

Determining the status of replication studies in South African psychology research

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Research Psychology* at the North-West University

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SUMMARY

Determining the status of replication studies in South African psychology research

Keywords: Psychology, replication, reproducibility, scoping review, South Africa.

Psychology as a science has come under increased scrutiny due to a lack of replication studies and the low success rates thereof, termed the replication crisis. For any discipline to be considered scientific, it must be able to reproduce or replicate previous research studies to establish the validity of findings or results. Therefore, replication studies create confidence that conclusions are trustworthy and assists the discipline in self-correction driven by a critical and questioning attitude. Although the cause of the replication crisis within psychology research has received increased attention, there is a lack of research regarding the status or the extent of the replication crisis within South African psychology research.

A scoping literature review can be used to identify the scope of available literature of a research activity and the extent and nature thereof. Therefore, a scoping literature review has been conducted to determine the nature and extent of replication studies within South African psychology research. The data for the scoping literature review were obtained from English literature from the year 2000 to the year 2022 and included peer-reviewed and non-peer reviewed published research studies, PhD theses, and Masters' dissertations or mini-dissertations. Once the search and manual appraisal of the literature was conducted, eight research studies were included in the final pool for analysis.

Charting and summarising the data of both the replication studies and the original research studies they were based upon, indicated that most South African replication research studies reported replication success and were conceptual and quantitative in nature. Moreover, sample sizes tended to be smaller than the sample sizes of the original research studies, while university students were the preferred sample type. Furthermore, South African replication studies show cumulative knowledge development through multiple replications;

however, these were focused mainly within the domains of cognitive and social psychology. Overall, replication studies lacked transparency with regard to the research approach, design, and the type of replication being conducted. In addition, research practices within the field were reflected upon and indicating that there is a need for the use of various methodological approaches to replication and the inclusion of a wider variety of psychology research domains. This research study furthermore lays the foundation for future avenues of research regarding conceptual clarity of the types of replication studies within psychology research. Finally, the recommendations made regarding clear criteria for replication success, transparent research practices, and the justification of sample sizes can be utilised by future replication studies within South African psychology research.

PREFACE

- The stipulated guidelines in the A-rules for the North-West University were adhered to for this mini-dissertation.
- The mini-dissertation, Section 2, will be submitted for possible publication to the *Journal of Psychology in Africa* (JPA).
- Ethical approval was obtained for this research study (see Appendix A).
- The mini-dissertation complies with the guidelines of the American Psychological Association (7th edition). Section 2 was written in compliance with the requirements of the JPA.
- Language editing for the mini-dissertation was conducted by a qualified and registered language practitioner (see Appendix B).
- Chronological page numbering is followed and starts at STRUCTURE OF RESEARCH MINI-DISSERTATION and ends with APPENDIX B.
- The mini-dissertation was submitted to Turnitin for similarity detection (see Appendix C).
- The submission of this mini-dissertation for examination (in partial fulfilment of the requirements for the MHSC degree in Research Psychology) was approved by the research supervisor, Professor Werner de Klerk.

PERMISSION LETTER FROM SUPERVISOR



NWU Higher Degrees Administration

SOLEMN DECLARATION AND PERMISSION TO SUBMIT

1. Solemn declaration by student

I, **Arina Visagie**

declare herewith that the thesis/dissertation/mini-dissertation entitled (exact registered/approved title),

Determining the status of replication studies in South African psychology research

which I herewith submit to the North-West University is in compliance/partial compliance with the requirements set for the degree:

MASTER OF HEALTH SCIENCES IN RESEARCH PSYCHOLOGY

Is my own work, has been text-edited in accordance with the requirements and has not already been submitted to any other university.

LATE SUBMISSION: If a thesis/dissertation/mini-dissertation of a student is submitted after the deadline for submission, the period available for examination is limited. No guarantee can therefore be given (should the examiner reports be positive) that the degree will be conferred at the next applicable graduation ceremony. It may also imply that the student would have to re-register for the following academic year.

Ethics number: **NWU-00115-22-A1**

ORCID: **0 0 0 0 - 0 0 0 2 - 6 1 6 9 - 2 0 6 9**

Signature of Student: **A**

Visagie
Digitally signed by A. Visagie
Date: 2023.11.13
09:18:19 +02:00

University Number:

4 4 5 3 2 8 5 7

Signed on this **13** day of **November** of 20 **23**

2. Permission to submit and solemn declaration by supervisor/promoter

The undersigned declares that the thesis/dissertation/mini-dissertation:

- ☒ • Complies with the A-rules and the technical requirements provided for in the Manual for Higher Degree studies and in faculty rules;
- ☒ • Has been checked by me for plagiarism (by making use of Turnitin software for example) and a satisfactory report has been obtained, and;
- ☒ • That the work was language edited before submission for examination.

Faculty specific requirements as per A-rules: 1.3.2, 4.3.2, 4.3.3, 4.4.2, 4.10.4, 5.3.2, 5.4.2,

5.10.2

- ☒ • Complies with regards to faculty rules on submission or acceptance by an accredited scientific journal;
- ☒ • Complies with regards to faculty rules on peer reviewed conference proceedings;
- ☒ • The student is hereby granted permission to submit his/her mini-dissertation/ dissertation/thesis for examination.

Signatures of supervisor(s) and Promoter(s): (only compulsory in cases where there are co- or assistant- supervisor(s)/promoters)

Prof Werner de Klerk
Digitally signed by Prof Werner de Klerk
Date: 2023.11.14
13:48:03 +02:00

Co-Supervisor/Co-Promoter

Assistant-Supervisor
Assistant-Promoter

Original details: (10512187) M-IDA Toolbox/Forms/Pdf fillable forms/13.Solemn Decl and Permission to submit exam copy.pdf 3 December. File reference: 7.1.11.3.25

DECLARATION

I, Arina Visagie, declare that this research study, *Determining the status of replication studies in South African psychology research*, is initial work done by myself. This study serves in the partial fulfilment of my MHSC degree in Research Psychology at the North-West University, Potchefstroom. This work has not been previously submitted for examination. The necessary consent of all relevant parties has been given to conduct this research study, and throughout this mini-dissertation the required acknowledgement has been given to all reference material.

A handwritten signature in black ink, appearing to read 'Arina Visagie', with a stylized, cursive script.

Arina Visagie

Student number: 44532857

STRUCTURE OF MINI-DISSERTATION

This mini-dissertation is divided into three distinct sections, each offering the reader a comprehensive understanding of the entire research process. In Section 1, a literature overview of the research topic is presented, along with a detailed description of the methodological steps taken and the considerations regarding ethical and scientific rigor (pp. 2-26). Moving on to Section 2, the reader will find a review article encompassing a literature overview, the methodological steps employed, review findings and discussions, conclusion, recommendations, and limitations of the review study (pp. 27-60). Finally, in Section 3, the reader is provided with a critical reflection on the researcher's experiences and thought processes, as well as the methodological rationale that guided the research study (pp. 61-69).

SECTION 1: INTRODUCTION

Contextualisation

Psychology is the discipline that concerns itself with the study of the human mind and behaviour (Colman, 2016; Holt et al., 2019; Zagaria et al., 2020). Moreover, psychology seeks to understand how cognitive, emotional, and behavioural processes are influenced by contextual, cultural, biological, and social factors (Colman, 2016; Gross, 2015; Kalat, 2015; Matsumoto & Juang, 2016).

The origins of psychology have been described as both philosophical and scientific in nature (Hearnshaw, 2019; Leahey, 2017; Schultz, 2013). In ancient Greece, psychology was originally part of philosophy, a discipline founded on careful reasoning to ask and answer fundamental questions about the nature of reality and knowledge (American Psychological Association [APA], n.d., Audi, 2017). However, during the 19th century, psychology strived to establish itself as a scientific discipline and independent from philosophy (Giorgi, 2020; Leahey, 2017). For a discipline to be considered scientific, conclusions must be based on data collected and analysed according to the scientific method, which consists of a series of logical, ordered, and documented steps (Blystone & Blodgett, 2006; Gerrig et al., 2015). The scientific method originated with Galileo in the 17th century and involves the systematic observation and analysis of phenomena to form hypotheses, which are then empirically tested (Poljak & Jakić, 2017). Psychology's transition from philosophical to scientific gathered pace with the work of researchers such as Wilhelm Wundt and Gustav Theodor Fenchner (Giorgi, 2020; Hatfield, 2002). Wundt, who had backgrounds in medicine and physiology, and established one of the first experimental psychology laboratories, while Fenchner was a pioneer in quantifying mental processes (Giorgi, 2020; Hatfield, 2002).

Since establishing itself as an independent discipline, the field of psychology has undergone significant development, which led to the continuous exploration of various

aspects of human life (Norman et al., 2019; Teo, 2012; Uher, 2020). As a result, psychology has established various sub-disciplines, for example environmental psychology, developmental psychology, clinical psychology, educational psychology, and cultural psychology (Norman et al., 2019; Uher, 2020). Moreover, psychology has helped lay the foundations for intellectual, cultural, and social sciences, such as linguistics and law (Uher, 2020). Despite these achievements, psychology is often considered to be inferior to natural sciences such as physics or chemistry and often faces challenges to its status as a scientific discipline (Mironenko & Sorokin, 2020; Sanbonmatsu et al., 2021; Uher, 2020).

Psychology as a Scientific Discipline

Challenges to psychology's status as a science is not something new, as psychology has had a complicated history when compared to the natural sciences (Mironenko & Sorokin, 2020). Psychology differs from the natural sciences in an important way as it is classified to be a poly-paradigmatic discipline, instead of a uni-paradigmatic discipline (Mironenko & Sorokin, 2020). A paradigm is a set of assumptions, values and concepts that form a worldview or a theoretical framework (Kumatongo & Muzata, 2021). Psychology is considered a poly-paradigmatic discipline due to its multiple paradigms, often with conflicting theoretical and methodological approaches to study and explain similar phenomena, (Maiers, 2021; Mironenko & Sorokin, 2020; Wu & Xu, 2020). For example, positivism approaches a phenomenon with the theoretical assumption that reality is objective and devoid of meaning, while constructivism views reality as subjectively constructed (Kumatongo & Muzata, 2021; Omodan, 2022). In contrast, the natural sciences are considered uni-paradigmatic as there is agreement between researchers regarding the theoretical and methodological approaches used to study and explain phenomena (Mironenko & Sorokin, 2020).

Psychology's poly-paradigmatic status is often used to label it as a pre-paradigmatic discipline, a discipline struggling to find consensus amongst its core concepts (Zagaria et al., 2020) and failing to build a coherent system of knowledge due to its various explanations for the same phenomenon (Henriques, 2016; Melchert, 2016). However, psychology's poly-paradigmatic status makes sense when considering the complexity of its subject matter (Mironenko & Sorokin, 2020; Wu & Xu, 2020). The individuals and groups psychology research studies develop within specific social and cultural milieus which shape a multitude of different perceptions of reality (Iso-Ahola, 2017; Mironenko & Sorokin, 2020). Resultant behaviours of these perceptions furthermore have the potential to be expressed in various manners (Gerrig et al., 2015; Iso-Ahola, 2017). Adding a further complication, perceptions of reality are inherently dynamic (Iso-Ahola, 2017; Mironenko & Sorokin, 2020).

In addition, the poly-paradigmatic nature of psychology was facilitated by different 'schools' developing within psychology due to its multifaceted view of reality (Mironenko & Sorokin, 2020; Teo, 2012). Therefore, each school emphasises differing paradigms to define and investigate different aspects of reality, each with its own methodological practices (Mironenko & Sorokin, 2020; Wiggins & Christopherson, 2019). Nevertheless, all schools within psychology agree that holistically, aspects of reality are interconnected and that "they are all manifestations of the same ... phenomenon" (Mironenko & Sorokin, 2020, p. 607). Even so, every scientific discipline should have the capacity to depict phenomena through the scientific method, regardless of the nature and complexity of their subject matter or underlying paradigms (Harré, 2004; Leppink, 2017; Sanbonmatsu et al., 2021).

However, it is the validity of psychology's depiction of phenomena that has received increased attention, in part due to psychology's replication crisis (Efendic & Van Zyl, 2019; Makel et al., 2012). A lack of replication studies and the low success rates thereof, termed the replication crisis, has been identified as one of the main contributing factors to the

questioning of psychology research validity (Efendic & Van Zyl, 2019; Makel et al., 2012). Due to low rates of replication studies within psychology, the discipline finds itself in a “crisis of confidence” (Derksen & Morawski, 2022, p. 1490). For any discipline to be considered scientific, it must be able to reproduce or replicate previous research studies to establish the validity of findings or results (Makel et al., 2012; Wiggins & Christopherson, 2019; Zwaan et al., 2018). Replication studies are an important feature of a science, as they create confidence that conclusions are trustworthy and assists the discipline in self-correction driven by a critical and questioning attitude (Galetzka, 2019; Lilienfeld & Waldman, 2017; Macleod, 2022).

The Replication Types

Currently the types of replication studies within psychology research lack unique operationalisations, as there are different definitions which have been proposed and have resulted in them often being used interchangeably (Artner et al., 2021; Barba, 2018; Peels, 2019; Stevens, 2017). Incorporating knowledge from previous research (Artner et al., 2021; Derksen & Morawski, 2022; Hopp & Hoover, 2019; National Science Foundation [NSF], 2015, as cited in Peels, 2019; Plucker & Makel, 2021; Shrout & Rodgers, 2018), replication studies are classified in this review as either reproducibility studies, direct replications, or conceptual replications.

Firstly, reproducibility studies use the same data, research question and methodology as the original author (Artner et al., 2021; NSF, 2015, as cited in Peels, 2019). The main purpose of a reproducibility study is for an independent researcher to verify the results or findings of a previous study (Artner et al., 2021; Shrout & Rodgers, 2018). Secondly, direct replication studies have the same objective(s) as the original study and follow the original methodology as closely as possible while collecting new raw data under similar conditions (Artner et al., 2021; Hopp & Hoover, 2019; NSF, 2015, as cited in Peels, 2019). Proponents

of direct replications argue that these types of replications should receive increased attention, as before theories can be extended, a phenomenon must first be replicable (Derksen & Morawski, 2022). However, direct replication studies have come under scrutiny due to contexts being “socially, culturally, and historically highly variable” (Derksen & Morawski, 2022, p. 1491). Therefore, researchers cannot expect that a direct replication will necessarily result in the same observed effect when collecting new raw data (Derksen & Morawski, 2022).

Thirdly, conceptual replication studies use new methodologies to test, refine, and develop the underlying theory of the original study (Derksen & Morawski, 2022; Hopp & Hoover, 2019; NSF, 2015, as cited in Peels, 2019). Therefore, the focus of conceptual replications is not on falsification (Derksen & Morawski, 2022), but the cumulative nature of theory development by prioritising the exploration of psychological phenomena (Derksen & Morawski, 2022; Zwaan et al., 2018). In fact, Zwaan et al. (2018, p. 9) put forth that the term conceptual replication is a “misnomer” as “what such a study in effect does, is test an extension”. Conceptual replications will often purposefully alter elements such as the study context or sample demographics (Plucker & Makel, 2021; Zwaan et al., 2018).

Replication Crisis

The lack of reproducibility studies, direct replications and conceptual replications constitutes the replication crisis, which has added to an atmosphere of distrust in psychology research (Lilienfeld & Waldman, 2017; Makel et al., 2012; Renkewitz & Heene, 2019; Wiggins & Christopherson, 2019). A lack of inherent self-correction due to the replication crisis can have a domino effect, as psychology research builds upon itself by recommending and motivating future research (Begley & Loannidis, 2015, as cited in Galetzka, 2019; Shrout & Rodgers, 2018). This domino effect was observed in the case of Diederik Stapel who manipulated and fabricated data that directly impacted his colleagues and student’s research

(Świątkowski & Dompnier, 2017; Vogel, 2011). Reports on the matter found that 55 journal papers were affected, as well as 14 of the 21 doctoral theses he supervised (Vogel, 2011). Cases such as that of Diederik Stapel could hold serious consequences for psychology as research is translated into applications, treatments, and policy development (Makel et al., 2012; Peels, 2019).

In 2015 the Open Science Collaboration illustrated another dimension of the replication crisis in that replication studies in psychology have not been very successful (Open Science Collaboration, 2015; Renkewitz & Heene, 2019; Wiggins & Christopherson, 2019). The Open Science Collaboration found that only 36% of a hundred published articles could be replicated successfully and estimates that replication rates for social psychology and cognitive psychology are 25% and 50% respectively (Open Science Collaboration, 2015; Renkewitz & Heene, 2019; Wiggins & Christopherson, 2019). Artner et al. (2021) attempted to replicate 46 published articles, with only one third of the studies being replicated successfully. In addition, it was found that 5% of the conclusions were no longer valid (Artner et al., 2021). Moreover, Derksen and Morawski (2022, p. 1490) report that published studies within psychology research have a “significant extent of false positives”, often as the result of flawed methodological practices. As such, an increase in replication studies within psychology research would be a beneficial tool in identifying methodological issues that require further investigation (Hopp & Hoover, 2019; Shrout & Rodgers, 2018; Zwaan et al., 2018).

However, failure to replicate a study does not necessarily imply that the study was faulty. Psychology research studies are difficult to replicate due to them being contextually based, making them open to social and cultural changes (Derksen & Morawski, 2022; Wiggins & Christopherson, 2019). Moreover, the scope of the replication crisis within psychology research is in doubt, as there is no agreed-upon definition of what constitutes a

successful replication (Galetzka, 2019; Lilienfeld & Waldman, 2017). Some researchers argue that the cumulative strength of replication results should be analysed in comparison to individual results (Galetzka, 2019). For example, when the ‘Many Labs’ project pooled results for replication studies for 13 effects, they found that 11 out of the 13 effects were replicated (Klein et al., 2014, as cited in Galetzka, 2019). Furthermore, it was found that within psychology research it has been more effective to investigate patterns of replication results from various studies, rather than making conclusions based on a singular replication study (Muradchanian et al., 2021; Shrout & Rodgers, 2018). Therefore, there is still room for the development of a universal system of replication evaluation within psychology research to determine replication success (Shrout & Rodgers, 2018). However, the lack of a universal system of replication evaluation does not explain the low rates of replication studies being undertaken (Galetzka, 2019; Lilienfeld & Waldman, 2017).

Various reasons for the low rate of replication studies within psychology research have been identified, such as publication bias towards replication studies by journals that prefer novel and statistically significant results (Efendic & Van Zyl, 2019; Galetzka, 2019; Lilienfeld & Waldman, 2017). For example, in 2011 Daryl Bem published a research study in the *Journal of Personality and Social Psychology*, claiming to be able to provide empirical evidence of the existence of precognition (Schimmack, 2020; Wiggins & Christopherson, 2019). However, when attempts were made to publish replication studies failing to support Bem’s claims, the research was rejected by several journals due to it not being sufficiently important (Wiggins & Christopherson, 2019).

Replication studies are held in low esteem by both journals and the psychology research community as they are viewed as not contributing to the existing body of knowledge (Block & Kuckertz, 2018; Martin & Clarke, 2017; Nosek et al., 2022). As a result, some authors have started presenting conceptual replications as a ‘replication and extension’ due to

the authors not wanting to present a study that seems unoriginal (Block & Kuckertz, 2018). In addition to the diminished regard for replication studies, there are limited financial resources available within psychology research (Sternberg, 2016). Therefore, researchers and entities perceive replication studies as less viable (Efendic & Van Zyl, 2019; Fraser et al., 2020). Moreover, limited funding can result in replication studies often using inadequate sample sizes (Efendic & Van Zyl, 2019; Turner et al., 2018). Inadequate sample sizes in replication studies are problematic, as they can reduce the probability that what you are detecting is indeed an effect (Efendic & Van Zyl, 2019; Świątkowski & Dompnier, 2017). Consequently, replication studies that employ small sample sizes are at greater risk of failing to identify a true effect (Efendic & Van Zyl, 2019; Świątkowski & Dompnier, 2017).

Another obstacle to replication studies in psychology research is the lack of transparency of the methodology of published articles (Efendic & Van Zyl, 2019; Scholtz et al., 2020; Stevens, 2017). For example, Scholtz et al. (2020) determined that 31% of psychology studies in a South African journal did not state their sampling method and that there was a lack of transparency in overall methodology. Furthermore, a lack of open data sharing practices amongst researchers in psychology research has made it difficult to investigate the validity of findings or results (Efendic & Van Zyl, 2019; Wiggins & Christopherson, 2019). However, some journals have started to reform data sharing practices, requiring open data sharing from researchers who wish to publish (Efendic & Van Zyl, 2019; Wiggins & Christopherson, 2019). Open data sharing practices have been found to promote the replication of published research (Artner et al., 2021; Hardwicke et al., 2018). For example, when the journal *Cognition* adopted an open data policy, Hardwicke et al. (2018) attempted to confirm the results of 35 research studies. However, the results of only 11 articles could be reproduced using the raw data provided (Hardwicke et al., 2018). Therefore, greater transparency in psychology research is required to address the replication crisis as an

open science is a confirmable science (Efendic & Van Zyl, 2019; Fife & Rodgers, 2021; Hopp & Hoover, 2019; Renkewitz & Heene, 2019). However, Maiers (2021) argues that factors such as publication bias, small sample sizes, and a lack of transparency are merely superficial reasons for the replication crisis and that the core reason has not yet been identified.

Future research needs to focus on how psychology can evolve from the replication crisis and what reforms need to take place (Shrout & Rodgers, 2018; Wiggins & Christopherson, 2019). For psychology to move forward as a science, replication studies need to become the norm as they are instrumental in evaluating the health of the discipline (Artner et al., 2021; Wiggins & Christopherson, 2019).

Problem Statement

Although the cause of the replication crisis within psychology has received increased attention, there is still a lack of research regarding the status or the extent of the replication crisis within South African psychology research. This was illustrated by the researcher not being able to identify research in the South African context which explores the status of replication studies within psychology. Furthermore, determining the nature of the replication crisis within South African psychology will reflect research practices within the field which have been found to be beneficial in responding to the replication crisis (Schimmack, 2020; Shrout & Rodgers, 2018). Therefore, this scoping review study (see section 2) acts as an initiator of the discussion surrounding the status of replication studies in South African psychology research by determining the nature and extent of replication studies.

Aim of this Scoping Review Research Study

The scoping review research study aimed to provide an indication of the status of replication studies in South African psychology research by determining the nature and

context of replication studies, replication methodology, study results or findings, and the conclusions reached.

Research Question

What is the status of replication studies in South African psychology?

Method of Investigation

Scoping reviews are conducted for a variety of reasons (Gill, 2021). One use of a scoping review is to identify the scope of the available literature regarding a research activity and to identify and examine the extent and nature thereof (Arksey & O'Malley, 2005; Grant & Booth, 2009). Therefore, a scoping review research study was conducted to obtain a comprehensive view of the status of replication studies in South African psychology.

Scoping reviews and systematic reviews share certain characteristics, such as being systematic and transparent in their methodology to facilitate replication (Grant & Booth, 2009). However, where a systematic review will have a well-defined research question, a scoping review intentionally addresses broader topics to achieve a comprehensive view (Arksey & O'Malley, 2005). A potential limitation of a scoping review is that studies will be included based on their existence and not on the quality of their content, including methodological quality (Gill, 2021; Grant & Booth, 2009).

This scoping review research study was conducted by Ms Arina Visagie [primary reviewer] and Professor Werner de Klerk [secondary reviewer]. Furthermore, Mr Ryan Evan du Toit acted as the peer reviewer of the scoping review process. The methodological framework followed for the scoping review research study was based on the methodological framework set forth by Arksey and O'Malley (2005). The steps followed for the scoping review research study were: 1) *identifying the research question*, 2) *identifying relevant studies*, 3) *study selection process*, 4) *charting data*, and finally 5) *summarising and reporting findings* (Arksey & O'Malley, 2005).

Stage 1: Identify the Research Question

Identifying a clear research question assists in ensuring methodological rigour in a scoping review (Gill, 2021). Furthermore, the research question of the scoping research study guided how the literature search strategy was constructed (Arksey & O'Malley, 2005). The research question for this scoping review was identified as: *What is the status of replication studies in South African psychology?*

Stage 2: Identify Relevant Studies

The scoping review research study aimed to provide an indication of the status of replication studies in psychology in South Africa. Therefore, a wide range of literature resources was investigated (Gill, 2021). The scoping review research study utilised research from full-text journal studies, peer-reviewed literature, non-peer reviewed studies, quantitative studies, qualitative studies, mixed method studies, review studies, PhD theses, and Masters' dissertations or mini-dissertations. Furthermore, language criteria and a timeframe for inclusion were incorporated as part of the search strategy (Gill, 2021). The scoping review research study included literature from the year 2000 to the year 2022 to gain a holistic picture of replication study trends in psychology in South Africa before and after the incident of Diederik Stapel, which brought the validity of psychology's findings and results into the forefront (Wiggins & Christopherson, 2019). Due to budget and time constraints, only English literature was considered and therefore potentially relevant literature in other languages was excluded.

The primary reviewer identified relevant literature using a systematic search strategy. A Boolean search was conducted on a bibliographic database search of the North-West University (NWU) with the assistance of a librarian information specialist (Peters et al., 2020). Identifying keywords is a crucial step in a scoping review study and promotes transparent search practices (Peters et al., 2020). The keywords entered in the Boolean search

included “replicat*” AND “South Africa” AND “psychology”. The search was conducted on the following databases of the NWU library: Academic search Complete, APA PsycInfo, Business Source Complete, SocINDEX with Full Text, CAB Abstracts with Full Text, MEDLINE, Africa-Wide Information, Springer Nature Journals, MasterFILE Premier, APA PsycArticles, SPORTDiscuss with Full Text, ScienceDirect, CINAHL with Full text, Scopus, Business Insights Essentials, Communication Source, Journals@OVID, Music Index with Full Text, African Journals, RILM Abstracts, Waters & Oceans Worldwide, Applied Science & Technology Source, Art & Architecture Complete, ERIC, Health Source Nursing Academic Edition. In addition, the database of Google Scholar, ResearchGate, Nexus, and National ETD Portal were searched for relevant literature using the same keywords as used on the NWU database. Due to the literature search strategy requiring the keyword of “replicat*” to appear in either the title or abstract, it is possible that not all replication studies in South African psychology conducted in the selected time frame were included.

Stage 3: Study Selection Process

When conducting a scoping review research study, the use of a quality appraisal tool is not required as the goal of a scoping review is to examine “the extent, range and nature of research activity”, regardless of study quality (Arksey & O’Malley, 2005, p. 21). Therefore, no quality appraisal tool was utilised to determine the inclusion or exclusion of literature. Literature was appraised manually by the primary reviewer through reading the titles to identify if the studies were replication studies. Identified literature was then temporarily included. Next the primary reviewer read through the abstracts to determine relevance. If the title and abstract did not provide clarification that the study was a replication study, the study was excluded. The appraisal process of the literature was conducted by the primary reviewer (Ms Arina Visagie) and was monitored by the secondary reviewer (Prof Werner de Klerk). The search strategy utilised by the reviewers is displayed in Figure 1.

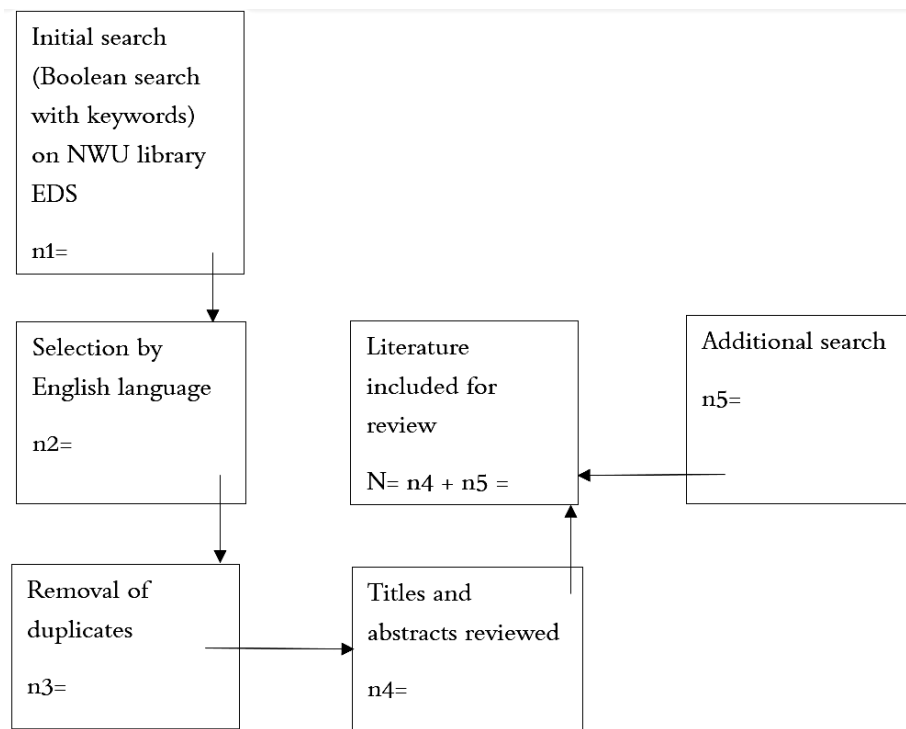


Figure 1. *Search Strategy Utilised by the Reviewers*

Stage 4: Charting Data

Charting the data provides a descriptive overview of the relevant literature informing the research question (Gill, 2021). For this scoping review research study, replication studies were tabulated according to authorship, study title, aim of the study, reported replication success, study context, methodology, findings, results, and conclusion. Furthermore, the original research studies upon which the replications were based were tabulated according to the same criteria. The replication study and original study methodologies and contexts were used to determine whether a reproducibility study, direct replication, or conceptual replication was conducted. Furthermore, the replication study findings, results, and conclusions illustrated the similarities, deviations, or extensions from the original research study.

Additionally, an assessment was conducted to identify instances of 'multiple replications' within the replication studies. For the context of this scoping review, a

replication study was categorised as a 'multiple replication' if it referred to earlier replications of the original research article upon which it was based.

Stage 5: Summarising and Reporting Findings

Findings of the scoping review research study were presented in tabular form and included information such as the type of replication study conducted, replication success, similarities and deviations between the replication and original studies, replication study extensions, and whether the replication study stemmed from multiple replications. Subsequently, these findings were deliberated in connection to prior literature, culminating in suggested avenues for future research (Gill, 2021).

Ethics

Two reviewers were involved in the data extraction and reporting process (Wager & Wiffen, 2011). The primary reviewer (Ms Arina Visagie) is registered with the Health Professions Council of South Africa (HPCSA) as a student in the Master's in Health Sciences (MHSC) Research Psychology Programme at the NWU (2022-2023). Furthermore, the secondary reviewer (Prof Werner de Klerk) is a registered Research Psychologist with the HPCSA and has the required experience and knowledge in conducting review studies. Moreover, the peer reviewer of the scoping review process (Mr Ryan Evan du Toit) has obtained a MHSC Research Psychology degree from the NWU.

This scoping review research study only examined literature and no participants were involved. Furthermore, the scoping review research study did not compare or investigate therapeutic methods or clinical interventions and therefore ethical issues were minimal. Moreover, the reviewers ensured that the scoping review research study was conducted according to a set methodological framework. Plagiarism was avoided by referencing all literature used in text and in a reference list, according to the APA 7th edition. Moreover, the reviewers immersed themselves in the literature included to ensure that they use the findings

as the authors originally intended (Krefting, 1991). The reviewers had no competing interest in this scoping review research study and the primary reviewer used their own funding to conduct the research (Wager & Wiffen, 2011). Furthermore, the scoping review research study received ethical clearance from the Health Research Ethics Committee (HREC) of the NWU (NWU-00115-22-A1).

Rigour

Rigour in research refers to the processes put in place to ensure transparent and unbiased research design, analysis, and reporting of results/findings (Hofseth, 2018). Krefting (1991) describes four factors which are important aspects for ensuring rigour during the research process: credibility, confirmability, dependability, and transferability.

Credibility

Credibility is the confidence a researcher has in the truth of the research (Krefting, 1991). Credibility in the scoping review research study was ensured by presenting a thick description of the findings, presenting findings accurately from the original literature, and ensuring that the work of the authors was used as originally intended (Krefting, 1991). The primary reviewer was monitored by the secondary reviewer for the duration of the scoping review research study to improve credibility (Krefting, 1991). Furthermore, the primary and secondary reviewer adhered to the systematic search strategy for the identification of relevant literature. Moreover, a peer reviewer for the scoping review process was utilised (Krefting, 1991).

Confirmability

Confirmability refers to the neutral presentation of findings of a research study free from researcher bias or perspectives (Guba, 1981). Confirmability for the scoping review research study was ensured by using keywords during the literature search, detailing the literature selection processes, and providing a detailed evidence synthesis (Peters et al.,

2020). Furthermore, the reviewers adhered to the steps of a scoping review as proposed by Arksey and O'Malley (2005) and a computerised search of literature using established keywords was conducted. Moreover, all literature used was referenced according to the APA 7th edition. To reduce bias, the primary reviewer was monitored by the secondary reviewer. Furthermore, the scoping review process was peer-reviewed. Moreover, the scoping review research study was the primary reviewer's own work.

Dependability

Dependability is how consistently findings are reached (Krefting, 1991). The reviewers ensured dependability by adhering to the processes and steps of a set methodology to ensure consistency and providing other researchers with a framework to review the consistency of the scoping review study.

Transferability

The reviewers provided a detailed description of the scoping review process to provide future researchers with enough detail to determine if findings of the study are relevant to their purposes (Krefting, 1991).

Conclusion

Section 1 of this mini-dissertation provides an overview of the process followed for the scoping review research study. Furthermore, the reader was introduced to key concepts such as psychology, the replication crisis, and different types of replication studies.

From the reviewed literature it was determined that replication studies are an important factor for trustworthiness and self-correction within a discipline (Galetzka, 2019; Lilienfeld & Waldman, 2017). However, it was also identified that there is a lack of replication studies and a lack of successful replication studies being conducted in psychology (Efendic & Van Zyl, 2019; Makel et al., 2012). Other elements contributing to the replication crisis are the poly-paradigmatic status of psychology, as these paradigms often have

conflicting theoretical frameworks or worldviews (Mironenko & Sorokin, 2020; Wu & Xu, 2020).

No studies could be identified investigating the status of the replication crisis of psychology research within the South African context. Therefore, there was a need to investigate the nature and extent of replication studies in psychology research in South Africa. A justification was provided for the use of a scoping review, as a scoping review was able to identify the scope of the available literature. Furthermore, a scoping review could examine the extent and nature of the replication crisis within the South African context regarding psychology research (Arksey & O'Malley, 2005; Grant & Booth, 2009). Moreover, the ethical and rigour principles applied during the scoping review study were described.

References

- American Psychological Association [APA]. (n.d.). Philosophy. In the *APA Dictionary of Psychology*. APA. <https://dictionary.apa.org/philosophy>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-31.
<https://doi.org/10.1080/1364557032000119616>
- Artner, R., Verliefde, T., Steegen, S., Gomes, S., Traets, F., Tuerlinckx, F., & Vanpaemel, W. (2021). The reproducibility of statistical results in psychological research: An investigation using unpublished raw data. *Psychological Methods*, 26(5), 527–546.
<https://doi.org/10.1037/met0000365>
- Audi, R. (2017). *Philosophy: A brief guide for undergraduates*. American Philosophical Association. <https://www.apaonline.org/page/undergraduates>
- Barba, L. A. (2018). Terminologies for reproducible research. *arXiv:1802.03311*.
<https://doi.org/10.48550/arXiv.1802.03311>
- Block, J., & Kuckertz, A. (2018). Seven principles of effective replication studies: Strengthening the evidence base of management research. *Management Review Quarterly*, 68(4), 355-359. <https://doi.org/10.1007/s11301-018-0149-3>
- Blystone, R. V., & Blodgett, K. (2006). WWW: The scientific method. *CBE—Life Sciences Education*, 5(1), 7–11. <https://doi.org/10.1187/cbe.05-12-0134>
- Colman, A. M. (2016). *What is psychology?* Routledge.
- Derksen, M., & Morawski, J. (2022). Kinds of replication: Examining the meanings of “Conceptual Replication” and “Direct Replication”. *Perspectives on Psychological Science*, 17(5). <https://doi.org/10.1177/17456916211041116>
- Efendic, E., & Van Zyl, L. E. (2019). On reproducibility and replicability: Arguing for open science practices and methodological improvements at the South African Journal of

- Industrial Psychology. *SA Journal of Industrial Psychology*, 45(0), a1607.
<https://doi.org/10.4102/sajip.v45i0.1607>
- Fife, D. A., & Rodgers, J. L. (2021). Understanding the exploratory or confirmatory data analysis continuum: Moving beyond the ‘replication crisis’. *American Psychologist*, 77(3). <http://dx.doi.org/10.1037/amp0000886>
- Fraser, H., Barnett, A., Parker, T. H., & Fidler, F. (2020). The role of replication studies in ecology. *Ecology and Evolution*, 10(12), 5197–5207.
<https://doi.org/10.1002/ece3.6330>
- Galetzka, C. (2019). A short introduction to the reproducibility debate in psychology. *Journal of European Psychology Students*, 10(3), 16–25. <http://doi.org/10.5334/jeps.469>
- Gerrig, R. J., Zimbardo, P. G., Campbell, A. J., Cumming, S. R., & Wilkes, F. J. (2015). *Psychology and life*. Pearson Higher Education AU.
- Gill, P. (2021). A concise, user-friendly guide to conducting and reporting scoping reviews in healthcare. *Pacific Rim International Journal of Nursing Research*, 25(3), 341-344.
<https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/251663>
- Giorgi, A. (2020). *Psychology as a human science: A phenomenologically based approach*. University Professors Press.
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26(2).
<https://doi.org/10.1111/j.1471-1842.2009.00848.x>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1-26. <https://doi.org/10.1080/1047840X.2014.940781>
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, 29(2), 75–91.
<https://doi.org/10.1007/BF02766777>

- Hardwicke, T. E., Mathur, M. B., MacDonald, K., Nilsson, G., Banks, G. C., Kidwell, M. C., Hofelich Mohr, A., Clayton, E., Yoon, E. J., Henry Tessler, M., Lenne, R. L., Altman, S., Long, B., & Frank, M. C. (2018). Data availability, reusability, and analytic reproducibility: Evaluating the impact of a mandatory open data policy at the journal *Cognition*. *Royal Society Open Science*, 5(8), 180448.
<https://doi.org/10.1098/rsos.180448>
- Harré, R. (2004). Staking our claim for qualitative psychology as science. *Qualitative Research in Psychology*, 1, 3-14. <https://doi.org/10.1191/1478088704qp002oa>.
- Hatfield, G. (2002). Psychology, philosophy, and cognitive science: Reflections on the history and philosophy of experimental psychology. *Mind and Language*, 17(3), 207–232. <https://doi.org/10.1111/1468-0017.00196>
- Hearnshaw, L. S. (2019). *The shaping of modern psychology: An historical introduction*. Routledge.
- Henriques, G. (2016, 27 January). *The “Is psychology a science?” debate*. Psychology Today. <https://www.psychologytoday.com/us/blog/theory-knowledge/201601/the-is-psychology-science-debate>
- Hofseth, L. J. (2018). Getting rigorous with scientific rigour. *Carcinogenesis*, 93(1), 21-25. <https://doi.org/10.1093/carcin/bgx085>
- Holt, N., Bremner, A., Sutherland, E., Vliek, M., Passer, M., & Smith, R. (2019). *Psychology: The science of mind and behaviour*. McGraw Hill eBooks.
https://books.google.co.za/books?hl=en&lr=&id=7MkvEAAAQBAJ&oi=fnd&pg=PP1&dq=Psychology+is+the+discipline+that+concerns+itself+with+the+study+of+the+human+mind+and+behaviour+&ots=8SI9x5DhLY&sig=-pDSvo1Wea9c9L6K3zJh_Wa_i2E&redir_esc=y#v=onepage&q=Psychology%20is%20a%20science

[20the%20discipline%20that%20concerns%20itself%20with%20the%20study%20of%20the%20human%20mind%20and%20behaviour&f=false](#)

Hopp, C., & Hoover, G. A. (2019). What crisis? Management researchers' experiences with and views of scholarly misconduct. *Science and Engineering Ethics*, 25, 1549–1588.
<https://doi.org/10.1007/s11948-018-0079-4>

Iso-Ahola, S. E. (2017). Reproducibility in psychological science: When do psychological phenomena exist? *Frontiers in Psychology*, 8.
<https://doi.org/10.3389/fpsyg.2017.00879>

Kalat, J. W. (2015). *Biological psychology*. Cengage Learning.

Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American Journal of Occupational Therapy*, 45(3), 214-222.
<https://doi.org/10.5014/ajot.45.3.214>

Kumatongo, B., & Muzata, K. K. (2021). Research paradigms and designs with their application in education. *Journal of Lexicography and Terminology*, 5(1), 16-32.
<https://journals.unza.zm/index.php/jlt>

Leahey, T. H. (2017). *A history of psychology: From antiquity to modernity*. Routledge.

Leppink, J. (2017). Revisiting the quantitative–qualitative-mixed methods labels: Research questions, developments, and the need for replication. *Journal of Taibah University Medical Sciences*, 12(2), 97–101. <https://doi.org/10.1016/j.jtumed.2016.11.008>

Lilienfeld, S. O., & Waldman, I. D. (2017). *Psychological science under scrutiny: Recent challenges and proposed solutions*. John Wiley.
<https://psycnet.apa.org/doi/10.1002/9781119095910>

Macleod, M. (2022). Improving the reproducibility and integrity of research: What can different stakeholders contribute? *BMC Research Notes*, 15(1).
<https://doi.org/10.1186/s13104-022-06030-2>

- Maiers, W. (2021). Replication crisis – Just another instance of the replication of crises in psychology? Historical retrospections and theoretical-psychological assessments. *Review of General Psychology*, 26(2), 250–260.
<https://doi.org/10.1177/10892680211033915>
- Makel, M. C., Plucker, J. A., & Hegarty, B. (2012). Replications in psychology research: How often do they really occur? *Perspectives on Psychological Science*, 7, 537–542.
<https://doi.org/10.1177/1745691612460688>
- Martin, G. N., & Clarke, R. M. (2017). Are psychology journals anti-replication? A snapshot of editorial practices. *Frontiers in Psychology*, 8(523).
<https://doi.org/10.3389/fpsyg.2017.00523>
- Matsumoto, D., & Juang, L. (2016). *Culture and psychology*. Cengage Learning.
- Melchert, T. P. (2016). Leaving behind our preparadigmatic past: Professional psychology as a unified clinical science. *American Psychologist*, 71(6), 486–496.
<https://doi.org/10.1037/a0040227>
- Mironenko, I. A., & Sorokin, P. S. (2020). Concerning paradigmatic status of psychological science: For a flexible and flowing psychology in the face of practical and theoretical challenges. *Integrative Psychological Behavioural Science*, 54, 604–612.
<https://doi.org/10.1007/s12124-020-09530-7>
- Muradchanian, J., Hoekstra, R., Kiers, H., & Van Ravenzwaaij, D. (2021). How best to quantify replication success? A simulation study on the comparison of replication success metrics. *Royal Society Open Science*, 8. <https://doi.org/10.1098/rsos.201697>
- Norman, E., Pfuhl, G., Sæle, R. G., Svartdal, F., Låg, T., & Dahl, T. I. (2019). Metacognition in Psychology. *Review of General Psychology*, 23(4), 403–424.
<https://doi.org/10.1177/1089268019883821>

- Nosek, B. A., Hardwicke, T. E., Moshontz, H., Allard, A., Corker, K. S., Dreber, A., Fidler, F., Hilgard, J., Kline Struhl, M., Nuijten, M. B., Rohrer, J. M., Romero, F., Scheel, A. M., Scherer, L. D., Schönbrodt, F. D., & Vazire, S. (2022). Replicability, robustness, and reproducibility in psychological science. *Annual Review of Psychology*, 73(1), 719–748. <https://doi.org/10.1146/annurev-psych-020821-114157>
- Omodan, B. I. (2022). A model for selecting theoretical framework through epistemology of research paradigms. *African Journal of Inter/Multidisciplinary Studies*, 4(1), 275-285. <https://doi.org/10.51415/ajims.v4i1.10>
- Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251). <https://doi.org/10.1126/science.aac4716>
- Peels, R. (2019). Replicability and replication in the humanities. *Research Integrity and Peer Review*, 4(2). <https://doi.org/10.1186/s41073-018-0060-4>
- Peters, M. D. J., Godfrey, C., McInerney, P., Munn, Z., Tricco, A. C., & Khalil, H. (2020). Chapter 11: Scoping reviews. In E. Aromataris, & Z. Munn, (Eds.), *JBIManual for Evidence Synthesis* (pp. 406-451). Joanna Briggs Institute (JBI). <https://doi.org/10.46658/JBIRM-20-01>
- Plucker, J. A., & Makel, M. C. (2021). Replication is important for educational psychology: Recent developments and key issues. *Educational Psychologist*, 56(2), 90–100. <https://doi.org/10.1080/00461520.2021.1895796>
- Poljak, D., & Jakić, M. (2017). A note on the character of physical models representing natural phenomena. *International Journal of Design & Nature and Ecodynamics*, 12(2), 254–263. <https://doi.org/10.2495/dne-v12-n2-254-263>
- Renkewitz, F., & Heene, M. (2019). The replication crisis and open science in psychology. *Zeitschrift für Psychologie (Journal of Psychology)*, 227(4), 233-236. <https://doi.org/10.1027/2151-2604/a000369>

- Sanbonmatsu, D. M., Cooley, E. H., & Butner, J. E. (2021). The impact of complexity on methods and findings in psychological science. *Frontiers in Psychology*, 11, 580111. <https://doi.org/10.3389/fpsyg.2020.580111>
- Schimmack, U. (2020). A meta-psychological perspective on the decade of replication failures in social psychology. *Canadian Psychology/Psychologie Canadienne*, 61(4), 364–376. <https://doi.org/10.1037/cap0000246>
- Scholtz, S. E., De Klerk, W., & De Beer, L. T. (2020). The use of research methods in the South African Journal of Psychology. *South African Journal of Psychology*, 51(4), 507-520. <https://doi.org/10.1177/0081246320969872>
- Schultz, D. (2013). *A history of modern psychology*. Academic Press.
- Shrout, P. E., & Rodgers, J. L. (2018). Psychology's replication crisis as scientific opportunity: A précis for policymakers. *Policy Insights from the Behavioral and Brain Sciences*, 5(1), 134–141. <https://doi.org/10.1177/2372732217749254>
- Sternberg, R. J. (2016). “Am I famous yet” judging scholarly merit in psychological science: An introduction. *Perspectives on Psychological Science*, 11(6). <https://journals.sagepub.com/doi/abs/10.1177/1745691616661777>
- Stevens, J. R. (2017). Replicability and reproducibility in comparative psychology. *Frontiers in Psychology*, 8(862). <https://doi.org/10.3389/fpsyg.2017.00862>
- Świątkowski, W., & Dompnier, B. (2017). Replicability crisis in social psychology: Looking at the past to find new pathways for the future. *International Review of Social Psychology*, 30(1), 111-124. <https://doi.org/10.5334/irsp.66>
- Teo, T. (2012). Psychology is still a problematic science and the public knows it. *American Psychologist*, 67(9), 807-808. <https://doi.org/10.1037/a0030084>

- Turner, B. O., Paul, E. J., Miller, M. B., & Barbey, A. K. (2018). Small sample sizes reduce the replicability of task-based fMRI studies. *Communications Biology*, 1(1), 1–10.
<https://doi.org/10.1038/s42003-018-0073-z>
- Uher, J. (2020). Psychology's status as a science: Peculiarities and intrinsic challenges. Moving beyond its current deadlock towards conceptual integration. *Integrative Psychological and Behavioral Science*, 55, 212–224. <https://doi.org/10.1007/s12124-020-09545-0>
- Vogel, G. (2011). Psychologist accused of fraud on 'astonishing scale'. *Science*, 334, 579.
<https://doi.org/10.1126/science.334.6056.579>
- Wager, E., & Wiffen, P. J. (2011). Ethical issues in preparing and publishing systematic reviews. *Journal of Evidence-Based Medicine*, 4, 130-134.
<https://doi.org/10.1111/j.1756-5391.2011.01122.x>
- Wiggins, B. J., & Christopherson, C. D. (2019). The replication crisis in psychology: An overview for theoretical and philosophical psychology. *Journal of Theoretical and Philosophical Psychology*, 39(4), 202-217. <http://dx.doi.org/10.1037/teo0000137>
- Wu, A., & Xu, S. (2020). One step further: Where to put the subjectivity of human mind in efforts of integrating psychology? *Integrative Psychological and Behavioural Science*, 54, 597–603. <https://doi.org/10.1007/s12124-020-09549-w>
- Zagaria, A., Ando', A., & Zennaro, A. (2020). Psychology: A giant with feet of clay. *Integrative Psychological and Behavioral Science*, 54(3), 521–562.
<https://doi.org/10.1007/s12124-020-09524-5>
- Zwaan, R. A., Etz, A., Lucas, R. E., & Donnellan, M. B. (2018). Making replication mainstream. *Behavioral and Brain Sciences*, 41, 1–50.
<https://doi.org/10.1017/S0140525X17001972>

SECTION 2: ARTICLE

As per the Manual for Higher Degrees Studies of the North-West University, the mini-dissertation is presented in article format. The article will be submitted for possible publication in the *Journal of Psychology in Africa* (JPA). The author instructions as per the JPA is presented, followed by the article.

Author Instructions

Manuscripts

Manuscripts shall be written in English with a maximum word count of 7000 words. The manuscripts shall be presented according to the guidelines of the latest edition of the American Psychological Association (APA) publication manual.

Submission

Manuscripts should be presented in MSWord and make use of double spacing with wide margins. Before manuscript submission, the authors shall consult the latest issue of the JPA for the general layout and style.

Manuscript Format

Pages shall be numbered consecutively (including pages containing tables, figures, and references).

Title

A brief title is presented with important keywords (less than 13).

Author(s) and Address(es) of Authors

Corresponding author(s) must be indicated. The affiliations of where the research was conducted must be provided, as well as the e-mail address of the corresponding author(s).

Abstract

Abstracts shall be written in English and should not exceed 150 words. The structure of the abstract should be as follows: Objective (primary purpose of the paper), Method (data source, participants, design, measures, data analysis), Results (key findings, implications, future directions), and Conclusion. The abstract should not include references.

Text

Only one space will follow any punctuation. No spaces will be included between paragraphs. Colour within the text is not allowed. References shall be aligned using a hanging indent.

Tables and Figures

Only information relevant to the content of the article shall be included. Tables and figures will be sequentially mentioned in-text and presented with a stand-alone caption. Tables and figures should be collected at the end of the manuscript or supplied as separate files. The correct placement in-text shall be indicated in this form: <insert Table 1 here>. Figures must conform to the JPA style with particular attention being paid to the line thickness, font, and proportions.

Referencing

Referencing style shall be according to the latest edition of the APA publication manual.

In-Text Referencing

Citations should make use of et al. after the first author's surname.

Reference List

The full reference list must be provided at the end of the article in alphabetical order using double spacing. References shall be aligned using a hanging indent (the use of tabs and spaces is not permitted). Titles of journals must not be abbreviated.

Article

Running Head: REPLICATION STUDIES IN SOUTH AFRICAN PSYCHOLOGY RESEARCH

Determining the status of replication studies in South African psychology research

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Abstract

This literature review aimed to determine the status of replication studies within South African psychology research, particularly considering the replication crisis plaguing the field. A scoping review was conducted for the period from 2000 to 2022, and through a systematic search, eight replication studies were identified. Most South African replication studies reported replication success and were predominantly conceptual and quantitative in nature. Sample sizes tended to be smaller than those of the original research studies, with university students frequently serving as the preferred sample type. Replication efforts were mainly concentrated in the domains of cognitive and social psychology. Additionally, transparency issues in research approach, research design, type of replication, and replication success were evident. This review highlights the need for South African psychology replication studies to embrace diverse methodological approaches within various domains of psychology. Replication studies are the link between current and future knowledge, and therefore must be conducted explicitly with methodological clarity.

Keywords: Psychology, replication, reproducibility, scoping review, South Africa.

Introduction

During the 19th century, psychology strived to establish itself as a scientific discipline independent of its philosophical origins (Giorgi, 2020; Hearnshaw, 2019; Leahey, 2017; Schultz, 2013). For a discipline to be considered scientific it must be able to reproduce or replicate previous research studies to establish validity (Makel et al., 2012; Wiggins & Christopherson, 2019; Zwaan et al., 2018). However, psychology as a science has come under increased scrutiny due to psychology's replication crisis (Efendic & Van Zyl, 2019; Makel et al., 2012; Mironenko & Sorokin, 2020). A lack of replication studies and the low success rates thereof, termed the replication crisis (Efendic & Van Zyl, 2019; Makel et al., 2012), has caused psychology to find itself in a "crisis of confidence" (Derksen & Morawski, 2022, p. 1490).

The replication types

The types of replication studies within psychology research lack unique operationalisations, resulting in terms often being used interchangeably (Artner et al., 2021; Barba, 2018; Peels, 2019; Stevens, 2017). Incorporating knowledge from previous research (Artner et al., 2021; Derksen & Morawski, 2022; Hopp & Hoover, 2019; National Science Foundation [NSF], 2015, as cited in Peels, 2019; Shrout & Rodgers, 2018), replication studies are classified within this scoping review as either reproducibility studies, direct replications, or conceptual replications.

Firstly, reproducibility studies use the same research aim, data, and methodology as the original author (Artner et al., 2021; NSF, 2015, as cited in Peels, 2019). The main purpose of a reproducibility study is for an independent researcher to verify the results or findings of a previous study (Artner et al., 2021; Shrout & Rodgers, 2018). Secondly, direct replication studies have the same objectives as the original studies and follow the original methodology

as closely as possible while collecting new raw data under similar conditions (Artner et al., 2021; Hopp & Hoover, 2019; NSF, 2015, as cited in Peels, 2019).

Thirdly, conceptual replication studies use new methodologies, contexts, or sample demographics to test, refine, and develop the underlying theory of the original study (Derksen & Morawski, 2022; Hopp & Hoover, 2019; NSF, 2015, as cited in Peels, 2019; Plucker & Makel, 2021; Zwaan et al., 2018). Therefore, the focus of conceptual replications is not on falsification (Derksen & Morawski, 2022), but the cumulative nature of theory development by prioritising the exploration of psychological phenomena (Derksen & Morawski, 2022; Zwaan et al., 2018).

Replication crisis

The lack of reproducibility studies, direct replications and conceptual replications constitutes the replication crisis, which has added to the atmosphere of distrust in psychology research (Lilienfeld & Waldman, 2017; Makel et al., 2012; Renkewitz & Heene, 2019; Wiggins & Christopherson, 2019). For psychology to move forward as a scientific discipline, replication studies need to become the norm as they are instrumental in assisting in self-correction driven by a critical and questioning attitude (Artner et al., 2021; Galetzka, 2019; Lilienfeld & Waldman, 2017; Makel et al., 2012; Wiggins & Christopherson, 2019). A lack of inherent self-correction due to the replication crisis can have a domino effect, as psychology research builds upon itself by recommending and motivating future research (Begley & Loannidis, 2015, as cited in Galetzka, 2019; Shrout & Rodgers, 2018), while also informing treatments and policy developments (Makel et al., 2012; Peels, 2019).

In 2015 the Open Science Collaboration illustrated another dimension of the replication crisis, in that replication studies in psychology research have not been very successful (Open Science Collaboration, 2015; Renkewitz & Heene, 2019; Wiggins & Christopherson, 2019). The Open Science Collaboration found that only 36% of a hundred

published articles could be replicated successfully (Open Science Collaboration, 2015).

Furthermore, when Artner et al. (2021) attempted to replicate 46 published articles, only one third was replicated successfully.

Although the cause of the replication crisis within psychology research has received increased attention recently (Efendic & Van Zyl, 2019; Hofseth, 2018, Wiggins & Christopherson, 2019), there is still a lack of research regarding the status or the extent of the replication crisis within the South African context.

Goal of the research study

It is important to determine the nature of the replication crisis within South African psychology research as an important first step towards self-correction (Lilienfeld & Waldman, 2017; Macleod, 2022). Therefore, this scoping review research study aimed to determine the nature and extent of replication studies within South African psychology research. The following research question guided the scoping review research study: *What is the status of replication studies in South African psychology research?*

Method

It is essential to ensure that the correct methodology is implemented to answer the research question of a research study (De Klerk et al., 2023). The scoping review research study received ethical clearance (NWU-00115-22-A1) from the Health Research Ethics Committee (HREC) of the North-West University (NWU). The lead author was monitored by the co-authors for the duration of the research process. Furthermore, the scoping review process was peer-reviewed. The methodological framework followed for the scoping review research study was based on the framework set forth by Arksey and O'Malley (2005).

Identifying relevant literature

The scoping review research study included literature from the year 2000 to the year 2022. A Boolean search was conducted with the assistance of a librarian information specialist on the

following databases of the NWU library: Academic search Complete, APA PsycInfo, Business Source Complete, SocINDEX with Full Text, CAB Abstracts with Full Text, MEDLINE, Africa-Wide Information, Springer Nature Journals, MasterFILE Premier, APA PsycArticles, SPORTDiscuss with Full Text, ScienceDirect, CINAHL with Full text, Scopus, Communication Source, Journals@OVID, Music Index with Full Text, African Journals, RILM Abstracts, Applied Science & Technology Source, ERIC, Health Source Nursing Academic Edition. Furthermore, the databases of Google Scholar, ResearchGate, Nexus, and National ETD Portal were also searched. The keywords entered in the Boolean search included “replicat*” [title] AND “South Africa” [all text] AND “psychology” [all text].

When conducting a scoping review research study, the use of a quality appraisal tool is not required (Arksey & O’Malley, 2005). Therefore, the titles and abstracts of literature were appraised manually by the primary author to determine relevance. If the title and abstract did not provide clarification of whether the study was a replication study, the study was excluded. The original search delivered 236 pieces of literature which were systematically reduced to eight. Figure 1 illustrates the systematic search and inclusion strategy which was followed.

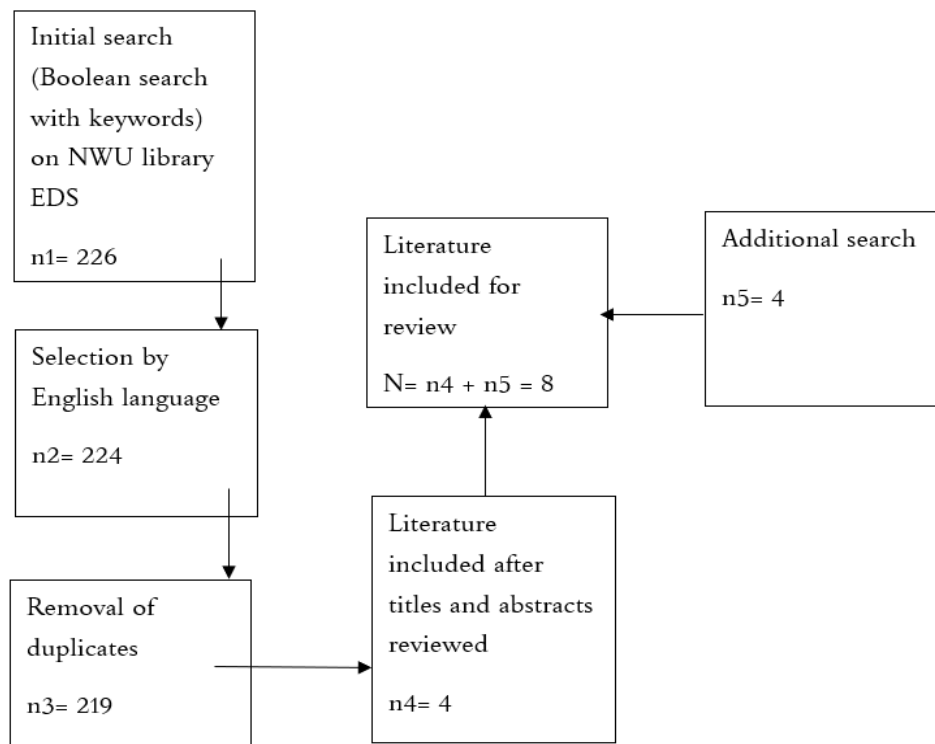


Figure 1. *Search and inclusion strategy utilised*

Charting data

Charting the data provides a descriptive overview of the relevant literature informing the research question (Gill, 2021). The eight identified replication studies were tabulated according to authorship, study title, aim of the study, reported replication success, study context and sample, methodology, findings, results, and conclusion (see Table 1). Furthermore, the original research studies upon which the replications were based were tabulated according to the same criteria (see Table 2).

The replication and original research study context, sample and methodology were used to determine whether a reproducibility study, direct replication, or conceptual replication was conducted. Moreover, the replication study findings, results, and conclusions illustrated the similarities, deviations, or extensions from the original research study. Additionally, instances of '*multiple replications*' were identified. For the purpose of this scoping review research study, a replication study was classified as a multiple replication if it referred to previous replications of the original research study on which it was based.

Table 1. Replication study data extraction

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
King (2008). Epistemic action and language: A cross-linguistic study. <i>Replication of:</i> Maglio et al. (1999).	To perform a cross-linguistic replication of Maglio et al. (1999).	<i>Approach:</i> Not stated. <i>Design:</i> Experimental. <i>Measure(s):</i> Seven tiles from a scrabble board game were used as visual stimuli. Two letter sets of Maglio et al. (1999). Three randomly generated letter sets. Rey-Oesterich Complex Figure Task (distractor task). Babcock Story Recall Task (distractor task). <i>Data analysis:</i> Word count was calculated. ANOVA was used to indicate significance. Post-hoc analyses were conducted for interaction effects observed. <i>Sample:</i> Bilingual undergraduate university students (n = 179). <i>Context:</i> University of Cape Town, South Africa.	Epistemic actions aided in word production, especially when an individual produced words in their second language. For both Afrikaans and English participants, the epistemic effect on word production was limited and only occurred in specific contexts. Therefore, epistemic actions may only be helpful under certain conditions. Rather than the epistemic effect, the specific letter set far more influenced the number of words produced for both groups. Moreover, the study found a significant effect of the letter set on the length of words produced, which was not observed in Maglio et al. (1999). Only certain aspects of the original experiment could be replicated successfully for both language groups, possibly due to cross-language interference effects.	The study found that the specific letter set used significantly affected word production more than epistemic actions did. Furthermore, the use of epistemic actions is linked to the letter set used. Moreover, when the task is performed in the second language of an individual, epistemic actions provide more aid. <i>Replication success reported:</i> Partly successful.
Leppänen et al. (2006). Emotional face processing deficit in schizophrenia: A replication study in a South African Xhosa population. <i>Replication of:</i> Habel et al. (2000).	To determine if Xhosa schizophrenia patients also display a deficit in the processing of negative emotions.	<i>Approach:</i> Not stated. <i>Design:</i> Experimental. <i>Measure(s):</i> Colour pictures from the MacBrain Face Stimulus Set were presented on a desktop computer. <i>Data analysis:</i> Percentages of correct responses for happy and angry faces were calculated. Furthermore, the percentage of happy and angry responses for neutral faces was determined. Differences between the patients and controls were investigated by conducting a three-way ANOVA.	Both schizophrenia patients and the controls were equally able to recognise happy facial expressions. However, schizophrenic patients demonstrated deficits in recognising angry facial expressions. No correlation was found between illness duration and emotional face processing. Schizophrenia patients indicated increased false happy and angry responses to neutral faces more than the controls did.	The emotional face processing deficits indicate a possible neurocognitive marker of schizophrenia that is not impacted by culture or context. Processing deficits when recognising negative emotions were more noticeable in familial cases of schizophrenia. <i>Replication success reported:</i> Successful.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
		<i>Sample:</i> Xhosa adult test group (n = 44) and Xhosa adult control group (n = 33). <i>Context:</i> Cape Town, South Africa.		
Leslie and Finchilescu (2013). Perceptions of the future of South Africa: A 2009 replication. <i>Replication of:</i> Danziger (1963).	To continue Kurt Danziger's research on future ideologies in South Africa.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> Questionnaire containing a written essay, an Optimism Scale (Hamel et al., 2005), and a Relative Deprivation Scale (Dambrun et al., 2006). <i>Data analysis:</i> Essays were analysed using content analysis with predetermined categories. Responses on both the Optimism Scale and Relative Deprivation Scale were averaged, with a higher average indicating higher levels. ANOVA was conducted to determine significant differences between groups. <i>Sample:</i> Psychology university students (n = 223). <i>Context:</i> University of the Witwatersrand, South Africa.	A large part of the sample did not manage to present a defined future, a possible indication of the current stability of South African society. The future ideologies of 'Liberal', 'Deterioration', and 'Catastrophic' were mostly expressed. The ideology category of 'Conservative/ Segregationist' did not appear at all. However, a significant difference was found in the levels of optimism measured between the ideologies of 'Liberal', 'Deterioration', and 'Catastrophic'. Individuals with 'Liberal' ideologies were far more optimistic than the 'Deterioration' or 'Catastrophic' ideologies. Moreover, relative deprivation scores indicated a significant difference between the 'Liberal' ideology and the ideologies of 'Deterioration' and 'Catastrophic'.	The future ideologies of 'Liberal', 'Deterioration', and 'Catastrophic' were mostly found within the South African sample. Differences in levels of optimism and relative deprivation were found amongst certain ideologies and groups. <i>Replication success reported:</i> Not discussed.
Maurer (2001). An exploration of the effective educator in the KwaZulu-Natal (KZN) context. <i>Replication of:</i> Burns (1987).	To explore what learners and educators in KZN considers to be an effective educator.	<i>Approach:</i> Not stated. <i>Design:</i> Survey. <i>Measure(s):</i> The Effective Teacher Questionnaire. <i>Data Analysis:</i> A Chi-square statistical analysis was done to determine statistical significance. <i>Sample:</i> School learners (n = 208) and teachers (n = 9). <i>Context:</i> Schools in KwaZulu-Natal, South Africa.	KZN teachers and learners indicated that the personality and inherent characteristics of an educator are important. Furthermore, learners believed an effective educator should be able to go beyond the curriculum. However, the KZN teachers and learners did not agree with the use of corporal punishment, while most of the Burn's (1987) sample did. Furthermore, Burn's (1987) findings differed on the view on examinations. Burn's (1987) sample believed an effective educator is one who achieves high examination results, while this was not reflected in the KZN sample of the study. Moreover, it is believed that the	The study revealed similar findings to the original Burn's (1987) study and that the concept of an effective educator exists. However, differences were observed in perceptions of educators and learners on issues such as the use of corporal punishment and the importance of examination results. <i>Replication success reported:</i> Successful.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
			ideal of the effective educator can exist within an ineffective schooling system, while the Burn's (1987) sample was sceptical.	
Møller and Roberts (2015). South African hopes and fears 20 years into democracy: A replication of Hadley Cantril's pattern of human concerns. <i>Replication of: Cantril (1965).</i>	To conduct an in-depth investigation of South African aspirations for a better life, perceived obstacles, and perceived progress towards achieving individual and national prosperity.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> Open-ended questions. Self-Anchoring Striving Scale (Cantril, 1965) which includes the 'Ladder-of-Life' illustration. <i>Data analysis:</i> Coding according to the Cantril (1965) classification scheme. Frequencies of categories were determined. Average ratings on the Self-Anchoring Striving Scale were determined and compared across groups. <i>Sample:</i> South Africans (n = 2521). <i>Context:</i> South Africa.	Participants shared a consensus on hopes and fears. There was consensus on hopes and fears among the different racial groups, except for one national fear. Fears and worries were more likely to be expressed than hopes and aspirations. Participants expressed that the best personal outcome would be a life where they had the opportunity for education, employment, and a happy family life. National hopes and fears were focused on keeping democracy healthy, growing the economy, and having honest governance. Interestingly, many national hopes were mirrored in national fears. The same psychological divide as Cantril (1965) between ratings participants assign themselves and those they assign to their country was observed. The codes for 'freedom' and 'a lack of freedom' were mentioned less than 1% of time, a possible indication that participants are confident in South African democracy. The Ladder-of-Life ratings increased systematically from past to present to future. However, personal, and nationally ratings reflected different rates of progress.	South African hopes and fears reflected the divide between rich and poor. However, South Africans express hope for future progress. Furthermore, Cantril's measures stood the test of time and can be applied in multiple contexts. <i>Replication success reported:</i> Successful.
Schaap et al. (2022). Replicating the essentially unidimensional model of the MACE work-to-family enrichment scale: Going	To test a unidimensional model of the MACE-W2FE.	<i>Approach:</i> Quantitative. <i>Design:</i> Cross-sectional survey. <i>Measure(s):</i> The MACE-W2FE Scale. <i>Data analysis:</i> Bayesian structural equation modelling (BSEM) to support a unidimensional model. Furthermore, comparative fit indexes	Data analysis revealed that the current four factor model for the MACE-W2FE Scale is a product of shared variance between the items. Overall, the data support a unidimensional measurement model of the MACE-W2FE Scale.	The study corroborates the unidimensional model of the MACE-W2FE Scale as found by Schaap and Koekemoer (2021). <i>Replication success reported:</i> Successful.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
beyond goodness-of-fit indices. <i>Replication of:</i> Schaap and Koekemoer (2021).		were calculated. Bifactor strength indices determined bias within the model. <i>Sample:</i> Employees (n = 973). <i>Context:</i> South Africa.		
Tolond (2004). To see or not to see a sexually abused child in a picture. <i>Replication of:</i> Lindblom (2002).	To investigate how individuals studying a degree in psychology process CSA when it is visually presented to them.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> A two-part questionnaire containing Lindblom's (2002) threat picture with open-ended questions, and the Child Sexual Abuse Myth Scale (CSAMS). <i>Data analysis:</i> Lindblom's (2002) coding procedure was followed for interview analysis. The items of the CAMS were categorised according to three pre-determined factors. <i>Sample:</i> First year psychology students (n = 89). <i>Context:</i> University of KwaZulu-Natal, South Africa.	Results indicated that approximately 37% of the sample did not classify the drawing as CSA, compared to the approximately 25% of Lindblom's (2002) study. Higher scores on the CSAMS correlated with participants' ability to classify CSA, thereby indicating that participant responses were influenced by social representations and social understandings of CSA.	The study's original hypothesis was confirmed in that individuals rely on social understandings of CSA and not individual mental representations when classifying CSA. <i>Replication success reported:</i> Successful.
Van Rensburg (2017). Culture, self, and cognition: Adding Africa to the mix. <i>Replication of:</i> Chua et al. (2005).	Exploring individualism and collectivism (IND-COL) measurement in South Africa and the effects of IND-COL on visual attention and memory.	<i>Approach:</i> Cognitive toolkit. <i>Design:</i> Experimental (single-factor between-groups). <i>Measure(s):</i> The Horizontal and Vertical Individualism and Collectivism (HVIC). Eye tracking and object recognition software displaying the original images of Chua et al. (2005). Arithmetic problems (distractor task). <i>Data analysis:</i> To determine the psychometric properties of the HVIC various statistical tests were conducted to establish the internal consistency, test-retest reliability, construct validity, and the predictive values of race, language, and sex. Eye-tracking was analysed	Similar eye-tracking patterns were found in both individualistic (IND) and collectivistic (COL) groups. Furthermore, both groups performed worse in the object recognition tasks when the backgrounds were altered and spent more time focussing on the focal objects. Both IND and COL South African groups performed similarly to the Chinese sample with regard to eye-movements and memory. The South African sample differed significantly from the American sample in terms of eye movements and object recognition. No significant differences were found between the South African IND and COL groups in	South Africans differed significantly from the Chinese and American participants used by Chua et al. (2005). <i>Replication success reported:</i> Unsuccessful.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
		using Tobii Studio software. ANOVAs and post-hoc analysis were conducted to determine differences from the Chua et al. (2005) sample. <i>Sample:</i> University students (n = 1432). <i>Context:</i> University of Cape Town, South Africa.	terms of memory and eye movement patterns. However, this result is likely due to methodological difficulties in measuring IND and COL traits in South Africa.	

Table 2. Original study data extraction

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
Burns (1987). The effective teacher in the South African context. <i>Replicated by:</i> Maurer (2001).	The purpose was to investigate the perspectives of pupils in South Africa regarding teacher effectiveness.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> The Effective Teacher Questionnaire. <i>Data analysis:</i> Data analysis was done in accordance with The Effective Teacher Questionnaire procedures. <i>Sample:</i> School learners (n = 1676) and teachers (n = 292). <i>Context:</i> South Africa.	Results indicate an agreement between pupils and teachers about an effective educator; they create positive relationships, uses a child-centred approach of teaching, and go beyond the confines of the syllabus. However, additional culturally specific factors were mentioned by the Kwa-Zulu Natal (KZN) teachers. Overall, the personal quality of an individual is a factor in being an effective educator in the South African context, as has been observed in previous British and American studies. However, results indicate that the effective South African educator can use their personal qualities to transcend a rigid curriculum to raise awareness and to fully meet student needs. However, it is questioned whether an effective teacher can exist within an ineffective school setting.	In the South African context, an effective educator can use their personal qualities and convictions to create a classroom that has a humanising atmosphere which supports the needs of students.
Cantril (1965)^a. The pattern of human concerns.	To explore the pattern of concerns in countries at different in levels of development.	<i>Approach/Design:</i> Could not be determined. <i>Measure(s):</i> In-depth interviews. Self-Anchoring Striving Scale and 'Ladder-of-Life' illustration.	Hopes expressed in developed countries differed from those of less developed countries. Nations who recently underwent major political changes were more inclined to express national fears. Common hopes and fears expressed by all countries related to opportunities for future generations, good health,	Hopes and aspirations for a better future were universally expressed. Furthermore, to attain a better future individuals desire personal freedom

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
Replicated by: Møller and Roberts (2015).		<i>Data analysis:</i> Hopes and fears were coded into categories and frequencies were determined. Average ratings on the Self-Anchoring Striving Scale were calculated and compared across groups. <i>Sample:</i> Approximately 24 000. <i>Context:</i> Thirteen countries.	employment, housing, education, and happy personal lives. Individuals focused their hopes on their personal lives while societal aspirations were less of a concern. Furthermore, psychological distance was observed between the ratings participants assigned their country and the ones they assigned to themselves. Codes that presented less than 5% of the time should be further investigated as they may indicated personal and societal factors that are being taken for granted by a given population. Ladder-of-Life ratings systematically increased from past, present, to future.	and a context conducive to growth and fostering dignity.
Chua et al. (2005). Cultural variation in eye movements during scene perception. Replicated by: Van Rensburg (2017).	To examine cultural differences in perceptual judgement and memory.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> Seventy-two pictures (animals, non-living things, and background scenes) were used in object recognition (ISCAN head-mounted eye-tracker) and memory tasks. Demographic questionnaire (age, education, English language ability). <i>Data analysis:</i> Not discussed. <i>Sample:</i> Graduate students (n = 51). <i>Context:</i> Michigan, USA.	Culture can influence eye movement patterns. Results showed that the American and Chinese eye movement patterns differed. American participants tended to look at the foreground object sooner and for a longer period than the Chinese participants. Chinese participants fixated primarily on the background of the images. However, both American and Chinese participants had longer fixations on the objects than on the background image. Overall, American participants used a more analytical perceptual style while the Chinese participants used a holistic perceptual style.	Cultural differences were observed in eye movements, which create differences in judgment and memory. This may be due to Eastern and Western cultures differing in their allocation of attentional resources.
Danziger (1963). Ideology and utopia in South Africa: A methodological contribution to the sociology of knowledge. Replicated by: Leslie and Finchilescu (2013).	To determine the social cognitive orientations of various social groups within South Africa.	<i>Approach/Design:</i> Not stated. <i>Measure(s):</i> A written three-page essay. Self-developed Adjectival Scales. <i>Data analysis:</i> Social cognitive orientations were derived from the essays according to four provided criteria. The frequencies of social cognitive orientations were calculated for each social group. The Adjectival Scales were scoring procedures followed.	Five social cognitive orientations were identified: ‘Conservative’, ‘Technicist’, ‘Catastrophic’, ‘Liberal’, and ‘Revolutionary’. The frequencies of these orientations differed between social groups. This indicates that a group’s social cognitive orientation is partly determined by the position of the group within the greater social structure. Furthermore, the perspective of the relationship between ruler and ruled also played a role. Moreover, common psychological factors within a group play a	Within a particular society there are a limited number of social cognitive orientations which are unequally distributed within all social groups. Social cognitive orientations are not static and can lead to action.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
		<i>Sample:</i> University students and high school learners (n = 509). <i>Context:</i> South Africa.	role in determining an individual's social cognitive orientation.	
Habel et al. (2000). Emotional processing in schizophrenia across cultures: standardised measures of discrimination and experience. <i>Replicated by:</i> Leppänen et al. (2006).	To examine possible cultural differences in emotional processing tasks.	<i>Approach:</i> Not stated. <i>Design:</i> Not stated. <i>Measure(s):</i> The Facial Emotional Discrimination Test and The Facial Mood Induction Task. <i>Data analysis:</i> The percentage of correct emotional identifications was calculated. Mood induction manipulation and differences between cultures were determined with repeated analysis of variance (ANOVA) measures. Correlations were calculated to determine if there is a relationship between emotional discrimination ability and the intensity of mood induction. <i>Sample:</i> German and Indian schizophrenia patients (n = 53) and controls (n = 53). Schneider et al., (1995) for American sample (n = 80). <i>Context:</i> USA, India, and Germany.	All patients with schizophrenia showed impairment in face discrimination; however, this impairment was most notable in Indian patients. Lower facial emotional discrimination impairment was also evident in the Indian controls. However, the all-male Indian patient and control group may point to a gender influence. Differences in discrimination performance between the Indian and other groups were observed; however, the longer duration of illness in the Indian group compared to the others was suggested as a possible cause. Mood induction performance showed no substantial differences between cultural groups. No significant relationship was found between emotional discrimination ability and intensity of mood induction.	Schizophrenic individuals experience similar impairments when it comes to emotional discrimination tasks regardless of cultural origin. This supports a common neurological basis in schizophrenia.
Lindblom (2002)^b. To see or not to see a sexually abused child in a picture. <i>Replicated by:</i> Tolond (2004).	To determine how individuals interpret a picture that represents child sexual abuse (CSA).	<i>Approach:</i> Could not be determined. <i>Design:</i> Could not be determined. <i>Measure(s):</i> Open-ended questions in conjunction with a threat picture drawn to illustrate CSA. <i>Data analysis:</i> Responses of participants were assigned to five categories of CSA recognition. <i>Sample:</i> University students (n = 515). <i>Context:</i> Sweden.	Seventy-five percent of participants was categorised as identifying the picture as CSA. However, 25% of participants was categorised as not identifying CSA.	Individuals' inability to recognise CSA was due to them having no prior mental representations of CSA and therefore they could not visually identify abuse.

Author(s) and title	Aim	Methodology and sample	Results and findings	Conclusion
Maglio et al. (1999). Interactive skills in Scrabble. <i>Replicated by:</i> King (2008).	To test whether problem solving is made easier when combined with physical actions.	<i>Approach:</i> Not stated. <i>Design:</i> Experimental. <i>Measure(s):</i> Scrabble letter pieces with two letter sets “RDLOSNA” and “EMTGPEA”. Arithmetic problem (distractor task). <i>Data analysis:</i> Statistical analysis using the mean number of words generated for each letter set, two-way ANOVA, and post-hoc comparisons. <i>Sample:</i> University students (n = 20). <i>Context:</i> California, USA.	Physical manipulation aided in word generation. There was no relationship between physical manipulation and the length of the words produced. However, an interaction effect was observed between physical manipulation and the specific letter set used. The interaction effect could be explained by the difficulty of generating words from different letter sets. The more difficult the letter set is to produce words, the more physical manipulation aided word generation. Therefore, physical manipulation aids word generation more in certain circumstances than in others.	Participants generated more words with physical manipulation than without, although interaction effects with letter sets were observed. Physical manipulation of letters allows individuals to conduct an interactive process using the external environment during the process of word searching.
Schaap and Koekemoer (2021). Determining the dimensionality and gender invariance of the MACE work-to-family enrichment scale using bifactor and approximate invariance tests. <i>Replicated by:</i> Schaap et al. (2022).	To determine the MACE Work-to-Family Enrichment Scale (MACE-W2FE) dimensionality and to test for scale variances within gender groups.	<i>Approach:</i> Quantitative. <i>Design:</i> Cross sectional survey. <i>Measure(s):</i> MACE-W2FE Scale. <i>Data analysis:</i> Measurement models were tested using likelihood estimation methods. Furthermore, comparative fit indexes were calculated. The plausibility of a general factor for MACE-W2FE was evaluated using a bifactor model. <i>Sample:</i> South-African employees (n = 786). <i>Context:</i> South Africa.	The construct of work-family enrichment (WFE) is best represented by a unidimensional model. The multiple factors within the MACE-W2FE Scale model are not distinct constructs. Being gender invariant, the MACE-W2FE Scale provides future opportunities for researching gender differences in the domain.	The study supported a unidimensional measurement model of the MACE-W2FE Scale. However, a theory supporting a robust WFE measure is needed for future research.

^a Secondary sources were used for data regarding the methodology, sample, results, and conclusion. ^b Secondary sources were used for data regarding the results and conclusion.

Findings

The findings of the scoping review research study are presented in Table 3. Of the eight replication studies identified, 62.50% used smaller sample sizes than the original research study and 37.50% were replications of research studies previously conducted within the South African context. Half of the replication studies used university students as their sample, with the remainder using either South African adults, school learners, or a clinical sample.

Overall, conceptual replications were mostly conducted, as only 12.50% of studies were direct replications. No reproducibility studies were identified. The type of replication being conducted was specified only by Schaap et al. (2022), while the remaining replication studies used broad terms such as ‘replication’ or ‘partial replication’.

With regard to the research approaches and designs used, 25.00% of the replication studies specified both their research approaches and designs, whereas 37.50% clarified only their research design. All research approaches and designs specified, whether in the context of the replication or original research study, were quantitative in nature. Furthermore, the replication studies that did not specify their chosen research approach or design used at least one scale as a data collection tool.

Apart from Leslie and Finchilescu (2013), who did not report or discuss replication success, 62.50% of replication studies reported a successful replication, 12.50% reported partial success, and 12.50% were unsuccessful. Moreover, 57.14% of the conceptual replications and 100% of direct replications reported replication success. Half of the replication studies were found to be multiple replications, and all of these were within the domains of social and cognitive psychology.

Table 3. The nature of South African replication studies

Original author(s) and title	Type of replication and replication success	Replication study similarities	Replication study deviations	Replication study extensions
King (2008). Epistemic action and Language: A cross-linguistic study. <i>Replication of:</i> Maglio et al. (1999).	<i>Type:</i> Conceptual. <i>Replication successful:</i> Partly.	<i>Design:</i> Experimental. <i>Sample type:</i> University students. <i>Data collection:</i> 7 scrabble tiles, distractor tasks. <i>Data Analysis:</i> inferential statistics used. <i>Findings/results:</i> Epistemic actions aided in word production in specific contexts. An interaction effect occurred between physical manipulation and the specific letter set used.	<i>Context:</i> South Africa. <i>Sample type:</i> Bilingual university students. <i>Sample size:</i> Larger (179 vs. 20). <i>Data collection:</i> 3 randomly generated letter sets. <i>Findings/results:</i> Only certain aspects of the original experiment could be replicated successfully for both language groups, possibly due to cross-language interference effects.	<i>Data analysis:</i> Interaction effect between letter set and epistemic actions investigated, influence of language on epistemic actions investigated. <i>Findings/results:</i> The specific letter set used significantly affected word production more than epistemic actions did. The replication study introduced a cross-linguistic element, which found that when the task is performed in a second language, epistemic actions provide more aid.
Leppänen et al. (2006). Emotional face processing deficit in schizophrenia: A replication study in a South African Xhosa population. <i>Replication of:</i> Habel et al. (2000).	<i>Type:</i> Conceptual. <i>Replication successful:</i> Yes.	<i>Sample type:</i> Schizophrenia patients. <i>Data collection:</i> Experimental and control groups. <i>Data analysis:</i> Inferential statistics used. <i>Findings/results:</i> The emotional face processing deficits indicate a possible neurocognitive marker of schizophrenia that is not impacted by culture or context.	<i>Context:</i> South Africa. <i>Sample type:</i> Xhosa adults. <i>Sample size:</i> Smaller (77 vs 106). <i>Data collection:</i> Digital data collection with colour pictures. <i>Findings:</i> Both the schizophrenia patients and controls were equally able to recognise happy facial expressions. No link was observed between the duration of the illness and emotional face processing.	<i>Data analysis:</i> Association between familial cases of schizophrenia and processing deficits determined. <i>Findings/results:</i> Processing deficits in recognising negative emotions were more noticeable in familial cases of schizophrenia, providing additional motivation for a common neurological basis of schizophrenia.
Leslie and Finchilescu (2013)* Perceptions of the future of South Africa: A 2009 replication.	<i>Type:</i> Conceptual. <i>Replication successful:</i> Not discussed.	<i>Context:</i> South Africa. <i>Sample type:</i> University students. <i>Data collection:</i> 3-page written essay. <i>Data analysis:</i> Inductive content analysis.	<i>Sample size:</i> Smaller (223 vs 509). <i>Sample type:</i> High school learners excluded. <i>Data collection:</i> Optimism Scale, Relative Deprivation Scale.	<i>Data analysis:</i> Association between optimism, relative deprivation, and social ideology was investigated. <i>Findings/results:</i> Significant differences in the levels of optimism

Original author(s) and title	Type of replication and replication success	Replication study similarities	Replication study deviations	Replication study extensions
<i>Replication of:</i> Danziger (1963).		<i>Findings/results:</i> Within a particular society there are a limited number of social cognitive orientations (social ideologies) which are unequally distributed within all social group. A group's social ideology is partly determined by the position of the group within the greater social structure.	<i>Data analysis:</i> Inferential statistics. <i>Findings/results:</i> The ideology category of 'Conservative/Segregationist' did not appear at all in the replication study. The replication study sample was not able to present a defined future.	and relative deprivation amongst certain social ideologies were reported.
Maurer (2001). An exploration of the effective educator in the KwaZulu-Natal (KZN) context. <i>Replication of:</i> Burns (1987).	<i>Type:</i> Direct. <i>Replication successful:</i> Yes	<i>Context:</i> South Africa. <i>Sample type:</i> Teachers and high school learners. <i>Data collection:</i> The Effective Teacher Questionnaire. <i>Data analysis:</i> Questionnaire scoring procedure. <i>Findings/results:</i> The personal quality of an individual is a factor in being an effective educator in the South African context The effective South African educator can use their personal qualities to transcend a rigid curriculum to raise awareness and to fully meet student needs.	<i>Sample size:</i> Smaller (217 vs 1968). <i>Data analysis:</i> Inferential statistics. <i>Findings/results:</i> Learners and educators believed that the ideal of an effective educator can exist within an ineffective schooling system, while the original study sample was sceptical. Learners and educators did not agree with the use of corporal punishment or the importance of examination results.	None.
Møller & Roberts (2015)* South African hopes and fears twenty years into democracy: A replication of Hadley Cantril's pattern of human concerns. <i>Replication of:</i> Cantril (1965).	<i>Type:</i> Conceptual. <i>Replication successful:</i> Yes.	<i>Sample type:</i> Adults. <i>Data collection:</i> Self-Anchoring Striving Scale, Ladder-of-Life illustration, open-ended questions. <i>Data analysis:</i> content analysis, frequency counts, scale averages.	<i>Context:</i> South Africa. <i>Sample size:</i> Smaller (2521 vs 24000). <i>Data collection method:</i> Open-ended questions presented and answered in written format. <i>Findings/results:</i> There was consensus by South African adults on hopes and fears.	<i>Findings/results:</i> The Cantril (1965) method and coding structure was found to be applicable to the South African context.

Original author(s) and title	Type of replication and replication success	Replication study similarities	Replication study deviations	Replication study extensions
		<i>Findings/results:</i> Similar personal and national hopes and fears were expressed. Fears were more likely to be expressed than hopes and aspirations. Many hopes are mirrored in fears. The same psychological divide was observed between ratings participants assign to themselves and those they assign to their country. The Ladder-of-Life ratings increased systematically from past to present to future. Personal, and nationally ratings reflected different rates of progress. Codes present less than 5% of the time may indicated personal and societal factors that are being taken for granted by a given population.		
Schaap et al. (2022)* Replicating the essentially unidimensional model of the MACE work-to-family enrichment scale: Going beyond goodness-of-fit indices. <i>Replication of:</i> Schaap and Koekemoer (2021).	<i>Type:</i> Conceptual. <i>Replication successful:</i> Yes.	<i>Approach:</i> Quantitative. <i>Design:</i> Cross-sectional. <i>Context:</i> South Africa. <i>Sample type:</i> Adult employees. <i>Data collection:</i> MACE-W2FE Scale. <i>Findings/results:</i> Both studies corroborated the unidimensional model of the MACE-W2FE Scale. The multiple factors within the MACE-W2FE Scale model are not distinct constructs.	<i>Sample size:</i> Larger (973 vs 786). <i>Data analysis:</i> Gender invariance of the MACE-W2FE Scale was not investigated.	<i>Data analysis:</i> Bayesian structural equation modelling. <i>Findings/results:</i> The underlying theoretical framework for a unidimensional model of the MACE-W2FE Scale was refined and developed.
Tolond (2004). To see or not to see a sexually abused child in a picture.	<i>Type:</i> Conceptual. <i>Replication successful:</i> Yes.	<i>Sample type:</i> University students. <i>Data collection:</i> Lindblom threat picture, open-ended questions. <i>Data analysis:</i> Codes to categorise.	<i>Context:</i> South Africa. <i>Sample size:</i> Smaller (89 vs 515). <i>Data collection.:</i> The Child Sexual Abuse Myth Scale (CSAMS).	<i>Data analysis:</i> The effect of social understandings on the identification of CSA was investigated. <i>Findings/results.</i> Social understandings influence CSA identification.

Original author(s) and title	Type of replication and replication success	Replication study similarities	Replication study deviations	Replication study extensions
Replication of: Lindblom (2002).			Findings/results: 37% of the replication study did not identify the threat picture as CSA. A lack of individual mental representations of CSA does not influence CSA identification.	
Van Rensburg (2017)* Culture, self, and cognition: Adding Africa to the mix. Replication of: Chua et al. (2005).	Type: Conceptual. Replication successful: No.	Sample type: University students. Data collection: Chua et al. (2005) pictures, eye-tracking software. Findings/results: South Africans performed similarly to the Chinese sample with regards to eye-movements and memory.	Context: South Africa Sample size: Larger (1432 vs. 51) Data collection: Horizontal and Vertical Individualism and Collectivism Scale, distractor task. Findings/results: The South African sample differed significantly from the American sample in terms of eye movement and object recognition.	Data analysis: The effect of individualism and collectivism on eye movements and memory were investigated. Findings/results: The South African sample, regardless of being interdependent (collectivistic) or independent (individualistic), did not differ regarding eye-movement and object recognition patterns. The lack of significant differences between the perceptual processes of groups was attributed to methodological difficulties.

*indicates multiple replications.

Discussion

This scoping review research study aimed to determine the nature of replication studies within South African psychology research. Through a systematic search, eight replication studies conducted during the period 2000 to 2022 were identified.

Conceptual replications are preferred within South African psychology research, a trend previously observed by Makel et al. (2012) in a sample of international psychology journals where only 14% of replications were direct replications. Although conceptual replications play an important role in cumulative theory and knowledge development (Derksen & Morawski, 2022; Hopp & Hoover, 2019), it is crucial that before theories can be extended upon, a phenomenon must first be replicable (Derksen & Morawski, 2022; Plucker & Makel, 2021; Zwaan et al., 2018). As Anderson and Maxwell (2017) reiterate, conceptual replications are most relevant when the original effect has already been corroborated by either reproducibility studies or direct replications.

Overall, South African replication studies exhibited a lack of transparency regarding their chosen research approaches, designs, and the type of replication study being conducted. However, the lack of transparency regarding the type of replication study being conducted could be a consequence of the lack of well-clarified and unique conceptualisations of the types of replications within psychology research (Artner et al., 2021; Barba, 2018; Peels, 2019). Nevertheless, not providing a well-clarified conceptualisation of the type of replication being conducted can be problematic as each type of replication serves a different purpose (Derksen & Morawski, 2022; Martin & Clarke, 2017; Pittelkow et al., 2023; Zwaan et al., 2018). Moreover, the type of replication study being conducted may impact on what is considered replication success (Derksen & Morawski, 2022; Pittelkow et al., 2023; Zwaan et al., 2018). For example, the failure of a conceptual replication study does not necessarily

invalidate the original research study as it only illustrates the lack of applicability of previous research findings or results within a new context (Derksen & Morawski, 2022).

Nonetheless, greater transparency in psychology research is required to address the replication crisis as “an open science is a verifiable science” (Efendic & Van Zyl, 2019, p. 4). Peels (2019) reinforces this by contending that the ability to replicate hinges directly on transparency. A plausible remedy for enhancing the transparency of replication studies is the adoption of registered research reports (Aguinis & Solarino, 2019; Stevens, 2017). Such reports encompass the narrative of the published article alongside a comprehensive exposition of the research methodology, raw data, and all pivotal decisions undertaken throughout the study.

That most replication studies within South African psychology research reported being successful reflects the findings of Makel et al. (2012), who found that 78.90% of replication studies in international psychology journals were successful. However, replication success rates for direct replications (72.90%) and conceptual replications (82.80%) differed from the South African sample (Makel et al., 2012). Interestingly, Leppänen et al. (2006) Maurer (2001), and Møller and Roberts (2015) reported successful replications while also reporting differences in results from the original research study. However, within psychology research there is no agreed upon definition of what constitutes a successful replication (Galetzka, 2019; Lilienfeld & Waldman, 2017). To provide clarity on what is considered a successful replication, it has been suggested that researchers should carry the responsibility of clearly defining replication success within their studies (Peels, 2019).

The tendency of South African replication studies to use smaller sample sizes than the original research study contrasts with what was found by Muradchanian et al. (2021) and the Open Science Collaboration (2015), where replication studies tended to have sample sizes at least twice as large as the original studies. However, the use of smaller sample sizes does not

mean a replication study is faulty, as determining adequate sample sizes within replication is challenging (Anderson & Kelley, 2022; Anderson & Maxwell, 2017). There are many factors to consider, such as the goal of the replication, the type of replication, and replication study design (Anderson & Kelley, 2022; Anderson & Maxwell, 2017). For example, the original research study of Cantril (1965) had a sample of approximately 24,000, while the replication study of Møller and Roberts (2015) used a sample of 2,521. However, it was not the goal of Møller and Roberts (2015) to conduct a direct replication of Cantril (1965). Rather, a conceptual replication was conducted with the aim of investigating hopes and fears within a South African context (Møller & Roberts, 2015).

Regardless, it is recommended that researchers should devote resources to carefully consider, plan, and justify sample sizes (Anderson & Kelley, 2022) since replication studies with inadequate sample sizes have been noted as a challenge for many years within psychology research (Nosek et al., 2022; Shrout & Rodgers, 2018). Moreover, researchers are encouraged to reduce the limitation of an inadequate sample size by using valid and reliable measurement instruments or alternative research designs (Anderson & Maxwell, 2017).

As with South African replication studies, research has indicated that specific domains such as cognitive and social psychology exhibit greater replication rates, including multiple replications (Laws, 2016). This suggests that most psychological research domains remain overlooked (Laws, 2016). Replicating a study multiple times is vital within any scientific discipline, as a single successful replication does not guarantee that the study was valid (Maxwell et al., 2015). Conversely, a single failed replication does not conclusively invalidate a study (Maxwell et al., 2015). Therefore, the validity of psychological research should be situated within a comprehensive body of evidence, which multiple replications facilitate (Maxwell et al., 2015; Shrout & Rodgers, 2018). However, within South African

psychology research, the benefit of cumulative knowledge acquisition is currently not equally distributed.

The belief that replication studies are only relevant to quantitative research approaches (Leppink, 2017; Plucker & Makel, 2021) is shared by South African replication studies that were examined. The discourse concerning replication within qualitative research has garnered considerable debate and attention (Leppink, 2017; Plucker & Makel, 2021); however, questions remain regarding the replication of qualitative research, particularly its viability in the context of grounded theory or critical race theory (Plucker & Makel, 2021).

In summary, most South African replication studies reported replication success and were conceptual and quantitative in nature. Sample sizes tended to be smaller than the sample sizes of the original research studies, while university students were the preferred sample type. Although South African replication studies show cumulative knowledge development through multiple replications, these were focused mainly within the domains of cognitive and social psychology. Overall, replication studies lacked transparency with regard to the research approach, design, type of replication, and what is considered replication success.

Conclusion

The current nature of replication studies within South African psychology research indicates that not only are there conceptual challenges, but also a lack of methodological transparency. Furthermore, there is a need for South African psychology research to approach the replication crisis as a credibility revolution that encourages and emphasises various methodological approaches within various domains of psychology (Plucker & Makel, 2021; Vazire, 2018). As argued by Schmidt (2009), replication studies are the link between current and future knowledge and must be conducted in a deliberate and systematic manner to achieve this purpose.

Limitations and recommendations

Only English literature was considered in addition to the literature search strategy and appraisal process focussing only on the titles and abstracts of literature. Therefore, it is possible that not all replication studies conducted in the specified period were identified. Furthermore, the short time frame (2000 to 2022) investigated within South African psychology research limited comparisons to internationally conducted research studies that generally investigated a longer period with larger sample sizes. The use of secondary sources during the data extraction process limited an in-depth examination of all original research studies.

Future research should focus on attaining conceptual clarity of the types of replication studies within psychology to promote consistency and methodological clarity. Furthermore, future replication studies should move away from concentrating on replications within certain domains of psychology and limiting the research approaches used. To ensure the ease of interpretation, reproducibility, and validity of South African replication studies, the following recommendations are made: 1) clear criteria for replication success should be defined and justified, 2) researchers must be transparent regarding the research approach, design, and type of replication being conducted, and 3) justification of samples sizes.

Data availability statement

The data that support the results of this study are available from the corresponding author upon reasonable request.

Declaration of conflicting interest

The authors have no conflict of interest with regard to their authorship or publication of this article.

References

- Aguinis, H., & Solarino, A. M. (2019). Transparency and replicability in qualitative research: The case of interviews with elite informants. *Strategic Management Journal*, 40(1), 1291–1315. <https://doi.org/10.1002/smj.3015>
- Anderson, S. F., & Kelley, K. (2022). Sample size planning for replication studies: The devil is in the design. *Psychological Methods*. <https://doi.org/10.1037/met0000520>
- Anderson, S. F., & Maxwell, S. E. (2017). Addressing the “replication crisis”: Using original studies to design replication studies with appropriate statistical power. *Multivariate Behavioral Research*, 52(3), 305–324. <https://doi.org/10.1080/00273171.2017.1289361>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–31. <https://doi.org/10.1080/1364557032000119616>
- Artner, R., Verliefe, T., Steegen, S., Gomes, S., Traets, F., Tuerlinckx, F., & Vanpaemel, W. (2021). The reproducibility of statistical results in psychological research: An investigation using unpublished raw data. *Psychological Methods*, 26(5), 527–546. <https://doi.org/10.1037/met0000365>
- Barba, L. A. (2018). Terminologies for reproducible research. *arXiv:1802.03311*. <https://doi.org/10.48550/arXiv.1802.03311>
- Burns, R. (1987). The effective teacher in the South African context. *South African Journal of Education*, 7(2), 151–159.
- Cantril, H. (1965). *The pattern of human concerns*. Rutgers University Press.
- Chua, H. F., Boland, J. E., & Nisbett, R. E. (2005). Cultural variation in eye movements during scene perception. *Proceedings of the National Academy of Sciences*, 102(35), 12629–12633. <https://doi.org/10.1073/pnas.0506162102>

- Dambrun, M., Taylor, D. M., McDonald, D. A., Crush, J., & Méot, A. (2006). The relative deprivation-gratification continuum and the attitudes of South Africans towards immigrants: A test of the V-curve hypothesis. *Journal of Personality and Social Psychology*, 91(6), 1032–1044. <https://psycnet.apa.org/doi/10.1037/0022-3514.91.6.1032>
- Danziger, K. (1963). Ideology and utopia in South Africa: A methodological contribution to the sociology of knowledge. *The British Journal of Sociology*, 14(1), 59–76. <https://doi.org/10.2307/587322>
- De Klerk, W., Barnard, M. C., De Klerk, E., Du Toit, R. E., & Daniel-Smit, J. (2023). The social science research process: A new model. *Open Journal of Social Sciences*, 11, 156-173. <https://doi.org/10.4236/jss.2023.1111010>
- Derksen, M., & Morawski, J. (2022). Kinds of replication: Examining the meanings of “Conceptual Replication” and “Direct Replication”. *Perspectives on Psychological Science*, 17(5). <https://doi.org/10.1177/17456916211041116>
- Efendic, E., & Van Zyl, L. E. (2019). On reproducibility and replicability: Arguing for open science practices and methodological improvements at the South African Journal of Industrial Psychology. *SA Journal of Industrial Psychology*, 45(0), a1607. <https://doi.org/10.4102/sajip.v45i0.1607>
- Galetzka, C. (2019). A short introduction to the reproducibility debate in psychology. *Journal of European Psychology Students*, 10(3), 16–25. <http://doi.org/10.5334/jeps.469>
- Gill, P. (2021). A concise, user-friendly guide to conducting and reporting scoping reviews in healthcare. *Pacific Rim International Journal of Nursing Research*, 25(3), 341-344. <https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/251663>
- Giorgi, A. (2020). *Psychology as a human science: A phenomenologically based approach*. University Professors Press.

- Habel, U., Gur, R. C., Mandal, M. K., Salloum, J. B., Gur, R. E., & Schneider, F. (2000). Emotional processing in schizophrenia across cultures: Standardized measures of discrimination and experience. *Schizophrenia Research*, 42(1), 57–66.
[https://doi.org/10.1016/s0920-9964\(99\)00093-6](https://doi.org/10.1016/s0920-9964(99)00093-6)
- Hamel, E., Brodie, M., & Morin, R. (2005). A survey of South Africa ten years into the new democracy. *International Journal of Public Opinion Research*, 18(3), 351–363.
<https://doi.org/10.1093/ijpor/edh102>
- Hearnshaw, L. S. (2019). *The shaping of modern psychology: An historical introduction*. Routledge.
- Hofseth, L. J. (2018). Getting rigorous with scientific rigour. *Carcinogenesis*, 93(1), 21-25.
<https://doi.org/10.1093/carcin/bgx085>
- Hopp, C., & Hoover, G. A. (2019). What crisis? Management researchers' experiences with and views of scholarly misconduct. *Science and Engineering Ethics*, 25, 1549–1588.
<https://doi.org/10.1007/s11948-018-0079-4>
- King, W. (2008). *Epistemic action and language: A cross-linguistic study*. [Master's dissertation, University of Cape Town]. <http://hdl.handle.net/11427/10641>
- Laws, K. R. (2016). Psychology, replication & beyond. *BMC Psychology*, 4(1).
<https://doi.org/10.1186/s40359-016-0135-2>
- Leahey, T. H. (2017). *A history of psychology: From antiquity to modernity*. Routledge.
- Leppänen, J. M., Niehaus, D. J. H., Koen, L., Du Toit, E., Schoeman, R., & Emsley, R. (2006). Emotional face processing deficit in schizophrenia: A replication study in a South African Xhosa population. *Schizophrenia Research*, 84(2-3), 323–330.
<https://doi.org/10.1016/j.schres.2006.02.007>

- Leppink, J. (2017). Revisiting the quantitative–qualitative-mixed methods labels: Research questions, developments, and the need for replication. *Journal of Taibah University Medical Sciences*, 12(2), 97–101. <https://doi.org/10.1016/j.jtumed.2016.11.008>
- Leslie, T., & Finchilescu, G. (2013). Perceptions of the future of South Africa: A 2009 replication. *South African Journal of Psychology*, 43(3), 340–355. <https://doi.org/10.1177/0081246313493595>
- Lilienfeld, S. O., & Waldman, I. D. (2017). *Psychological science under scrutiny: Recent challenges and proposed solutions*. John Wiley. <https://psycnet.apa.org/doi/10.1002/9781119095910>
- Lindblom, L. (2002). *To see or not to see a sexually abused child in a picture*. [Unpublished doctoral thesis, Lund University].
- Macleod, M. (2022). Improving the reproducibility and integrity of research: What can different stakeholders contribute? *BMC Research Notes*, 15(1). <https://doi.org/10.1186/s13104-022-06030-2>
- Maglio, P. P., Matlock, T., Raphaely, D., Chernicky, B., & Kirsh, D. (1999, November). *Interactive skills in scrabble*. Paper delivered at the 21st annual conference of the Cognitive Science Society, New York. https://www.researchgate.net/publication/2518995_Interactive_Skill_in_Scrabble
- Makel, M. C., Plucker, J. A., & Hegarty, B. (2012). Replications in psychology research: How often do they really occur? *Perspectives on Psychological Science*, 7, 537–542. <https://doi.org/10.1177/1745691612460688>
- Martin, G. N., & Clarke, R. M. (2017). Are psychology journals anti-replication? A snapshot of editorial practices. *Frontiers in Psychology*, 8(523). <https://doi.org/10.3389/fpsyg.2017.00523>

- Maurer, D. K. (2001). *An exploration of the effective educator in the KwaZulu-Natal (KZN) context*. [Master's dissertation, University of KwaZulu-Natal].
<http://hdl.handle.net/10413/3028>
- Maxwell, S. E., Lau, M. Y., & Howard, G. S. (2015). Is psychology suffering from a replication crisis? What does “failure to replicate” really mean?. *American Psychologist*, 70(6), 487–498. <https://doi.org/10.1037/a0039400>
- Mironenko, I. A., & Sorokin, P. S. (2020). Concerning paradigmatic status of psychological science: For a flexible and flowing psychology in the face of practical and theoretical challenges. *Integrative Psychological Behavioural Science*, 54, 604-612.
<https://doi.org/10.1007/s12124-020-09530-7>
- Møller, V., & Roberts, B. J. (2015). South African hopes and fears twenty years into democracy: A replication of Hadley Cantril's Pattern of Human Concerns. *Social Indicators Research*, 130(1), 39–69. <https://doi.org/10.1007/s11205-015-1131-2>
- Muradchanian, J., Hoekstra, R., Kiers, H., & van Ravenzwaaij, D. (2021). How best to quantify replication success? A simulation study on the comparison of replication success metrics. *Royal Society Open Science*, 8(5), 201697.
<https://doi.org/10.1098/rsos.201697>
- Nosek, B. A., Hardwicke, T. E., Moshontz, H., Allard, A., Corker, K. S., Dreber, A., Fidler, F., Hilgard, J., Kline Struhl, M., Nuijten, M. B., Rohrer, J. M., Romero, F., Scheel, A. M., Scherer, L. D., Schönbrodt, F. D., & Vazire, S. (2022). Replicability, robustness, and reproducibility in psychological science. *Annual Review of Psychology*, 73(1), 719–748. <https://doi.org/10.1146/annurev-psych-020821-114157>
- Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251). <https://doi.org/10.1126/science.aac4716>

- Peels, R. (2019). Replicability and replication in the humanities. *Research Integrity and Peer Review*, 4(2). <https://doi.org/10.1186/s41073-018-0060-4>
- Pittelkow, M.-M., Sarahanne Miranda Field, Isager, P. M., van't Veer, A., Anderson, T., Cole, S. N., Dominik, T., Giner-Sorolla, R., Sebahat Gok, Heyman, T., Jekel, M., Luke, T. J., Mitchell, D. B., Peels, R., Pendrous, R., Sarrazin, S., Schauer, J. M., Specker, E., Tran, U. S., & Vranka, M. A. (2023). The process of replication target selection in psychology: what to consider? *Royal Society Open Science*, 10(2). <https://doi.org/10.1098/rsos.210586>
- Plucker, J. A., & Makel, M. C. (2021). Replication is important for educational psychology: Recent developments and key issues. *Educational Psychologist*, 56(2), 90–100. <https://doi.org/10.1080/00461520.2021.1895796>
- Renkewitz, F., & Heene, M. (2019). The replication crisis and open science in psychology. *Zeitschrift für Psychologie (Journal of Psychology)*, 227(4), 233-236. <https://doi.org/10.1027/2151-2604/a000369>
- Schaap, P., & Koekemoer, E. (2021). Determining the dimensionality and gender invariance of the MACE work-to-family enrichment scale using bifactor and approximate invariance tests. *SA Journal of Industrial Psychology*, 47(0). <https://doi.org/10.4102/sajip.v47i0.1821>
- Schaap, P., Koekemoer, E., & Brouwers, M. (2022). Replicating the essentially unidimensional model of the MACE work-to-family enrichment scale: Going beyond goodness-of-fit indices. *SA Journal of Industrial Psychology*, 48(0). <https://doi.org/10.4102/sajip.v48i0.1960>
- Schmidt, S. (2009). Shall we really do it again? The powerful concept of replication is neglected in the social sciences. *Review of General Psychology*, 13(2), 90–100. <https://doi.org/10.1037/a0015108>

- Schneider, F., Gur, R. C., Gur, R. E., & Shtasel, D. L. (1995). Emotional processing in schizophrenia: Neurobehavioral probes in relation to psychopathology. *Schizophrenia Research*, 17(1), 67–75. [https://doi.org/10.1016/0920-9964\(95\)00031-g](https://doi.org/10.1016/0920-9964(95)00031-g)
- Schultz, D. (2013). *A history of modern psychology*. Academic Press.
- Shrout, P. E., & Rodgers, J. L. (2018). Psychology's replication crisis as scientific opportunity: A précis for policymakers. *Policy Insights from the Behavioral and Brain Sciences*, 5(1), 134–141. <https://doi.org/10.1177/2372732217749254>
- Stevens, J. R. (2017). Replicability and reproducibility in comparative psychology. *Frontiers in Psychology*, 8(862). <https://doi.org/10.3389/fpsyg.2017.00862>
- Tolond, K. (2004). *To see or not to see a sexually abused child in a picture*. [Master's dissertation, University of KwaZulu-Natal]. <http://hdl.handle.net/10413/4237>
- Van Rensburg, G. (2017). *Culture, self, and cognition: Adding Africa to the mix*. [Master's dissertation, University of Cape Town]. <http://hdl.handle.net/11427/24903>
- Vazire, S. (2018). Implications of the credibility revolution for productivity, creativity, and progress. *Perspectives on Psychological Science*, 13(4), 411–417. <https://doi.org/10.1177/1745691617751884>
- Wiggins, B. J., & Christopherson, C. D. (2019). The replication crisis in psychology: An overview for theoretical and philosophical psychology. *Journal of Theoretical and Philosophical Psychology*, 39(4), 202–217. <http://dx.doi.org/10.1037/teo0000137>
- Zwaan, R. A., Etz, A., Lucas, R. E., & Donnellan, M. B. (2018). Making replication mainstream. *Behavioral and Brain Sciences*, 41, 1–50. <https://doi.org/10.1017/S0140525X17001972>

SECTION 3: CRITICAL REFLECTION

This section provides a critical reflection of the experiences, thought processes, and methodological reasoning of the researcher that influenced both the research study and the overall research procedure.

Critical Reflection

Fook and Gardner (2007) describe critical reflection as a method for comprehending the underlying assumptions and consequent actions of researchers across the entirety of the research journey. In addition to providing transparent ways of reasoning, engaging in critical self-reflection is regarded as an ethical imperative of the researcher (Mortari, 2015). Consequently, the following paragraphs provide a critical reflection regarding the research process of the scoping review research study.

The research questions that guided the study was: *What is the status of replication studies in South African psychology?* As such, a scoping review study was undertaken to provide the researcher with the opportunity to identify and examine the extent and nature of replication studies within South African psychology research (Arksey & O'Malley, 2005; Grant & Booth, 2009).

Gill (2021) recommends that scoping review studies should be conducted in a rigorous manner by using established guidelines. Therefore, the five steps set forth by Arksey and O'Malley (2005) were used to guide the research process. The steps followed were: 1) *identifying the research question*, 2) *identifying relevant studies*, 3) *study selection process*, 4) *charting data*, and finally, 5) *summarising and reporting findings*. By following the steps of Arksey and O'Malley (2005), the nature and extent of replication studies within South African psychology research were identified, reported, and discussed.

Ethical Considerations

The ethical considerations, as suggested by Wager and Wiffen (2011), were adhered to. I acknowledged all authors through in-text referencing and a complete reference list according to the APA Publication Manual (7th edition) guidelines. Moreover, two reviewers were involved in the research process. I (Ms Arina Visagie) was the primary reviewer (registered as a student psychologist with the Health Professions Council of South Africa [HPCSA]) of the scoping review research study.

To ensure that I was familiar with the ethical principles of research, I completed the Training in Resources in Research Ethics Evaluation (TRREE) in 2022 as per the requirement of the North-West University (NWU). The secondary reviewer (Prof Werner de Klerk) is a registered Research Psychologist with the HPCSA and has the required experience and knowledge to conduct review studies. Both reviewers followed the methodological framework set forth by Arksey and O'Malley (2005) while adhering to guidelines for responsible and ethical knowledge production, as suggested by Khumalo and De Klerk (2018). Furthermore, both the primary and the secondary reviewer had no competing interest in this scoping review research study.

Finally, I obtained ethical clearance to conduct the scoping review research study from the Health Research Ethics Committee (HREC) of the NWU. The scoping review research study only examined available literature, no participants were involved, therapeutic methods were not investigated, and clinical interventions were not compared. As such, the scoping review study received a *no risk* evaluation from HREC.

Rigour

Rigorous research is vital for transparent and unbiased study design, analysis, and reporting (Hofseth, 2018). Therefore, I followed Krefting's factors (1991) of credibility, confirmability, dependability, and transferability. I ensured credibility and dependability

through detailed process descriptions, adhering to the steps of Arksey and O'Malley (2005), and using systematic search methods. Furthermore, key terms used to select literature were provided (Peters et al., 2020).

I was monitored for the entire research process by the secondary reviewer and maintained a comprehensive audit trail of certain key decisions made during data selection and data analysis. Finally, the scoping review research study process I conducted was peer reviewed by Mr Ryan Evan du Toit (holds a Master Health Sciences in Research Psychology degree) of the NWU.

Research Topic Selection and Researcher Beliefs

I had no prior beliefs regarding the replication crisis within South African psychology research, as initially I was interested in exploring rigour within qualitative psychology research. However, as I continued to engage with the literature on rigour, I started gaining an interest in the repeated mention of the replication crisis within psychology and started to explore literature regarding replication rates and success within psychology research. It was during this stage that I noticed that no literature was available regarding the replication crisis within South African psychology research. This could potentially be problematic, as understanding the extent and nature of the replication crisis within a field has been found to be a vital step towards addressing challenges to replication (Schimmack, 2020; Shrout & Rodgers, 2018).

Scoping reviews are a useful tool to determine the extent and nature of literature available on the topic (Mak & Thomas, 2022). Consequently, I decided to conduct a scoping review research study to obtain a comprehensive view of the literature to assess the status of replication studies in South African psychology research.

Identifying Relevant Studies

As identifying keywords are a crucial step in a scoping review study (Peters et al., 2020), I decided to consult a librarian information specialist (Mrs Gerda Beukman) from the NWU to identify relevant keywords to include in an initial database search. The keywords entered in the Boolean search included “replicat*” [title] AND “South Africa” [all text] AND “psychology” [all text]. The initial database search yielded 236 pieces of literature which were systematically reduced to four. Thereafter, I conducted an additional search of alternative databases (e.g. Google Scholar and ResearchGate) where an additional four pieces of literature was identified.

Due to time constraints, I decided to only include English sources. The period of the literature search (2000 to 2022) was chosen as it represents the periods prior to and after the year 2011, in which the incident of Diederik Stapel brought the validity of psychology’s findings into the forefront, resulting in increased discourse regarding the replication crisis within the field (Wiggins & Christopherson, 2019). Reflecting on my literature identification process, I would have preferred to have included the keyword “replicat*” as a full text field rather than limiting the keyword to the title, as potentially relevant studies might have been excluded.

Study Selection Process

Due to the goal of a scoping review research study being to holistically examine the extent and range of a research activity (Arksey & O’Malley, 2005), I decided not to utilise a quality appraisal tool to determine literature inclusion or exclusion. I manually conducted the study appraisal by reading selected literature titles and abstracts to determine if the research study was a replication study. I kept meticulous record of the study selection process to ensure credibility and confirmability (Krefting, 1991) and was cognisant of the potential

influence of my own worldviews. Furthermore, the literature appraisal process was monitored by the secondary reviewer.

Reflecting on my study selection process, I believe that limiting my manual appraisal to the title and the abstract could potentially have caused some South African replication studies to be overlooked for inclusion.

Charting the Data

An Excel spreadsheet was used to extract data from the identified replication research studies and was tabulated according to the following criteria: author(s) and title, research aim, research methodology, research context, sample, study results and/or findings, replication success and conclusions. Apart from replication success, the original research studies upon which the replication studies were based were tabulated according to the same criteria. I decided to extract the study methodology, context, and sample to determine what type of replication study was conducted according to my conceptualisations. Furthermore, the study findings, results, and conclusions were used to explore any similarities, deviations, or extensions from the original research studies. Finally, the text of each replication study was examined to determine whether it was motivated by and based on multiple previous replication studies.

The above criterion for charting the data was inconsistent with the criteria I specified in my research proposal. Additionally, extracting data from the original research studies was not included in the research proposal. These changes were made prior to finalising the data extraction process after a consultation with the secondary reviewer, as it was decided that these changes would result in a more in-depth and rigorous examination of the nature of replication studies within South African psychology. After the initial completion of data extraction, I conducted the step again to ensure that I represented the data from the identified literature correctly. Finally, I ensured being aware and critical of the potential influence of

my own beliefs and potential bias on what data I deemed relevant for extraction. To address this, the data extraction process was discussed with and confirmed by the secondary reviewer to ensure its credibility and correctness.

Although changes to the criteria of charting the data were initially challenging due to time constraints and struggles to obtain full-text access to the original research studies, I do believe it did result in a more comprehensive examination of replication within South African psychology research. Ultimately, this decision resulted in more accurate categorisation of replication study type and the nature of replication study samples.

Summarising and Reporting the Review Findings

The findings of the scoping review needed to be presented in a clear, concise, and comprehensive manner. Therefore, I summarised and represented the scoping review research findings in tabular form and included information such as the type of replication study conducted, replication success, similarities and deviations between the replication and original study, replication study extensions, and whether the replication study stemmed from multiple replications.

Next, I noted my initial observations regarding the nature of replication studies that included aspects such as replication study context, sample, research approach and design, replication success, multiple replications, and type of replication. However, to ensure that my own beliefs and expectations did not potentially influence my initial observations, I again examined the findings a week later. It was during this second attempt that I noticed that I classified Møller and Roberts (2015) incorrectly as a direct replication study, although a conceptual replication was conducted.

The following factors regarding the nature and extent of replication studies with South African psychology research were noted: context and sample, approach and design, type of replication, replication success, and multiple replications. Furthermore, all limitations of the

scoping review study were declared, together with recommendations for replications within South African research psychology. I believe that these recommendations, together with the identified conceptual challenges of replication, will contribute to the body of knowledge regarding replication studies.

Conclusion

Conducting this scoping review study was a challenging process; however, it has contributed to my growth as a researcher and instilled in me the value of exploring data in-depth and repeatedly to ensure research integrity. Furthermore, the process of conducting this research has showed me the value of collaboration with other researchers and I will be sure to carry this spirit of collaboration going forward in my research career. I am honoured to have gone through the experience of conducting this scoping review process and the important lessons I have learned.

References

- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19-31.
<https://doi.org/10.1080/1364557032000119616>
- Fook, J., & Gardner, F. (2007). *Practising critical reflection: A resource handbook*. Open University Press.
- Gill, P. (2021). A concise, user-friendly guide to conducting and reporting scoping reviews in healthcare. *Pacific Rim International Journal of Nursing Research*, 25(3), 341-344.
<https://he02.tci-thaijo.org/index.php/PRIJNR/article/view/251663>
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26(2).
<https://doi.org/10.1111/j.1471-1842.2009.00848.x>
- Hofseth, L. J. (2018). Getting rigorous with scientific rigour. *Carcinogenesis*, 93(1), 21-25.
<https://doi.org/10.1093/carcin/bgx085>
- Khumalo, I. P., & De Klerk, W. (2018). Ethical psychological research and community engagement in a South African context. In S. Kramer, S. Laher, A. Fynn, & H. H. Janse van Vuuren, (Eds.). *Online readings in research methods*. Psychological Society of South Africa. http://www.psyssa.com/wp-content/uploads/2018/10/ORIM-Chapter-4-Ethical-psychological-research-and-community-engagement-in-a-South-African-context_by-Khumalo-de-Klerk.pdf
- Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American Journal of Occupational Therapy*, 45(3), 214-222.
<https://doi.org/10.5014/ajot.45.3.214>
- Mak, S., & Thomas, A. (2022). Steps for conducting a scoping review. *Journal of Graduate Medical Education*, 14(5), 565–567. <https://doi.org/10.4300/jgme-d-22-00621.1>

- Møller, V., & Roberts, B. J. (2015). South African hopes and fears twenty years into democracy: A replication of Hadley Cantril's Pattern of Human Concerns. *Social Indicators Research*, 130(1), 39–69. <https://doi.org/10.1007/s11205-015-1131-2>
- Mortari, L. (2015). Reflectivity in research practice. *International Journal of Qualitative Methods*, 14(5). <https://doi.org/10.1177/1609406915618045>
- Peters, M. D. J., Godfrey, C., McInerney, P., Munn, Z., Tricco, A. C., & Khalil, H. (2020). Chapter 11: Scoping reviews. In E. Aromataris, & Z. Munn, (Eds.), *JBIR Manual for Evidence Synthesis* (pp. 406-451). Joanna Briggs Institute (JBI). <https://doi.org/10.46658/JBIRM-20-01>
- Schimmack, U. (2020). A meta-psychological perspective on the decade of replication failures in social psychology. *Canadian Psychology/Psychologie Canadienne*, 61(4), 364–376. <https://doi.org/10.1037/cap0000246>
- Shrout, P. E., & Rodgers, J. L. (2018). Psychology's replication crisis as scientific opportunity: A précis for policymakers. *Policy Insights from the Behavioral and Brain Sciences*, 5(1), 134–141. <https://doi.org/10.1177/2372732217749254>
- Wager, E., & Wiffen, P. J. (2011). Ethical issues in preparing and publishing systematic reviews. *Journal of Evidence-Based Medicine*, 4, 130-134. <https://doi.org/10.1111/j.1756-5391.2011.01122.x>
- Wiggins, B. J., & Christopherson, C. D. (2019). The replication crisis in psychology: An overview for theoretical and philosophical psychology. *Journal of Theoretical and Philosophical Psychology*, 39(4), 202-217. <http://dx.doi.org/10.1037/teo0000137>

APPENDIX A: ETHICAL CLEARANCE



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North-West University Health Research Ethics
Committee (NWU-HREC)

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studies)

18 July 2022

RESEARCH ETHICS COMMITTEE LETTER OF DECISION: NO RISK

Based on the review by the North-West University Health Research Ethics Committee (NWU-HREC) on 18/07/2022, the NWU-HREC hereby clears your study as a no risk study. This implies that the NWU-HREC grants its permission that, provided the general conditions specified below are met, the study may be initiated, using the ethics number below.

Study title: Determining the status of replication studies in South African psychology research

Principal Investigator/Study Supervisor/Researcher: Prof W de Klerk

Student: A Visagie - 44532857

Ethics number:

N	W	U	-	0	0	1	1	5	-	2	2	-	A	1
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Institution Study Number Year Status

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation;
A = Authorisation

Application Type: Single study
Commencement date: 18/07/2022

Risk:

No Risk

General conditions:

The following general terms and conditions will apply:

- The commencement date indicates the first date that the study may be started.
- In the interest of ethical responsibility, the NWU-HREC reserves the right to:
 - request access to any information or data at any time during the course or after completion of the study;
 - to ask further questions, seek additional information, require further modification or monitor the conduct of your research;
 - withdraw or postpone clearance if:
 - any unethical principles or practices of the study are revealed or suspected;
 - it becomes apparent that any relevant information was withheld from the NWU-HREC or that information has been false or misrepresented;
 - submission of the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and/or
 - new institutional rules, national legislation or international conventions deem it necessary.
- NWU-HREC can be contacted for further information via Ethics-HRECAppl@nwu.ac.za or 018-299 1206

Please note: Due to the nature of the study i.e. (scoping review involving the analysis of previously published manuscripts), this study will be able to proceed during the current alert level, following receipt of the approval letter. No additional COVID-19 restrictions have been placed on the study except that the researcher must ensure that before proceeding with the study that all research team members have reviewed the North-West University COVID-19 Occupational Health and Safety Standard Operating Procedure.

The NWU-HREC would like to remain at your service and wishes you well with your study. Please do not hesitate to contact the NWU-HREC for any further enquiries or requests for assistance.

Yours sincerely,

 Digitally signed
by Prof Petra
Bester
Date: 2022.07.18
14:12:47 +02'00'

NWU-HREC Chairperson

 Digitally signed
by Wayne
Towers
Date: 2022.07.18
09:03:59 +02'00'

Head of the Faculty of Health Sciences Ethics Office for Research, Training and Support

Current details: (13210572) G:\My Drive\My Documents 2019\2022\NWU-HREC\NWU-HREC_Applications\NWU-HREC_Applications-2022\NWU-HREC_App08-2022\0727\NWU-00115-22-S1(W de Klerk-A Visagie)-NR\NWU-00115-22-S1(W de Klerk-A Visagie)-LoD\9.1.5.4.3_LOD_NWU-00115-22-A1_20220715.docm
14 July 2022

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APPENDIX B: EDITOR'S DECLARATION



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TO WHOM IT MAY CONCERN

This serves to confirm that I have edited and proofread the dissertation entitled

Determining the status of replication studies in South African psychology research

prepared by Ms A Visagie in accordance with the requirements of the Degree Master of Health Sciences in Research Psychology at the North-West University, according to the specifications of the University, where available, and the latest standards for language editing and technical (computer-based) layout.

Editing was restricted to language usage and spelling, consistency, formatting and the style of referencing. No structural writing of any content was undertaken.

As an editor I am not responsible for detecting any content that may constitute plagiarism.

To the best of my knowledge, all references have been provided in the prescribed format.

I am not accountable for any changes made to this dissertation by the author or any other party after the date of my edit.

(Electronically signed – actual signature withheld for security reasons)

MONICA BOTHA

8 November 2023

Sole Proprietor: Monica Botha

*Business Planning Corporate Systems Engineering Corporate Document Standards
Business and Academic Document Technical and Language Editing*

APPENDIX C: TURNITIN REPORT

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