members of a Black ethnicity being unrelated to those directed towards members of a White ethnicity.

Along with the findings of the reliability statistics, this result suggests that racial biases relating to a specific racial group may function independently from one another, with an individual's evaluation of a racially coded experience not functioning as a direct comparison between two (or more) racial groups, but rather as an evaluation of that specific racial group within that given context. As noted above, there is not currently much research into this potential distinction, given that racial biases are often considered to be comparative in nature (i.e., Bias towards Black people is only a bias in relation to how one perceives another racial group), rather than operating in a more discrete manner (i.e., Biases towards one racial group are the result of learnt associations specific to that racial group, which may in some cases be related to biases associated with another racial group, but that our automatic affective and attitudinal biases towards members of a member of a particular racial group function in isolation). The results of this study provides preliminary evidence to suggest the later, that racial biases function in discrete parts. However, how this may translate to implicit measures of bias is uncertain.

5.2.2. Summary of AARB Scores

Considering that explicit racial biases may function independently, both sample groups on average reported neutral or slightly positive responses to questions directed to either racial group across both subscales. However, comparing anti-Black and anti-White bias scores, participants on averages reporting a slight pro-Black preference in response to the attitudinal bias subscale, and a pro-White preference in response to affective racial bias questions. Furthermore, correlational analysis found that both Black- and White-identified participants demonstrated an in-group, or own-race, preference in their self-reported explicit racial biases, with both Black- and White-identified participants responding preferentially to questions related to their own self-identified race across both the affective and attitudinal bias subscales. Overall, both groups on average reported neutral or slightly positive responses to questions directed to either racial group. As such, it is important to note that these group differences do not represent differences in levels of malicious bias, or prejudice, but rather suggest that, within the South African context, members of a particular racial group are more likely to report a small preference towards members of their own racial group, while independently regarding members of the racial out-group more neutrally.

With regards to attitudinal bias, these findings are in line with prior studies that suggest that White-identifying people tend to hold egalitarian views with regards to race (Amodio & Swencionis, 2018; Hahn et al., 2014; Olson & Fazio, 2008). However, there does not appear to be any studies for which the results of the Black-identified sample group could be compared to, as studies that make use of explicit measures within Black-identifying sample groups tend to rely on feeling thermometers (Hahn et al., 2014; Walker & Hewstone, 2008), or measure factors such as motivation to control prejudice (Amodio & Swencionis, 2018; Dunton & Fazio, 1997; Olson & Fazio, 2008; Ziegert & Hanges, 2005). With regards to the results of the affective bias subscale, these findings are interesting, in that they reproduce the own-race preference that is typically observed within studies making use of feeling thermometers (as noted above), and reproduce the same trend observed within racial IAT studies, in which responses tend to be biased in favour of one's racial in-group, with White-demonstrating a stronger own-race preference than other racial groups (Oswald et al., 2013; Walker & Hewstone, 2008).

5.2.3. Summary of Adapted Racial IAT Scores

With regards to racial IAT scores, this study provides preliminary evidence to suggest that Black-identified students on average demonstrate near-neutral racial bias scores while White-

identified students demonstrate a slight pro-White bias on average within the South African context. Although this result did not reach statistical significance, these results are in-line with the findings of a recent study conducted in the University of Western Cape, in which a similar pattern of scores were found between Black- and White-identifying participants (Corno et al., 2022). Taken together, this suggests that there may be meaningful group differences in implicit racial bias between White- and Black-identified South African students, but that a larger study may be necessary for these differences to reach statistical significance.

With regards to White-identifying participants, these results are in-line with prior racial IAT studies conducted in the Global North (Nosek et al., 2002; Oswald et al., 2013), which have reliably demonstrated that White-identified people on average show a moderate own-race preference on implicit measures. Furthermore, these findings are in-line with international and local norms, that have predominantly found that Black-identified participants tend to demonstrate Black-White IAT scores that fall within neutral ranges (Carlsson & Agerström, 2016; Corno et al., 2022).

However, while this trend is well documented within the literature we presently know very little about the social and contextual factors that contribute towards the emergence of these racial differences in implicit biases. While prior research has demonstrated that levels of positive intergroup contact and lower levels of intergroup anxiety are associated with lower own-race preferences in IAT scores, in the Global North, these findings are largely drawn from populations of South Asian people living in the UK (Walker & Hewstone, 2008). While the recent study by Corno et al.(2022), demonstrates that White-identified university students living with an other-race roommate demonstrate lower IAT scores that those living with a same-race roommate, this effect was not present in the sample of Black-identified students living in residence.

Within a binary understanding of implicit bias, in which the biases directed towards one group are proportional, or comparable to the biases directed towards another, this trend of neutral-to-low levels of implicit bias in Black-identifying population groups would suggest that Black-identified people do not experience the same levels of implicit bias as other racial groups. While this may well be true, considering this trend within the context of the AARB results discussed above, it may be more accurate to begin to conceptualize of racial biases directed towards specific racial groups as discrete constructs that functioning independently

from one another. Doing so, avoids assuming that the biases directed towards one racial group are automatically related, or proportional to, the biases directed towards another.

This decoupling of race-specific biases complicates our present understanding of implicit racial bias, as measured by the IAT, but doing so provides a theoretical basis from which to better understand this trend of lower racial bias scores in Black- and other People-of-Colour-identifying population groups. However, as will be discussed later, doing so would require a reconsideration of how the IAT is scored to enable researchers to measure the positive and negative associations an individual has towards a racial group independently from the other, rather than providing an aggregate score between trial 1 and trial 2.

5.2.4. The Impact of Block Order on IAT Scores

Consistent with prior research, this study found that block order had a moderate and significant relationship with racial IAT scores, with individual implicit racial bias scores skewed in favour of the racial group that participants were first asked to sort with positive words (Calanchini & Sherman, 2013; Heider & Skowronski, 2007; Ito et al., 2015; Oswald et al., 2015). While this block order effect is a well-documented limitation of the racial IAT task, within this study it was found that the block order effect was a significant determinant of IAT scores within the Black-identified, but not White-identified sample group. This may suggest that procedural factors, such as social priming or block order, may impact IAT scores differently across racial groups as the relationship between self-reported own- and other-race biases were found to be less congruent in the black-identified sample group. However, the degree to which less consistent[10] responses to report measures of racial bias moderate the relationship between IAT scores and block order, remains untested within this study.

However, this relationship between block-order effect, and IAT scores by race does not appear to have gotten much focus within diverse Racial IAT studies (Nosek et al., 2002; Walker & Hewstone, 2008). Furthermore, while more recent studies making use of the QUAD model investigate the influence of *Overcoming Bias* on IAT scores, these studies typically exclude non-White participants (Amodio & Swencionis, 2018; Ito et al., 2015) or do not include self-identified race as a factor within the analysis (Hahn et al., 2014). As such, we do not presently have an understanding of how social and contextual factors, such as self-

[10] In this case, ‘less-consistent’ refers to participants who reported high (or low) bias scores towards both racial groups, rather than reported a ‘consistent’ bias across both, meaning high levels of bias directed towards one racial group, and low levels of bias directed towards the other.

identified race, relate to the four main constructs measures by the QUAD model. This is problematic, given how this difference in the influence of block order by self-identified race may be highly relevant to our understanding of how the racial IAT, as a psychometric measure, functions within racially diverse contexts.

From a critical social perspective, our associations with race are likely to be informed by both our exposure to existing narratives surround race, as well as our personal lived experiences of interacting with race as a social construct. In this way, one's learnt implicit associations with regards to race may be socially reinformed by both the social narratives we are exposed to and our own experiences as they relate to our position within society as a racialized subject. However, the degree to which our exposure to stereotypical representations of race cohere with our lived experiences may differ based on our social identity. Given that narratives surrounding race tend to represent Black identities as lesser, a Black-identifying subject is more likely to have lived experiences that contradict these narratives as they are more likely to have positive experiences with members of their own race that contradict narratives of white supremacy, thus complicating their learnt associations with race. Stating this in more cognitive terms, if one has a more ambiguous association with race, this is likely to impact the degree to which their implicit biases, as measured by the racial IAT, are vulnerable to priming factors such as block order. However, giving the limited focus on this particular topic within the literature, more targeted research needs to be done to understand this interaction in more depth.

5.2.5. Relationship between Implicit and Explicit Racial Bias and Self-Identified Race

In line with existing literature, this study did not find any significant correlations between explicit measures of attitudinal racial bias and racial IAT scores. However, in line with theoretical assumptions, this study has found preliminary evidence that suggests measures of self-reported experiences of affective responses to members of one's own and other racial group demonstrated a larger, but still non-significant, correlation with racial IAT scores than explicit measures of abstract beliefs and attitudes regarding race. This result is in-line with the theoretical assumptions made by Walker & Hewstone (2008), in which they hypothesised that explicit measures of racial bias correlated poorly with implicit measures because they predominantly measured attitudinal components of racial bias, whereas implicit measures tapped the more affective aspects of the overall construct.

Aligning with the above results, multivariate analysis found that both affective and attitudinal bias were predictors of self-identified race, with racial IAT scores not meaningfully contributing to the statistical significance of the multivariate model. This suggests that, within this sample, self-reported measures of affective and attitudinal racial bias are more sensitive in detecting meaningful between-group differences in experiences of racial bias than the racial IAT task, with explicit-affective racial bias being more sensitive to group differences based on self-identified race than attitudinal racial bias. This finding confirms the initial hypothesis set up on the onset of this project, demonstrating that explicit measures of affective racial bias may provide more meaningful insights with regards to individuals experiences of their own internalised biases than attitudinal measures.

However, this small correlation between implicit and explicit-affective bias was only observed within the group of White-identified participants. With no correlation between explicit-affective bias and IAT scores in the Black-identified sample. However, given that explicit-affective racial bias is a novel construct, there is presently no literature regarding this relationship within both sample groups. As such, it is presently unclear whether this non-result reflects an actual lack of relationship between affective-explicit and implicit bias in Black-identified populations, or whether the affective bias subscale is an unreliable measure within this sample group. However, given that the Black-identified sample group reported more reliable anti-Black and anti-White affective biases when they were considered as separate constructs, and that anti-White and anti-Black biases did not share any linear relationship this may suggest that directly comparing self-report racial bias scores directed towards any two groups may be arbitrarily conflating two functionally distinct psychological constructs (namely anti-White and anti-Black affective bias). However, this arbitrary conflation is only apparent, when explicit measures are used in a population group in which anti-Black and anti-White biases are not linearly correlated. Given that most studies using explicit measures make use of predominantly White-identified participants (in which there is a linear correlation present), this distinction is not made to be evident, and as such they are simply assumed to be the same construct.

5.3. Theoretical Implications

In-line with previous findings, this study demonstrates that implicit racial biases show little to no correlation with attitudinal beliefs and attitudes regarding specific racial groups, but that individuals possess, to some degree, a tacit awareness of these implicit cognitive associations with race, and how these associations may bias their behavioural, cognitive, and affective

experiences during social interactions. This finding adds to a growing body of literature demonstrating that individuals are able to not only provide a rough estimate of their implicit racial biases (Hahn et al., 2014; Rivers & Hahn, 2019), but that they may also possess the capacity to report on these intrapersonal experiences of affective racial bias with some degree of accuracy. However, it is important to consider that this finding only trends towards significance. As such, this finding should not be considered as conclusive, but rather form the basis for which to justify a future study to investigate this phenomenon using a larger sample.

Furthermore, this study serves as a pilot for the AARB, a novel approach to designing a self-report racial bias surveys for use in a racially diverse population that distinguished between affective and attitudinal racial biases and independently assess racial biases directed towards two or more racial groups. The AARB demonstrated good reliability and validity statistics and highlighted the important role that self-report measures still play in contextualising the results of implicit measures of racial bias and providing valuable insights into the nature of racial bias that is not possible with the use of implicit measures alone. Of note, the findings of AARB scale provides evidence to in support of a qualitative distinction between affective and attitudinal forms of bias, as hypothesised by Gawronski et al. (2006), and further provides evidence for the distinction between an individual's biases directed towards White and Black racial groups.

Importantly, the findings of this study contradict the prevailing assumption that racial biases directed towards Black and White racial groups are directly comparable to one another, with the implication that negative biases directed to one racial group are associated with positive racial biases directed towards the other. While this relationship between anti-Black and anti-White biases are present within the White-identified sample group, this study highlights the complex and seeming contradictory relationship that Black-identified people have with own- and other-race directed affective (explicit) racial biases, demonstrating that there is no such correlation present between these two forms of bias. This has important implications for how we understand and operationalise racial bias within this field of research, highlighting the limitations of using explicit measures that draw direct comparisons between racial groups.

This highlighting a potential problem for how the main outcome measure of the racial IAT task is calculated, as the outcome measures of the 'congruent' and 'incongruent' trials independently function as direct comparisons of the 'good' associations with one racial group and the 'bad' associations with another, with the final outcome measure representing the

difference between these two conditions. As such, there is presently no established method by which one is able to calculate the speed at which an individual was able to sort one set of faces across both conditions independently of the set of other faces. Stated more directly, the most widely used scoring method of the Racial IAT task exclusively produces direct comparison measures of implicit racial bias. Considering that the racial IAT task is a measure of implicit-affective forms of racial bias, then in light of the above findings, this direct-comparisons approach to scoring may occlude differences potential differences between race-specific biases which may be present outside of White-identifying sample groups.

5.4. Study Limitations and Directions for Future Research

There are several limitations of this study that need to be considered that impact the degree to which these results are generalisable to the broader South African population.

The sample used in this study consisted predominantly of students enrolled at the University of the Witwatersrand, as such the extent to which this sample is representitive of the broader South African population is debatable, considering that public universities represent a unique social environment in which students are more likely to be exposed to contemporary debates surrounding systemic racial inequality and are more likely to engage in frequent peer-to-peer interactions with members of their own and other racial groups. As such, the South African student population may represent a more socially conscious and politically engaged portion of the broader South African population, and as a result they may be more likely to hold egalitarian beliefs and attitudes regarding race and be more aware of their experiences of affective racial bias.

Furthermore, this study made use of face-to-face data collection. As such, the presence of the researcher may have introduced presentation bias, in which the participants may have been biased to respond in ways they felt presented them in a more positive light, or responded in ways they felt were expected to respond given the social context. Furthermore, while efforts were made to control for the block order of the racial IAT task, this study did not take steps to randomise the order in which the Racial IAT task and the AARB were completed. Considering the evidence which suggests that performance on the racial IAT task is sensitive to social priming factors, it is uncertain to what degree, if any, did the completion of the AARB impact participants performance on the subsequent racial IAT task.

Within the context of racial IAT research it is generally recommended that studies making use of the measure recruit a minimum sample size of 60. As such, the sample used in this

study is notably small, and as such this has a major impact on the statistical significance of these findings. Given the important theoretical implications that these preliminary findings suggest regarding the nature of explicit and implicit racial bias, it is important that this study goes on to motivate future studies that aim to replicate these findings by using much larger sample groups within both the South African context and contexts within the Global North, providing a direct comparison between both contexts.

While this study provides evidence in support of the reliability and validity of the AARB, it is important to note that the AARB is a novel approach to measuring explicit racial biases that was not without flaws and is yet to be validated. Notably, two of the items contained within the attitudinal racial bias subscale were found to be inappropriate and had to be removed. Furthermore, while this study largely avoided making use of direct comparison items, four items contained within the affective racial bias subscale were comparative in nature. Considering the findings of this study suggest that comparative questions many not be appropriate in all context, it is important that these items are modified. As such, while the AARB presents a promising framework from which to develop a more comprehensive and socially sensitive measure of explicit racial bias there is still much room for improvement, with a need to expand the measure to make use of more affective and attitudinal bias items and that better care is taken to in future to ensure that all items included in the measure are appropriate given the sensitivity of the topic under investigation. As such, it is recommended that future studies making use of the AARB aim to expand upon the existing set of items, make appropriate modifications to the existing items and focus on validating the measure for use in a multiracial sample.

Expanding on this above point, in basing the explicit-attitudinal items of the AARB on the Subtle and Blatant prejudice scale (Pettigrew & Meertens, 1995), this study replicated the assumption that beliefs and attitudes regarding affirmative action (referred to as BEE within the AARB, which itself is an outdated term for BBBEEE+), are related to one's general beliefs and attitudes regarding race. However, this may not always necessarily be the case, and there is room for future research to better interrogate this assumption using a more modern understanding of race, racism and the various forms which affirmative action can take.

Furthermore, given that the racial group that forms the subject the items of the affective racial bias subscale are designed to be easily replaced with target another ethnic or racial group, and

that the content of the affective racial bias items are not specific to the South African context, the subscale could be adapted to assess affective racial biases directed towards any number of other ethnic or racial groups, and may be appropriate for use in population groups outside of the South African context. As such, a future study making use of the affective racial bias scale could look at differences in self-reported experiences of affective racial bias across numerous contexts.

With specific regards to the adaptation of the Racial IAT task, it is important to note that there is no one specific version of the racial IAT that is considered the standard from which all versions are adapted from, or in reference to. As such, it is often unclear whether the racial IAT task used within any given study is the same as those used within another, or whether the researcher has made any significant modifications to the measure, such as making use of a different set of images, or words. As such, while scoring methods are largely identical, it is unclear to what extent, if any, these differences in the form and content of racial IAT itself impacts outcomes scores. This is made further problematic by the lack of consensus regarding the specifications of the images used in modified versions of the measure, such as whether faces should or should not be presented in greyscale, or whether faces need to be cropped to exclude specific features that may be distracting. As such, there is a need to develop a standardised open-source IAT framework and to establish a set of guidelines for how visual stimuli, specifically images of faces, are selected and modified for use in the measure. Furthermore, it is important that any modifications made to the measure are to be reported on, and for the sets of stimuli used to be made accessible to other researchers for the purposes of establishing an appropriate level of transparency and consistency within this field of research.

Additionally, the results of this study suggest that racial biases directed towards one racial group may not be comparable to the biases directed towards another. However, the current scoring of the racial IAT does not distinguish between the biases directed towards one set of target stimuli from the other, as such it may be important for a future study to develop a scoring method that groups response times based on their target stimuli rather than grouping response times based on their corresponding trial. In this way, a mean response time could be calculated for each stimulus pairing providing a means to assess negative and positive bias associated with each target concept (e.g. Black-negative bias, Black-positive bias, White-negative bias and White-positive bias), which could be used to distinguish between the biases directed towards one racial group and the other. A future study using such a scoring method

could provide valuable insights into the relationship between implicit racial bias scores and self-report measures of racial bias associated with individual racial groups, while still allowing for direct comparison measures to be used were applicable.

Furthermore, it is important that researchers investigating implicit and explicit racial biases remain critical of the existing body of research and the be cognisant of the assumption they make in designing their studies. It is important that racial bias research does not inadvertently reproduce misconceptions regarding racial biases by uncritically following conventions established early on in this field of research. With this in mind, it is important that quantitative researchers engage with critical social theory regarding racial bias and update their understanding, and operationalisations, of this social phenomenon to be more in-line with contemporary thought. In this way, it is not only important to be able to quantify and describe racial bias as a unitary construct, but that research is able to situation these observations within the broader societal context in which these biases take place. There is a profound gap in the existing body of literature regarding the role that social and environmental factors play in the perpetuation of cultural myths surround race, and how an individual's specific social context may serve to reinforce, or contradict, existing narratives surrounding race. Furthermore, we do not yet have a good enough understanding regarding the impact that attitudinal beliefs and attitudes regrading race have in shaping one's affective responses to members of other racial groups, nor do we understand the degree to which close social proximity with members of other racial groups may influence one's affective responses to members of those racial groups.

5.5. Conclusion

The findings of this study provide preliminary evidence to suggest that implicit biases differ within the South African context when compared to studies conducted in the global north, highlighting the importance to social and contextual factors may play in shaping one's implicit biases regarding race. Furthermore, this study provides compelling evidence in supports of the theoretical distinction between attitudinal and affective forms of explicit racial bias and highlights important differences in how Black- and White-identified people experience their own biases directed towards their own- and other racial groups, suggesting that the biases held towards one racial group are not correlated with the biases held toward another in Black-identified populations. This complicates the commonly held assumption that an overall racial bias score could be arrived at by calculating differences in an individual's biases directs towards two different racial groups. Finally, this study provides preliminary

evidence in support of the assumption that implicit bias are, to some degree, introspectively accessible, with explicit-affective racial bias scores showing a small correlation with racial IAT scores that trends towards statistical significance.

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Appendices

Appendix A – Registrar Permission

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

OFFICE OF THE DEPUTY REGISTRAR

04 August 2022

Stash Briano Gomes
Student Number (1532956)
Master of Arts by Coursework and Research Report
School Of Human and Community Development

TO WHOM IT MAY CONCERN

"Automatic Racial Assumptions: Investigating the Relationship between Implicit Racial Bias and Experiences of Affective Reactions to Racialized Others in a South African Population."

This letter serves to confirm that the above project has received permission to be conducted on University premises, and/or involving staff and/or students of the University as research participants. In undertaking this research, you agree to abide by all University regulations for conducting research on campus and to respect participants' rights to withdraw from participation at any time.

If you are conducting research on certain student cohorts, year groups or courses within specific Schools and within the teaching term, permission must be sought from Heads of School or individual academics.

Ethical clearance has been obtained. (Protocol number: MAPSYC-22-05)

Research Expiration: (31 December 2024)

Nicoleen Potgieter
University Deputy Registrar

Appendix B – Demographic Questionnaire

Demographic Information	
First Name	_____
Surname	_____
Age	_____
Gender	◯ Male ◯ Female ◯ Non-binary ◯ Prefer not to say
Self-Identified Race	◯ Black ◯ White
Home Language	◯ English ◯ isiZulu ◯ isiXhosa ◯ Afrikaans ◯ Sepedi ◯ Setswana ◯ Sesotho ◯ Xitsonga ◯ siSwati ◯ Tshivenda ◯ Ndebele ◯ Other
If you selected 'other' for your home language, please specify	_____

Appendix C – Living Standards Measure

Living Standards Measure Please answer the below questions according to your current circumstances **1. I have the following in my household:**	
TV Set	◯ True ◯ False
Swimming pool	◯ True ◯ False
DVD player	◯ True ◯ False (Or another comparable device that is able to play movies/series)
M-net/DStv subscription	◯ True ◯ False (Or other streaming service such as Netflix, Disney+, etc...)
Air conditioner	◯ True ◯ False
Computer/Laptop	◯ True ◯ False
Vacuum cleaner/floor polisher	◯ True ◯ False
Dishwashing machine	◯ True ◯ False
Washing machine	◯ True ◯ False
Tumble dryer	◯ True ◯ False
Home telephone	◯ True ◯ False (Excluding a cell)
Deep freezer	◯ True ◯ False
Fridge + freezer	◯ True ◯ False (Separate or combined)
Electric/Gas Stove + Oven	◯ True ◯ False
Microwave oven	◯ True ◯ False
Built-in kitchen sink	◯ True ◯ False
Home security service	◯ True ◯ False
3 or more cell phones in the household	◯ True ◯ False

2 or more cell phones in the household	◯ True ◯ False
Home theatre system	◯ True ◯ False

2. I have the following amenities in my home or on the plot:	
Tap water in house/on plot	◯ True ◯ False
Hot running water from a geyser	◯ True ◯ False
Flushing toilet in/outside house	◯ True ◯ False
3. There is a motor vehicle in our home	◯ True ◯ False
4. I am a city dweller	◯ True ◯ False
5. I live in a house, cluster or town house	◯ True ◯ False
6. I live in a rural area outside of Gauteng	◯ True ◯ False
7. There are no radios, or only one radio, or radio-capable device in my household	◯ True ◯ False (Excluding a car radio)
8. There is no domestic worker or household helpers in the household	◯ True ◯ False (both live-in & part-time)

Appendix D – Adapted Racial Implicit Association Task (Racial IAT)

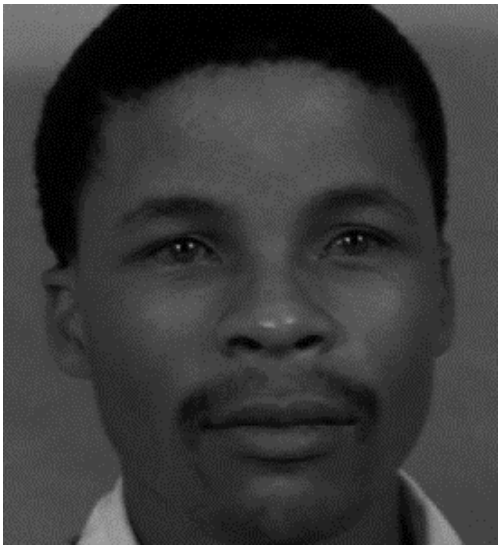
Wordlist

As noted within the instruments section, the list of words used within the Adapted Racial IAT drew from existing versions of the test. Namely, the public Project Implicit Website (Nosek et al., 1998) and the PsychoPy framework developed by Robin Scaife and other contributors (2020). Below is the final wordlist:

Positive Words		**Negative Words**	
Health	Lucky	Death	Sick
Love	Happy	Hate	Awful
Peace	Joy	Kill	Mistake
Friend	Good	Sad	Fear
Pleasure	Safe	Pain	Avoid

Image List

10 Black and White faces were used, with a total of 20 faces. Images were sourced from the MUCT project (Milborrow et al., 2010), a database of 3755 faces. Notably, of the volunteers for the MUCT project only 8 consented to have their faces published, of which none of those volunteers formed part of the final set of images used in the adapted Racial IAT. As such, for the purposes of illustrating the edits made to the images, and how the images were presented for use within the measure, two illustrative examples are shown below:

Example 1	
Original	**Edited**
	

Example 2	
Original	**Edited**
	

Appendix E – Subtle and Blatant Prejudice Scale

The following table is an extract from Pettigrew and Meertens (1995):

Table 1. The blatant and subtle prejudice scales

Threat and rejection factor items: the Blatant Scale

1. West Indians have jobs that the British should have. (strongly agree to strongly disagree)
2. Most West Indians living here who receive support from welfare could get along without it if they tried. (strongly agree to strongly disagree)
3. British people and West Indians can never be really comfortable with each other, even if they are close friends. (strongly agree to strongly disagree)
4. Most politicians in Britain care too much about West Indians and not enough about the average British person. (strongly agree to strongly disagree)
5. West Indians come from less able races and this explains why they are not as well off as most British people. (strongly agree to strongly disagree)
6. How different or similar do you think West Indians living here are to other British people like yourself—in how honest they are? (very different, somewhat different, somewhat similar, or very similar)

Intimacy factor items: the Blatant Scale

1. Suppose that a child of yours had children with a person of very different colour and physical characteristics than your own. Do you think you would be very bothered, bothered, bothered a little, or not bothered at all, if your grandchildren did not physically resemble the people on your side of the family?
2. I would be willing to have sexual relationships with a West Indian. (strongly agree to strongly disagree)
3. I would not mind if a suitably qualified West Indian person was appointed as my boss. (strongly agree to strongly disagree)
4. I would not mind if a West Indian person who had a similar economic background as mine joined my close family by marriage. (strongly agree to strongly disagree)

Traditional values factor items: Subtle Scale

1. West Indians living here should not push themselves where they are not wanted. (strongly agree to strongly disagree)
2. Many other groups have come to Britain and overcome prejudice and worked their way up. West Indians should do the same without special favour. (strongly agree to strongly disagree)
3. It is just a matter of some people not trying hard enough. If West Indians would only try harder they could be as well off as British people. (strongly agree to strongly disagree)
4. West Indians living here teach their children values and skills different from those required to be successful in Britain. (strongly agree to strongly disagree)

Cultural differences factor items: Subtle Scale

How different or similar do you think West Indians living here are to other British people like yourself . . . (very different, somewhat different, somewhat similar, or very similar)

1. In the values that they teach their children?
2. In their religious beliefs and practices?
3. In their sexual values or sexual practices?
4. In the language that they speak?

Positive emotions factor items: Subtle Scale

. . . Have you ever felt the following ways about West Indians and their families living here . . .
(very often, fairly often, not too often, or never)

1. How often have you felt sympathy for West Indians living here?
2. How often have you felt admiration for West Indians living here?

Appendix F – Affective and Attitudinal Racial Bias Scale

1)	I feel that too many White South Africans unfairly hold jobs that could have been given to other South Africans.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
2)	I would be willing to have a sexual relationship with a White South African.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
3)	I feel that some Black South Africans who depend on social grants, could find work if they wanted to.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
4)	I feel that too many Black South Africans unfairly hold jobs that could have been given to other South Africans.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
5)	I feel that BEE is unfairly providing opportunities for Black South Africans at the expense of other South Africans.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
6)	I feel that most White South Africans have not had to work as hard to secure well-paying jobs as other South Africans.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
7)	I would be willing to have a sexual relationship with a Black South African.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
8)	I would not mind if a Black person who had a similar economic background joined my close family through marriage.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
9)	I feel that politicians have not done enough to readdress White economic dominance.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree

10)	I would not mind if a Black South African was appointed as my boss.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
11)	I would not mind if a White person who had a similar economic background joined my close family through marriage.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
12)	I would not mind if a White South African was appointed as my boss.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
13)	I find it difficult to build close friendships with Black people.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
14)	When I interact with a Black peer, I find that I have to think more carefully before I speak so that I don't say something racially insensitive.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
15)	When I interact with a White person, I sometimes think about negative racial stereotypes about white people, even when I don't want to.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
16)	I have felt unsafe when an unknown White person has approached me.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
17)	When I interact with a Black person, I sometimes think about negative racial stereotypes about black people, even when I don't want to.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
18)	I am more likely to assume that a person is acting with bad intentions if they are White, rather than Black.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
19)	I feel that it is more difficult to trust a Black South African than it is to trust a White South African.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree

20)	When I interact with a White peer, I find that I have to think more carefully before I speak so that I don't say something racially insensitive.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
21)	I have felt unsafe when an unknown Black person has approached me.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
22)	I feel less comfortable making physical contact with someone who is Black.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
23)	I often find myself assuming that a Black peer is less knowledgeable than a White peer.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
24)	I am more likely to find a Black person more physically attractive than a White person.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
25)	I find it difficult to build close friendships with White people.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree
26)	I feel less comfortable making physical contact with someone who is White.	◯ Strongly disagree ◯ Disagree ◯ Neither agree, nor disagree ◯ Agree ◯ Strongly agree

Appendix G - HREC Non-Medical Guidelines

Department of Health draft guidelines for research during COVID-19 (extracts of relevance for social science research):

It is important that researchers adhere to incident-specific prevention and control national regulations, guidelines, and protocols in the collection of data during this time, to limit transmission of the pathogen and reduce risk for both the researcher and the research participants. Face-to face meetings (e.g. door to door survey in a community, focus groups, or handing out a hard copy questionnaire or doing face to face interviews) should be limited, and where possible could be replaced by internet based research processes, but where electronic/online consent process and data collection are not feasible and some populations may not be reachable via these means, and the research methodology cannot be adapted then the researcher should carefully weigh up the risks to the researcher and participants, and ensure all fieldwork adheres to prevention and control measures such as

- Requiring masks to be worn properly i.e. covering both nose and mouth,
- Hand hygiene: frequent washing of hands with soap and water or use of 70% alcohol-based sanitizer
- Frequent environmental cleaning
- Cough etiquette: coughing or sneezing into a tissue or elbow
- Social distancing (1.5m between people) is maintained and number of participants per day or at any one time can be limited
- Ensuring proper ventilation, and sufficient space in indoor venues. Wherever possible, consideration to meet outdoors rather than indoors should be made, but allow for privacy, as required.
- Symptom monitoring, screening and testing

It is important that the study protocol being submitted to the HREC has identified all possible risks that both the researchers and participants might face, and has detailed precautionary measures and strategies in place to mitigate the risks. The researcher must ensure that the risks to the participants and researchers are justified by the potential benefits to the participants, society and/or science. The HREC should be provided will all the information to allow proper assessment of the risk: benefit ratio of the study. The researcher should identify possible hazards, evaluate the potential to mitigate the hazard, and indicate how the hazard will be eliminated or mitigated and who will be responsible. Additionally, the researcher may develop a research specific document covering all the COVID-related aspects.

In principle, the following should apply:

‣ Delay fieldwork where COVID-19 safety rules cannot be upheld.

‣ Consider the age and co-morbidities of researchers, as well as of research participants, for in-person data collection and fieldwork

All proposals to carry out fieldwork must adopt the National Disaster Management Act Regulations and other applicable national guidelines and protocols, and adhere to the restrictions imposed by the risk-adjusted approach (Alert Levels) from government. It is the responsibility of each researcher to be aware of the information from health authorities about COVID-19, and their institutional guidelines of what is permissible.

COVID-19 RESEARCH RISK ASSESSMENT AND MANAGEMENT APPROACH

Prof Minrie Greeff
Emeritus Professor: Africa Unit for Transdisciplinary Health Research (AUTHeR) North-West University

17 July 2020

It is the responsibility of each researcher to be aware of:

- The present alert level and the accompanying governmental regulations and directives e.g. from the Department of Health, Department of Employment and Labour, etc.
- The information from health authorities about COVID-19.
- The institutional guidelines of what is permissible or not.

It is the responsibility of each researcher to ensure that they:

- Only conduct permissible research based on the lockdown alert level.
- Have the necessary approval, before data collection, from a REC for amendments to an existing proposal that had to be changed due to COVID-19 related implications.
- Have the necessary approval to *resume research* if research had to be halted.
- The usual ethical approval for all newly planned research.

Risks involved in conducting research during the COVID-19 pandemic

To be able to assess and manage the risks inherent in undertaking research during the COVID-19 global pandemic, it is necessary to be aware of all the possible risks to the participant, the researcher and the University. The researcher must ensure that the risks to the participants and researchers are *justified* by the potential benefits to the participants, society and/or science.

Definition of a risk:

"The probability of harm occurring as a result of participation in research"

- Risk is about the *chance* of harm, rather than the harm itself.
- Risks need to be assessed for their *probability* and *magnitude.*

Risk to the participant

- Infected by a researcher or fellow research participant that might be asymptomatic/symptomatic during a visit to the University.
- Infected by a researcher that might be asymptomatic/symptomatic during a visit by the researcher to his/her home or community centre.
- Infected by handling objects contaminated by the virus.
- More severely affected by COVID-19 if over the age of 60 and having a comorbidity or an illness causing an immunocompromised health status.
- Carrying the virus from the research site into the home or community.
- Being fined or arrested for not adhering to appropriate lockdown alert level restrictions e.g. not wearing masks, travelling without appropriate permits etc.

Risk to the researcher

- Researcher/postgraduate student becoming infected due to contact with an asymptomatic/symptomatic person (fellow researcher or participant).
- Researcher/postgraduate student becoming infected by handling objects contaminated by the virus.
- Researcher/postgraduate student becoming infected by entering a high-risk COVID-19 area.
- Infecting co-researchers due to the aforementioned actions.
- Infecting own family members due to the aforementioned actions.
- More severely affected by COVID-19 if over the age of 60 and having a comorbidity or an illness causing an immunocompromised health status.
- Being fined or arrested for not adhering to appropriate lockdown alert level restrictions e.g. not wearing masks, travelling without appropriate permits etc.

Reputational damage to researchers and/or the university

- Participants infected by the researcher during the conduct of research blaming the university.
- The researcher carrying the virus into a private home or the community and the university being blamed for it.
- Researchers and postgraduate students becoming infected during research and blaming the university.
- Researchers not adhering to disaster and lockdown regulations e.g. visiting participants at their houses when social interaction is prohibited.

How to include the risk assessment and management into the research. Once the risk assessment for a specific study has been conducted the researcher should:

- Describe the risks and precautionary measures in detail in the proposal and ethics application
- If preferred, additionally develop a research specific SOP covering all the COVID-related aspects as discussed in this document.
- Clearly describe the risk mitigation strategies in the research ethics application form, as well as in the informed consent document.

COVID-19 researcher toolkit

If you are undertaking research activities in close proximity to participants or to other people such as members of the public, each researcher should ensure that they have a "COVID-19 researcher toolkit" when interacting with others. This should include:

- Own mask (might even need several if spending the whole day and having to touch your mask or remove it in between data collection with participants).
- A visor for the researcher and the participant might be essential when observation of facial expressions during research is essential.
- Masks for participants (even for others in the participants' homes if research is community based).
- Thermometer.
- Alcohol based hand sanitiser.
- Sanitiser for surfaces, e.g. chairs, table.
- A4 size plastic bag to put informed consent documents or paper questionnaires in (this will be left in the plastic bag for a minimum of three days).
- Availability of basic materials on COVID-19 (proper use of masks, proper hand washing, grounds for social distancing, reason for cough etiquette) to distribute to participants.
- Box of tissues.
- Bag for disposal of used masks and tissues.

Appendix H – Participant Information Sheet (PIS)

Dear Sir / Madam

My name is Stash Gomes. I am currently a Masters student studying an MA in Cognitive Psychology at the University of the Witwatersrand, Johannesburg. My supervisor is Dr Sahba Besharati. I am conducting a research study that aims investigates the use of measurements of implicit and explicit racial bias in the South African context, and to investigate the relationship between a computer-based racial association task, attitudes about race and one's experiences of automatic emotional and cognitive responses to members of other racial groups that occur accidentally or outside of your own control (e.g. catching yourself making use of a stereotypical assumption based on race or having feelings of discomfort when you realize you said something racially insensitive). The title is this study is: Automatic Racial Assumptions: Investigating the Relationship Between Implicit Racial Bias and Experiences of Affective Reactions to Racialized Others in a South African Population.

I am inviting you to take part in an experimental study, which involves the completion of a self-report questionnaire and a computerized task that both aim to assess forms of racial bias. If you decide to take part, your participation in this research study will last about 1 hour and the research procedure will take place at the Neuroscience Research Laboratory (Wits NeuRL) at the Department of Psychology at Wits at a date and time that is convenient.

With your permission, I would like to collect response data for the two tasks for the purpose of data analysis. This data will be anonymized and stored in secure folder. Only the researcher, and the research supervisor will have access to your data unless permission is granted for other researchers to use this data in subsequent research studies and that ethical clearance is granted for them to do so. In the event that your data is shared with another research, I will ensure that no personal and/or identifiable information will be passed on.

During the research activity, I will need to ask for some personal information about you, including, including your age, gender, self-identified race, home language and socio-economic status. In addition, the self-report questionnaire will ask you potentially sensitive questions regarding your beliefs, attitudes and perceptions of your own and other racial groups and your experience of automatic 'gut-reactions' towards members of your own and other racial groups.

The response data will be confidential and anonymous. This means that the researcher will not know your responses to the questionnaire and the computerised task during the testing procedure and your response data will not be stored alongside your name or any other identifiable information during the data analysis process to ensure that your anonymity is maintained. In addition, when I share the results of the research study, I will not include your name or any other information that could identify you. With your permission, other researchers may use the data collected from this research study, but your name and any personal information will not be used or passed on.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to take part. You can stop being in the study at any time. You do not have to answer any questions if you do not want to. You will not get any direct benefits if you choose to join the research study. You will not lose any services, benefits or rights you would normally have if you decide not to join. Participation in the study will not cost you anything.

Due to the potentially sensitive nature of some of the questions asked in the questionnaire, you may make you feel uncomfortable or upset during the experiment. If this happens, you or I may request that we stop the

experiment. If you wish, we may discuss the content of the experiment and you are free to ask any questions regarding the research procedure or topic and with your consent we may resume with data collection immediately, or at another agreed upon date. Otherwise, you may request to withdraw from the study. If you need some support or counselling services following the experiment, you may be referred to a CCDU for counselling services if you are a registered student at the University of the Witwatersrand. Alternatively, you may be directed to contact the SADAG helpline (Tel: 0800 21 22 23) or Lifeline to speak to a telephonic counselor (Tel: 0861 322 322).

This research study will be written up as a research report. The report will be available on the university library website. If you would like to receive a summary of this report, I will be happy to send it to you.

If you have any questions during or afterwards about this research study, feel free to contact me or my supervisor on the details listed below. If you have any concerns or complaints about the ethical procedures of this research study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,

Stash B. Gomes

Researcher:

Name: Mr. Stash B. Gomes

Email: 1532956@students.wits.ac.za

Contact: +27 71 422 3759

Supervisor:

Name: Dr. Sahba Besharati

Email: sahba.besharati@wits.ac.za

Contact: 011 717 4529

Appendix I – Participant Consent Form

Study: Automatic Racial Assumptions: Investigating the Relationship Between Implicit Racial Bias and Experiences of Affective Reactions to Racialized Others in a South African Population

Name of Researcher: Mr. Stash B. Gomes

Name of Supervisor: Dr. Sahba Besharati

I, …….., agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about.	YES	NO
I understand that my participation in this study is voluntary and that I am entitled to withdraw my consent at any time during the testing procedure.	YES	NO
I agree that my responses to both the experimental task and the self-report questionnaire may be recorded for the purpose of data analysis.	YES	NO
I have been informed of my right to request that my data be excluded from the final study and/or deleted from the database after data collection.	YES	NO
I agree that my participation will remain anonymous (my name will not be used by the researcher in their research report, and my stored data will be anonymized).	YES	NO
I agree that other researchers may use the information I provide in my responses (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on.	YES	NO

…… (signature)

…… (name of participant)

…… (date)

…… (signature)

…… (name of researcher/person seeking consent)

…… (date)

Appendix J – Ethics Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:	**PROTOCOL NUMBER: MAPSYC-22-05**
PROJECT TITLE:	Automatic Racial Assumptions: Investigating the Relationship between Implicit Racial Bias and Experiences of Affective Reactions to Racialized Others in a South African Population.
INVESTIGATOR	Gomes Stash Briano (1532956)
SCHOOL/DEPARTMENT OF INVESTIGATOR	SHCD/Psychology
DATE CONSIDERED	26 May 2022
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	Low Risk
EXPIRY DATE	31 December 2024

ISSUE DATE OF CERTIFICATE 19 July 2022 **CHAIRPERSON** (Dr Nkululeko Nkomo)

cc: Dr Sahba Besharati (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date** 27/07/2022

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix K – Analysis of Internal Reliability of the AARB prior to the Removal of Problematic Items

INTERNAL RELIABILITY STATISTICS OF THE AARB – INCLUDING PROBLEMATIC ITEMS

		AARB Overall			*Att. Bias*			*Aff. Bias*		
		Anti-Black	*Anti-White*	*Total*	*Anti-Black*	*Anti-White*	*Total*	*Anti-Black*	*Anti-White*	*Total*
Weighted Sample	*α*	.772	.713	.800	.623	.709	.665	.762	.440	.665
	n	11	11	26	6	6	12	5	5	14
Black-Identified	*α*	.571	.739	.611	.403	.754	.294	.550	.550	.500
	n	11	11	26	6	6	12	5	5	14
White-Identified	*α*	.816	.607	.819	.738	.527	.751	.775	.597	.683
	n	11	11	26	6	6	12	5	5	14

α: Standardised Cronbach alpha coefficient; AARB: Affective and Attitudinal Racial Bias, AB: Anti-Black bias, AW: anti-White bias, Att: Attitudinal bias, Aff: Affective bias.

ITEM-TOTAL STATISTICS – ANTI-BLACK ATTITUDINAL BIAS SUBSCALE

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_03	.144	.349
	att_04	-.021	.430
	att_05	.252	.262
	att_07_REV	-.155	.517
	att_08_REV	.444	.166
	att_10_REV	.527	.079
White	att_03	.496	.696
	att_04	.521	.688
	att_05	.353	.733
	att_07_REV	.598	.662
	att_08_REV	.537	.684
	att_10_REV	.374	.732

ITEM-TOTAL STATISTICS – ANTI-WHITE ATTITUDINAL BIAS SUBSCALE

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_01	.605	.683
	att_02_REV	.398	.742
	att_06	.659	.656
	att_09	.414	.732
	att_11_REV	.437	.725
	att_12_REV	.454	.724
White	att_01	.586	.286
	att_02_REV	-.134	.675
	att_06	.610	.299

	att_09	.368	.457
	att_11_REV	.205	.532
	att_12_REV	.188	.534

ITEM-TOTAL STATISTICS – OVERALL ATTITUDINAL BIAS

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_01	.537	.157
	att_02_REV	.267	.248
	att_06	.433	.161
	att_09	.407	.189
	att_11_REV	.109	.323
	att_12_REV	.002	.354
	att_03_REV	.014	.369
	att_04_REV	-.021	.366
	att_05_REV	.210	.284
	att_07	-.524	.526
	att_08	-.041	.367
	att_10	.097	.327
White	att_01	.710	.720
	att_02_REV	-.214	.819
	att_06	.692	.728
	att_09	.482	.754
	att_11_REV	.091	.783
	att_12_REV	.190	.779
	att_03_REV	.498	.751
	att_04_REV	.574	.742
	att_05_REV	.550	.747
	att_07	.498	.751
	att_08	.476	.754
	att_10	.322	.770

ITEM-TOTAL STATISTICS – ANTI-BLACK AFFECTIVE BIAS

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	aff_01	.264	.524
	aff_02	.242	.534
	aff_05	.369	.461
	aff_09	.382	.452
	aff_10	.315	.496
White	aff_01	.554	.750

	aff_02	.720	.692
	aff_05	.710	.695
	aff_09	.291	.814
	aff_10	.573	.743

ITEM-TOTAL STATISTICS – ANTI-WHITE AFFECTIVE BIAS

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	aff_03	.472	.350
	aff_04	.302	.468
	aff_08	.112	.593
	aff_13	.279	.473
	aff_14	.360	.419
White	aff_03	.075	.655
	aff_04	.350	.462
	aff_08	.445	.406
	aff_13	.303	.491
	aff_14	.521	.410

ITEM-TOTAL STATISTICS – OVERALL AFFECTIVE BIAS

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	aff_01_REV	.197	.478
	aff_02_REV	-.015	.520
	aff_03	.110	.496
	aff_04	.230	.474
	aff_05_REV	.147	.490
	aff_06	.277	.460
	aff_07_REV	.137	.492
	aff_08	.136	.494
	aff_09_REV	.157	.487
	aff_10_REV	.312	.445
	aff_11_REV	.358	.435
	aff_12	.131	.493
	aff_13	.331	.440
	aff_14	.027	.516
White	aff_01_REV	.200	.671
	aff_02_REV	.313	.657
	aff_03	.099	.687
	aff_04	.039	.690

	aff_05_REV	.541	.617
	aff_06	.042	.688
	aff_07_REV	.315	.654
	aff_08	.331	.653
	aff_09_REV	.584	.634
	aff_10_REV	.388	.643
	aff_11_REV	.679	.588
	aff_12	.540	.626
	aff_13	-.009	.695
	aff_14	.162	.672

ITEM-TOTAL STATISTICS – ANTI-BLACK OVERALL BIAS

Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_03	.216	.557
	att_04	-.191	.629
	att_05	.447	.504
	att_07_REV	-.048	.609
	att_08_REV	.443	.514
	att_10_REV	.349	.527
	aff_01	.340	.527
	aff_02	.558	.475
	aff_05	.102	.590
	aff_09	.365	.513
	aff_10	.273	.541
White	att_03	.344	.814
	att_04	.425	.807
	att_05	.204	.825
	att_07_REV	.736	.772
	att_08_REV	.675	.780
	att_10_REV	.273	.817
	aff_01	.474	.802
	aff_02	.499	.802
	aff_05	.697	.779
	aff_09	.314	.815
	aff_10	.602	.790

ITEM-TOTAL STATISTICS – ANTI-WHITE OVERALL BIAS

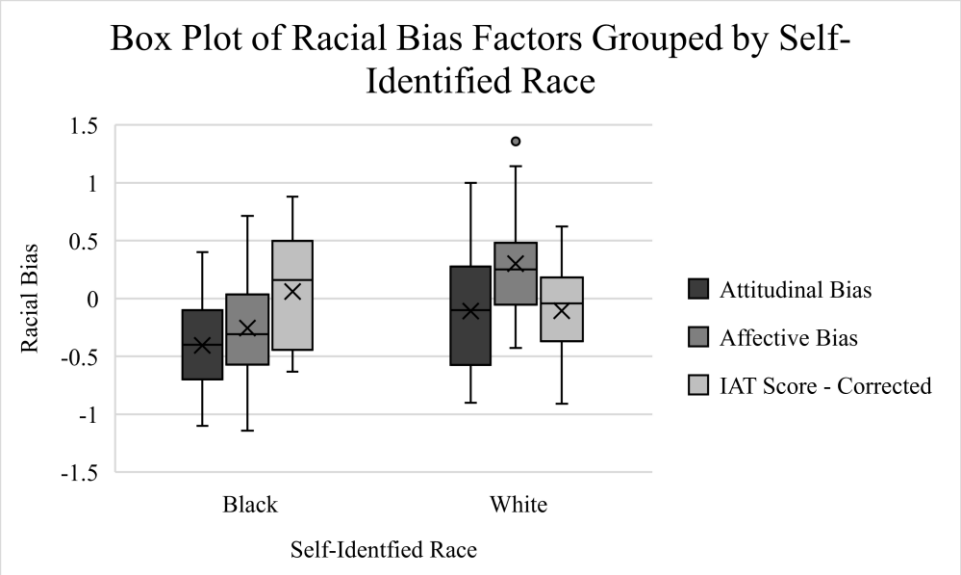
Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_01	.595	.695
	att_02_REV	.463	.708
	att_06	.568	.691
	att_09	.275	.735
	att_11_REV	.454	.712
	att_12_REV	.454	.715
	aff_03	.434	.713
	aff_04	.205	.740
	aff_08	.319	.733
	aff_13	.268	.739
	aff_14	.287	.733
White	att_01	.352	.563
	att_02_REV	.080	.623
	att_06	.326	.570
	att_09	.278	.582
	att_11_REV	.284	.588
	att_12_REV	.339	.574
	aff_03	.539	.507
	aff_04	.225	.593
	aff_08	.276	.582
	aff_13	.036	.633
	aff_14	.313	.580

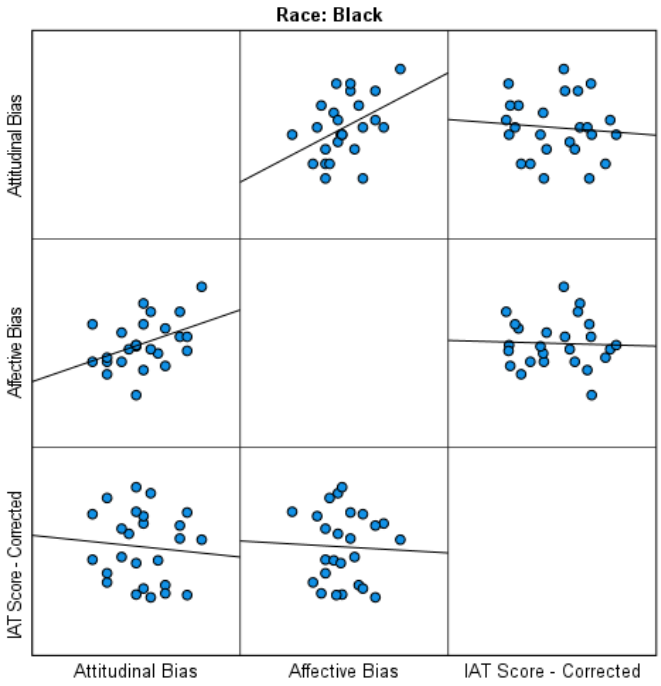
ITEM-TOTAL STATISTICS – AARB TOTAL

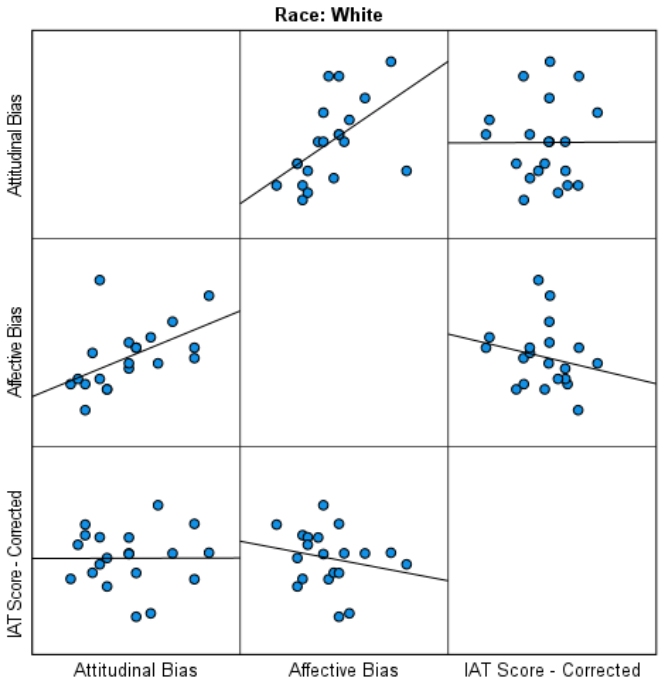
Self-Identified Race		Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Black	att_01	.639	.571
	att_02_REV	.486	.578
	att_06	.506	.571
	att_09	.382	.590
	att_11_REV	.141	.616
	att_12_REV	.098	.620
	att_03_REV	.310	.597
	att_04_REV	-.177	.643
	att_05_REV	.300	.602
	att_07	-.530	.678
	att_08	-.092	.634
	att_10	.071	.621
	aff_01_REV	.392	.591
	aff_02_REV	.254	.605
	aff_03	.121	.619
	aff_04	.214	.610
	aff_05_REV	.021	.633
	aff_06	.300	.600
	aff_07_REV	.154	.616
	aff_08	.069	.628
	aff_09_REV	.001	.635
	aff_10_REV	.369	.588
	aff_11_REV	.414	.584
	aff_12	.222	.608
	aff_13	.355	.590
	aff_14	.014	.631
White	att_01	.520	.811
	att_02_REV	-.038	.833
	att_06	.513	.812
	att_09	.335	.820
	att_11_REV	.297	.822
	att_12_REV	.419	.818
	att_03_REV	.338	.819
	att_04_REV	.564	.809
	att_05_REV	.468	.814
	att_07	.553	.809
	att_08	.580	.808
	att_10	.331	.820
	aff_01_REV	.268	.822
	aff_02_REV	.315	.822
	aff_03	.432	.815

	aff_04	.068	.829
	aff_05_REV	.578	.809
	aff_06	-.041	.833
	aff_07_REV	.470	.814
	aff_08	.212	.824
	aff_09_REV	.477	.817
	aff_10_REV	.449	.815
	aff_11_REV	.629	.806
	aff_12	.476	.815
	aff_13	-.116	.836
	aff_14	.026	.828

Appendix L – Testing Assumptions of the One-Way MANOVA







Box's Test of Equality of Covariance Matrices[a]

Box's M	4.022
F	.618
df1	6
df2	11667.106
Sig.	.716

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Self-Identified Race

Levene's Test of Equality of Error Variances[a]

		Levene Statistic	df1	df2	Sig.
Attitudinal Bias	Based on Mean	2.226	1	43	.143
	Based on Median	2.182	1	43	.147
	Based on Median and with adjusted df	2.182	1	39.981	.147
	Based on trimmed mean	2.302	1	43	.136
Affective Bias	Based on Mean	.004	1	43	.950
	Based on Median	.016	1	43	.901
	Based on Median and with adjusted df	.016	1	42.849	.901
	Based on trimmed mean	.003	1	43	.954
Implicit Bias	Based on Mean	3.271	1	43	.078
	Based on Median	2.790	1	43	.102
	Based on Median and with adjusted df	2.790	1	42.955	.102
	Based on trimmed mean	3.317	1	43	.076

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + race

Appendix M – MANOVA Post-Hoc Tests (Including Implicit Bias Factor)

MANOVA Post-hoc Pairwise Comparisons

Dependent Variable			*Mean Dif.*	*Std. Error*	*p*[b]	*95% Confidence Interval*[b] Lower	Upper
Att. Bias	Black	White	-.294*	.146	.050	-.588	-<.001
	White	Black	.294*	.146	.050	<.001	.588
Aff. Bias	Black	White	-.556**	.128	<.001	-.815	-.298
	White	Black	.556**	.128	<.001	.298	.815
Racial IAT	Black	White	.166	.134	.220	-.103	.436
	White	Black	-.166	.134	.220	-.436	.103

Racial IAT (Greenwald, 1998), AARB: Affective and Attitudinal Racial Bias, Att: Attitudinal bias, Aff: Affective bias.
Based on estimated marginal means
**. The mean difference is significant at the 0.05 level.*
***. The mean difference is significant at the 0.01 level.*
b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

MANOVA Post-hoc Univariate Tests

Dependent Variable		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*	*Partial Eta Squared*
Att. Bias	Contrast	.960	1	.960	4.07	0.05	.086
	Error	10.15	43	.236			
Aff. Bias	Contrast	3.44	1	3.44	18.85	<.001	.305
	Error	7.84	43	.182			
Racial IAT	Contrast	.308	1	.308	1.55	.220	.035
	Error	8.56	43	.199			

Racial IAT (Greenwald, 1998), AARB: Affective and Attitudinal Racial Bias, Att: Attitudinal bias, Aff: Affective bias
The F tests the effect of Race. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Appendix N – Results of the One-Way MANOVA excluding Implicit Bias Factor from the Model

MANOVA Test[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.292	8.665[b]	2.000	42.000	<,001	.292
	Wilks' Lambda	.708	8.665[b]	2.000	42.000	<,001	.292
	Hotelling's Trace	.413	8.665[b]	2.000	42.000	<,001	.292
	Roy's Largest Root	.413	8.665[b]	2.000	42.000	<,001	.292
Self-Identified Race	Pillai's Trace	.305	9.209[b]	2.000	42.000	<,001	.305
	Wilks' Lambda	.695	9.209[b]	2.000	42.000	<,001	.305
	Hotelling's Trace	.439	9.209[b]	2.000	42.000	<,001	.305
	Roy's Largest Root	.439	9.209[b]	2.000	42.000	<,001	.305

a. Design: Intercept + race

b. Exact statistic

MANOVA Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Attitudinal Bias	.960[a]	1	.960	4.070	.050	.086
	Affective Bias	3.438[b]	1	3.438	18.853	<,001	.305
Intercept	Attitudinal Bias	2.936	1	2.936	12.439	.001	.224
	Affective Bias	.021	1	.021	.117	.734	.003
Self-Identified Race	Attitudinal Bias	.960	1	.960	4.070	.050	.086
	Affective Bias	3.438	1	3.438	18.853	<,001	.305
Error	Attitudinal Bias	10.148	43	.236			
	Affective Bias	7.842	43	.182			
Total	Attitudinal Bias	14.470	45				
	Affective Bias	11.283	45				
Corrected Total	Attitudinal Bias	11.108	44				
	Affective Bias	11.280	44				

a. R Squared = .086 (Adjusted R Squared = .065)

b. R Squared = .305 (Adjusted R Squared = .289)

Post-Hoc Pairwise Comparisons

Dependent Variable	(I) Race	(J) Race	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
Attitudinal Bias	Black	White	-.294*	.146	.050	-.588	-9.409E-5
	White	Black	.294*	.146	.050	9.409E-5	.588
Affective Bias	Black	White	-.556*	.128	<,001	-.815	-.298
	White	Black	.556*	.128	<,001	.298	.815

Based on estimated marginal means

*. The mean difference is significant at the ,05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Post-Hoc Univariate Tests

Dependent Variable		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Attitudinal Bias	Contrast	.960	1	.960	4.070	.050	.086
	Error	10.148	43	.236			
Affective Bias	Contrast	3.438	1	3.438	18.853	<,001	.305
	Error	7.842	43	.182			

The F tests the effect of Race. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.