UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT
PSYCHOLOGY

Health Professionals' Perceptions of Online Depression Screening Use in South Africa

A research report submitted to the faculty of Humanities, School of Human and Community Development, University of the Witwatersrand, in partial fulfilment of the requirements of the degree of Master of Arts in Social and Psychological Research (by coursework and research report).

Student: Arianna Tello Fadda

Student Number: 2495100

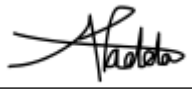
Supervisor: Dr Tasneem Hassem

March 2023

DECLARATION

I declare that this research report is my own, original and unassisted work and that ethical clearance was obtained for this research from the University's Human Research Ethics School Committee (Non-Medical) under protocol number MASPR/22/03. No part of this research report has been, nor will it be, submitted for a qualification at any other university. This research report is submitted in partial fulfilment of the requirements for the degree of Master of Arts in Social and Psychological Research in the Department of Psychology, School of Human and Community Development, at the University of the Witwatersrand.

Name: Arianna Tello Fadda

Signature: 

Date: 14 March 2023

ACKNOWLEDGEMENTS

Firstly, I would like to extend my most heartfelt thanks to my supervisor, Dr Tasneem Hassem. Your guidance, friendly encouragement, and understanding throughout this process have been so greatly appreciated. Secondly, I would like to thank all the lecturers of the MA SPR 2022 cohort for the invaluable knowledge that I have gained from your classes. I would also like to thank my mom for being the best sounding board (and putting up with it) and for all the hugs and belief in me, without which I would not have been able to get through the year. Finally, to Seb, for all your love always – thank you.

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CHAPTER 1: INTRODUCTION AND RATIONALE

Globally, public policy and legislation have undergone various transformations in order to address the current state of mental health and healthcare. One such framework that has been implemented on a worldwide scale is the United Nations' (2015) Sustainable Development Goals (SDG). The SDG are encompassed in the larger 2030 agenda for sustainable development. These goals represent an inclusive, multilevel attempt at global transformation that is firmly embedded within empirical evidence and values of universal rights and equity (United Nations, 2015). The third goal strives to "ensure healthy lives and promote well-being for all at all ages" (United Nations, 2015, p. 18). This includes the endorsement of improved psychological well-being. The World Health Organization (WHO) has also released a Comprehensive Mental Health Action Plan for 2013-2030, which is an extension of its initial plan for 2013-2020 (WHO, 2021). Its overarching aim is to enhance mental well-being, prevention efforts, and the provision of mental health care through strong governance and leadership, integrative services, and evidence-based information systems. In South Africa, specifically, two legislation and mental health policy documents with similar aims have been put into effect. These include the Mental Health Care Act 17 of 2002 (Mental Health Care Act, 2002) and the Mental Health Policy Framework and Strategic Plan (MHPFSP) for 2013-2020 devised by the Department of Health (2013). Firstly, the Mental Health Care Act enshrines the fundamental legal rights of mentally ill individuals to respect, protection, and fair mental health determination, treatment, and care. The MHPFSP is a national scheme that additionally advocates for the effective delivery of mental health care that is empirically sound and appropriate for the specific needs of the local context.

Despite the existence of these mandates, in practice, many barriers impede the realisation of functional mental health promotion and protection services, including inaction regarding policy reform and enforcement (Marais et al., 2020; WHO, 2022b). According to the WHO (2022b), just more than half of its member countries with established mental health policies or plans have failed to update these schemes within the last two years. Concerningly, only 23% of these countries have monitoring and evaluation practices in place to track the progress and attainment of their stated mental health objectives (WHO, 2022b). Moreover, such oversights are especially pronounced in low-and-middle income countries (LMIC) (WHO, 2022b). For instance, the South African Human Rights Commission (2019) published a report on the status of mental health care in the country which was released one year prior to the conclusion of the MHPFSP term. According to this report, although the MHPFSP was

ostensibly a progressive and commendable proposition, the efforts of provincial and local bodies have been disorganized and insufficient in terms of the framework's resource and budgetary distribution and general management and implementation.

As such, debilitating mental illnesses such as depression remain rife and the substantial burden of mental disorders has only been augmented by the personal and economic consequences of the Covid-19 pandemic (Santomauro et al., 2021; WHO, 2022b; Xiong et al., 2020). In 2020 alone, data from an international systematic review revealed an increase in major depressive disorder cases in excess of 27% (Santomauro et al., 2021). A similar rise in depression and anxiety figures has also been published in the most recent World Mental Health Report (WHO, 2022b). The report similarly highlights how the breakdown in already-fragile health systems attributed to COVID-19 continues to disrupt prevention, diagnostic, and treatment efforts for mental illnesses (WHO, 2022b).

The deleterious effects of the pandemic on individuals' mental health become more concerning given that only one in three depressed individuals in LMIC, such as South Africa, recognises that a need for treatment exists (Andersson et al., 2013; Ssebunnya et al., 2019; Thornicroft et al., 2017). Such gaps in mental health literacy (MHL) contribute to the small number of people who seek help prior to their symptoms reaching a severe and incapacitating level (Magaard et al., 2017; Michel et al., 2018). In the absence of individual help-seeking behaviour for mental health, primary healthcare facilities are an important site for identification and awareness of psychological distress (Park & Zarate, 2019). However, in many LMIC, depression remains largely under-detected or undetected entirely even among primary healthcare providers (Fekadu et al., 2017, 2022; Rathod et al., 2018; Udedi, 2014). Possible reasons for this pattern of findings include barriers on the patient, provider, community, and health system level. At the individual and community level, such barriers include negative perspectives and stigma toward mental health; low levels of community support and endorsement of detection services; and somatic symptom presentation and disclosure hesitancy. At the provider level, inadequate clinician training, knowledge, and preparedness; infrequent patient-practitioner contact; as well as overcrowding and a lack of referral processes also contribute to low rates of depression recognition. Finally, health system problems include a lack of buy-in from those in management and leadership positions; the absence of standardized protocols for detection; and poor monitoring and evaluation of information (Fekadu et al., 2017, 2022; Rathod et al., 2018; Udedi, 2014).

The resultant delayed help-seeking and treatment for mental disorder symptoms has been shown to give rise to reduced treatment effectiveness and a poorer prognosis (Hung et

al., 2017). Many researchers thus contend that prevention strategies are instrumental in attaining more positive mental health outcomes for those with depressive disorders (Akincigil & Matthews, 2017; Habert et al., 2016; Hung et al., 2017; Lund & Cois, 2018; Michel et al., 2018). In this regard, pertinent considerations for successfully executing such prevention strategies in LMIC specifically include affordability, access, and applicability. Much literature examines the efficacy of screening tools in the early detection of depressive symptoms as a preventive measure (Thornicroft et al., 2017). Many of these studies, however, examine paper-and-pencil screening tools for use within primary health care (Akincigil & Matthews, 2017; Costantini, Pasquarella, et al., 2021; Mashaba et al., 2021). There are considerably fewer studies examining online depression screening tools (Hassem & Laher, 2019; Jacobson et al., 2022). Given the aforementioned obstacles to the detection of depression in primary care and the rise of internet access and usage in South Africa, online tools for depression screening may be an effective solution to the low recognition rates of the disorder in the country (Naslund et al., 2017; Patel et al., 2018; Statista, 2021; Wozney et al., 2017). Additionally, online screening tools are also oriented towards the constraints of low-resource settings (Naslund et al., 2017; Patel et al., 2018; Wozney et al., 2017).

As such, Hassem (2021) adapted an online depression screening tool based on the Centre for Epidemiologic Studies Depression Scale – Revised (CESD-R) to accommodate South Africa's unique demographic landscape. Although research pertaining to end-users' uptake of digital mental health screening tools is scarce, evidence suggests that such digital technologies are well-received, with an increasing number of individuals consulting online resources for information as a first step in seeking care (Jacobson et al., 2022; Pretorius et al., 2019). For instance, a systematic review and meta-analysis on digital screening and treatment interventions for common mental disorders including depression concluded that many individuals find digital means of assessing and locating information about such disorders to be acceptable (Sin et al., 2020). These findings may thus suggest that there would be an adequate uptake of digital mental health technologies such as the online adapted CESD-R by the public.

As with all bids to incorporate digital technologies into mental health care, however, multi-level inquiry into key considerations regarding the online adapted CESD-R is necessary (Hollis et al., 2015; Naslund et al., 2017; Wozney et al., 2017). These considerations may include the tool's acceptability, benefits or limitations, and other technical, societal, and economic concerns. Hollis et al. (2015) and Wozney et al. (2017) further contend that such efforts require multiple stakeholder perspectives. It is from this lens that the present study has

identified the need to gain various health professionals' input regarding online depression screening in South Africa and the online adapted CESD-R tool itself. The current research will therefore address several gaps in the literature. Firstly, it will further the nascent field of inquiry into online depression screening within LMIC such as South Africa. Secondly, the current study will supplement the primarily quantitative research on the online adapted CESD-R that has been conducted thus far in the South African context with in-depth, qualitative insights from key healthcare experts. Finally, whereas many studies concerning depression screening focus solely on the views of general practitioners, the current research will also obtain perspectives from other health professionals. Importantly, the current research may thus inform efforts to address the large depression treatment gap in South Africa by gauging the potential local concerns, barriers, and necessary considerations regarding online depression screening tools. The research question of the proposed study is therefore: how do health professionals perceive the use of online depression screening in South Africa? To answer the research question, the study aims to explore health professionals' views of online depression screening use in the country. The objectives of the proposed study are therefore:

- To describe health professionals' perceptions of online depression screening use in South Africa
- To explore how health professionals perceive the online adapted CESD-R screening tool

The remaining chapters of this report are structured as follows: Literature review, research methods, results, and discussion and conclusions. The literature review details the history of mental disorder classification; current conceptualisations of depression and cross-cultural considerations; South Africa's history and its implications for the healthcare system; as well as the treatment gap and debates on the utility of depression screening. It further reviews the strengths and limitations of online screening and considers examples of online depression screening tools, including the online adapted CESD-R. The theoretical framework informing the study is also presented. The research approach, study context, population, sample size, and sampling method are discussed in the research methods chapter. Information regarding data collection and analysis and the study's trustworthiness, ethical considerations, and researcher reflexivity are also included. The results chapter describes the main findings of the thematic analysis which includes four themes: the importance of information; barriers

to online depressions screening; facilitators of online depression screening; and living in a (virtue)al reality. Lastly, the final chapter then evaluates and interprets these themes in relation to the literature and concludes by considering the strengths and limitations of the present study, as well as future directions for research.

CHAPTER 2: LITERATURE REVIEW

The following chapter provides an in-depth discussion of the literature to date pertaining to online depression screening tool use. The discussion is first situated within the historical and current context of mental disorder classification, including cross-cultural considerations, and then looks to the role that South Africa's history has played in modern-day healthcare inequities. The chapter subsequently highlights the resultant depression treatment gap in the country and the debate surrounding the use of screening tools to close this gap. The chapter then magnifies the potential of digital depression screening tools to address key issues related to depression screening in low-income contexts with specific consideration given to the CESD-R and the South African online adapted version of the tool. The chapter then closes by introducing the theoretical framework underpinning the study.

Mental Disorder Classification: A History of the Diagnostic and Statistical Manual of Mental Disorders

The first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) was put forward by the American Psychiatric Association (APA) in 1952 (Blashfield et al., 2014). Its inception followed the end of the second World War and signalled an attempt to unify previous systems of mental health classification.

The DSM-I described 128 categories of disorders organized in a hierarchical fashion (Blashfield et al., 2014). These descriptions highlighted typical traits of individuals presenting as a certain case of disorder, however, they were brief and often circular, leading to poor reliability in clinicians' interpretations (Blashfield et al., 2014). The first level of distinction in the hierarchy was between organic brain syndromes and functional disorders (Blashfield et al., 2014). The latter of these classifications was then further demarcated into psychotic disorders, neurotic disorders, or disorders of character. Such classifications were based on aetiology and reflected the influence of psychodynamic theory which was the prevailing paradigm at the time (Blashfield et al., 2014; Surís et al., 2016). During this period, what would contemporarily be classified as depressive disorders was deemed a subtype of psychotic disorders, namely, affective reactions (APA, 1952). This class of disorder was primarily described as being a pronounced disturbance of mood with consequent mental and behavioural disturbances and had several presentation types each with defining features.

In 1968, the first revision of the DSM was published (Blashfield et al., 2014). Although the purpose of both the DSM-I and DSM-II was primarily to establish an

epidemiology of mental disorders, a further aspiration behind the DSM-II was to more closely align American and international classification systems and resolve the disparities apparent between the DSM and the WHO's International Classification of Diseases (Blashfield et al., 2014; Surís et al., 2016). The DSM-II had 193 categories of disorders with similar narrative accounts defining their primary characteristics and was likewise structured hierarchically (Blashfield et al., 2014). However, while still heavily influenced by psychodynamic theory, it did make certain strides forward, such as acknowledging the possibility of comorbid disorders, and the inclusion of outpatient mental health in its focus and a section for children and adolescents (Blashfield et al., 2014; Surís et al., 2016). Similarly to the DSM-I, depression was classified as a form of psychosis in the DSM-II with only minor differences in certain technical aspects (APA, 1968).

In the 1970s, however, a significant shift in psychiatric diagnostics occurred with the advent of the Feighner Criteria which brought with it a major paradigm shift (Blashfield et al., 2014; Haroz et al., 2017; Horwitz et al., 2017; Surís et al., 2016). The Feigner Criteria proposed for the first time a reliable and valid operationalization of psychiatric disorders that minimised the ambiguity of diagnosis (Blashfield et al., 2014; Haroz et al., 2017; Horwitz et al., 2017; Surís et al., 2016). Moreover, these diagnostic criteria allowed clinicians to differentiate various disorders on the basis of aetiology and possible prognoses (Horwitz et al., 2017). It was these diagnostic criteria that informed the conceptualisation of the third edition of the DSM.

The DSM-III therefore represented the first set of empirical, formal diagnostic criteria for mental disorders that emphasised an atheoretical approach to diagnosis (Surís et al., 2016). It contained 228 categories of mental disorders and, also for the first time, was arranged according to families of disorders as opposed to hierarchically (Blashfield et al., 2014). Moreover, the DSM-III offered more in-depth descriptions of each disorder including predisposing factors, onset and typical course, disruptions to everyday functioning, and distinctions between common differential diagnoses (Blashfield et al., 2014). Of particular importance, is the way in which depression was conceptualised in this edition of the manual. Depressive disorders were no longer considered psychotic conditions but were subsumed under a unique class of mental illnesses termed affective disorders (APA, 1980). Furthermore, the criteria for a major depressive episode were introduced, the features of which largely set the precedent for later versions of the DSM and remain virtually unaltered today (APA, 1980; Horwitz et al., 2017).

As such, both the DSM-IV and DSM-5 did not differ significantly from the DSM-III aside from certain refinements. Two of the most important additions to the DSM-IV were a change in nomenclature of "affective disorders" to "mood disorders" which encompassed bipolar and depressive disorders, and the inclusion of clinically significant distress or impairment into all diagnostic criteria (APA, 1994; Surís et al., 2016). Subsequently, the DSM-5 split the bipolar and depressive disorders and further incorporated developmental and environmental determinants into the criteria (APA, 2013; Surís et al., 2016).

Current Conceptualisations of Depression

Today, the DSM-5 defines depressive disorders as a group of eight disorders that share as their primary symptoms a sad, empty, or irritable mood, and other incapacitating behavioural, cognitive, or physical changes (APA, 2013). What is typically referred to in lay-terms as depression, is Major Depressive Disorder (MDD). Individuals presenting with MDD must have experienced the following symptoms for a period of two weeks: a depressed mood or loss of interest in usually pleasurable activities and four other symptoms including unintended weight fluctuations; sleep difficulties; an increase or decrease in psychomotor function; fatigue; undue feelings of worthlessness or guilt; difficulty focusing or making decisions; and suicidality (APA, 2013).

It is estimated that 280 million individuals are afflicted by depressive disorders worldwide (WHO, 2022b). Out of the total number of global depression cases, over 10% occur in the African region (WHO, 2022b). Similar statistics have been observed in South Africa, specifically, with approximately 9.7-9.8% of adults in the country suffering from depressive disorders (Greene et al., 2021). These disorders are one of the foremost causes of disability worldwide, accounting for a major component of the overall global burden of disease (Vos et al., 2020). Furthermore, the burden of depressive disorders is increasing: they have risen from the 19th to the 13th leading cause of disability-adjusted life years over the past three decades (Vos et al., 2020).

The negative effects of depression on individuals' physical, emotional, and psychosocial wellbeing and functioning are well-documented in the literature. For instance, research has suggested that individuals with comorbid medical conditions and depression are less likely to adhere to their treatment regimens, potentially leading to further health complications and even death (Gold et al., 2020; Katon, 2011; Koyanagi et al., 2017). In cases of postpartum depression, the negative impact of the disorder has been shown to affect not only mothers, but also their children in terms of their own mental health and development

(King et al., 2021). Moreover, even in remission, depressed individuals have demonstrated sustained deficits in several important memory processes such as long-term and working memory, with such abnormalities becoming more pronounced with multiple depressive episodes (Semkovska et al., 2019).

According to several scholars, certain features associated with MDD may also increase the risk of suicidal behaviour, which, in turn, further augments the health burden (Cai et al., 2021; Knipe et al., 2022; P. Qin, 2011; WHO, 2022b). In fact, diagnoses of depression along with substance abuse disorders have been reported as the most commonly observed mental illnesses in individuals post-suicide (Brådvik, 2018). In addition, according to a systematic review and meta-analysis examining the prevalence of suicidality in MDD, individuals diagnosed with the disorder attempted suicide a significantly greater amount in comparison to healthy controls as well as those diagnosed with several other mental disorders (Cai et al., 2021). Concerningly, 77% of suicides occur in LMIC (WHO, 2022b) and, in South Africa specifically, the suicide mortality rate has been reported at 23.5 per 100 000 population (WHO, 2022a).

Depressive Disorders in Cross-Cultural Contexts

In light of this, an important criticism of the current mode of understanding and diagnosing depression is that such criteria are largely confined to Eurocentric conceptions of illness and symptom presentation. Haroz et al. (2017) undertook a systematic review of 138 qualitative studies of depression spanning 77 different cultural contexts including several from the African region from the late 1970s to 2015. This review aimed to explore depressive symptom expression in non-Western populations as well as whether and how such experiences resemble current diagnostic criteria. Many depressive symptoms outlined in the DSM-5 were observed in high frequency throughout the non-Western populations under investigation (Haroz et al., 2017). This pattern would suggest a certain extent of uniformity in illness presentation. However, criteria related to psychomotor activity and focus were not reported across contexts, suggesting that the current diagnostic criteria are differentially valid in Western and non-Western populations. Moreover, several features highlighted in as much as 33 to 52% of the study populations across these cultural contexts did not form part of the official diagnostic criteria (Haroz et al., 2017). These features included social isolation or loneliness; excessive crying; feelings of anger and worry; various aches and pains including headaches; heart pain, palpitations, or heaviness; and thinking too much (Haroz et al., 2017). In the sub-Saharan African cultures, specifically, issues of depressed mood, sleep, weight or

appetite, and fatigue were the most frequently observed symptoms mentioned, with social isolation or loneliness being the fifth most common symptom that was apparent (Haroz et al., 2017).

Further support for these results are found in a similar synthesis of studies localised to sub-Saharan Africa (Mayston et al., 2020). Within this research, various culturally bound descriptions of depression-like ailments have been reported (Mayston et al., 2020). Such conditions were likewise characterised by an amalgamation of typical DSM-5 criteria such as deep feelings of sadness and other somatic symptoms of the chest, head, heart, and stomach in addition to spiritual aspects of illness.

Importantly, meta-analytic research has determined that when individuals subscribed to cultural idioms of distress such as these, it was 7.5 times more likely that they had clinical levels of depression when compared to individuals who did not endorse such cultural expressions of psychiatric disorders (Kohrt et al., 2014). Taken together with the above research studies, this would indicate that an accurate understanding of the way in which depression manifests in different cultural contexts such as South Africa is crucial in facilitating the detection of the disorder, as opposed to rigidly relying on criteria developed in and largely for Euro-American populations.

In addition to the cultural context of depression, the larger socio-historical context of a particular setting is also of note. Among South Africans affected by HIV/AIDS, for instance, their conceptualisation of depression and its symptoms largely revolved around their medical diagnosis (L. Andersen et al., 2015). The African region is the most severely affected globally by HIV/AIDS with nearly two thirds of all new HIV infections originating from within these countries due to factors such as gender power relations, socioeconomic disadvantage, migratory patterns, and a lack of education and awareness (Bajunirwe et al., 2019; Kharsany & Karim, 2016; Mojola & Wamoyi, 2019; WHO, n.d.). Thus, it is evident that understanding systemic social, political, and economic ills is crucial in understanding experiences of depression and, by extension, possible detection and prevention efforts for the disorder.

A Brief South African History and the Healthcare System

In South Africa, the country's oppressive and racially discriminatory past from the onslaught of colonialism to the Apartheid regime has created enduring and systemic inequities in many domains (Delobelle, 2013; Howell, 2019). The year 1652 marked the arrival of the Dutch East India Company in the Cape as well as the decades of forced

dispossession and labour, violence, and subjugation that ensued (Coovadia et al., 2009). Just over 150 years later, the Dutch's successors, the British, assumed control. Concurrent with the British rule in the Cape Colony, were two important discoveries in what were previously known as the Orange Free State and the Transvaal: diamonds and gold. As a result, the burgeoning mining industry called for cheap black male labour which was enforced by cruel and unjust laws, regulations, and intimidation. In 1948, the election of the National Party as the governing party of South Africa promulgated this exploitation and brutality with the inception of Apartheid (Coovadia et al., 2009; Kaywood, 2021).

Despite the dissolution of the Apartheid government and the formation of South Africa as a democratic republic, the segregation of and unequal access to education, health services, and employment opportunities during that time engendered and sustained extreme generational poverty; large disparities in the distribution of resources; and general inequality and system fragmentation (Coovadia et al., 2009; Howell, 2019). These consequences are especially evident in the current health sector structure. South Africa's healthcare system is pluralistic, with both state-owned and private-enterprise facilities (Delobelle, 2013). The private health sector provides for the affluent minority of the population with medical insurance or direct disposable funds yet accounts for more than half of the country's health care budget and is largely well-resourced and fast-growing as a result (Delobelle, 2013). In contrast, the free, state hospitals and health services predominantly serve the majority black African population. From a public health perspective, many of the Apartheid era issues have thus translated into the mismanagement and poor service delivery of important initiatives including mental health programmes (Coovadia et al., 2009; Delobelle, 2013). The result of this is therefore a lack of human and financial capital, variable quality care, and an inability to follow through on policy implementation, all of which primarily disadvantage public health sector users (Coovadia et al., 2009; Delobelle, 2013).

The Treatment Gap

In part due to obstacles such as the unequal provision of high-quality, efficient health care, there are significantly fewer individuals who are receiving appropriate treatment for depression despite the high prevalence and burden of the disorder (Moitra et al., 2022). This disjuncture between those requiring, and those accessing, mental health care is known as the treatment gap (X. Qin & Hsieh, 2020). According to a systematic review of treatment rates for depression, the treatment gap in high income countries is estimated to be 67% (Moitra et al., 2022). However, in many LMIC such as South Africa, estimates are as high as 92%

(Docrat et al., 2019). Various authors have identified factors that contribute towards this large discrepancy (Andrade et al., 2014; Docrat et al., 2019; Michel et al., 2018; Patel et al., 2018; Thornicroft et al., 2017). Some of these contributors include being unaware of the need for mental health care; stigmatising attitudes; the limited number of trained mental health professionals; long travel distances; and the high expense associated with treatment.

Results from more developed countries have pointed to the incorporation of mental health care services into primary health care as a potentially effective means of diminishing the depression treatment gap (Fekadu et al., 2017). However, there are several barriers to this approach in LMIC that echo those existing ones contributing to the wide treatment gap for mental disorders in the first place (Fekadu et al., 2017; Madlala et al., 2020; Wakida et al., 2018). In addition to these issues, further barriers also include funding and administrative oversights; an acute rather than chronic care model; and other sociodemographic factors (Fekadu et al., 2017; Madlala et al., 2020; Wakida et al., 2018).

Depression Screening Debates

Screening for mental illnesses such as depression is a nondiagnostic means of distinguishing individuals in good mental health from those who may have the disorder (American Psychological Association, 2014). In theory, depression screening may not only reduce the treatment gap, but also the high personal and societal cost of depressive disorders, and improve individuals' prognosis (Garland et al., 2018; Habert et al., 2016; Naslund et al., 2017). However, the practical utility of depression screening remains a contentious issue worldwide. In the United Kingdom, depression screening of the general population in primary care is not currently recommended (Solutions for Public Health, 2020). This sentiment is echoed in the recommendations provided by the Canadian Task Force on Preventive Health Care (2013). In contrast, in the United States of America, guidelines are in favour of routine depression screening for adults within primary care (Siu & US Preventive Services Task Force, 2016). However, the recommendation is contingent upon those who have been screened having access to appropriate resources for formal diagnosis and treatment, if indicated. In LMIC such as South Africa where there are shortages in the health care workforce, this is not always possible (Docrat et al., 2019). Nonetheless, a recent South African study has advocated for the implementation of routine depression screening in primary care (Mashaba et al., 2021). However, they concede that screening all patients is not feasible and thus conclude that only particularly vulnerable groups should be assessed (Mashaba et al., 2021). Akincigil and Matthews (2017), however, further complicate the

debate by asserting that the select screening of patients may increasingly disadvantage already underdiagnosed populations such as men and minority groups.

Digital Solutions

Since the emergence of the third industrial revolution (3IR) in the 1960s, globalised, digital technology advancements have propelled society into an age of information (Moll, 2021). The 3IR was marked by the advent of microelectronics, the Internet, and the World Wide Web which later made possible more advanced technologies such as personal computers and cellular phones (Moll, 2021; Taalbi, 2018). According to the most recent General Household Survey in South Africa, over 90% of households in the country have a functioning mobile phone with just over 69% of all South Africans having internet access via a mobile device (Statistics South Africa, 2022a). These figures represent a respective increase from approximately 83% and 54% in the last five years (Statistics South Africa, 2017).

Several of the problems with depression screening in primary care, especially in low-resource settings, may thus be resolved with digital technologies such as online depression screening tools. For instance, online screening tools offer more privacy than in-person screening which may reduce individuals' reluctance to disclose symptoms in fear of stigma (Cortelyou-Ward et al., 2018; Schueller et al., 2019). Moreover, digital resources may improve individuals' access to mental health care services in settings where health facilities are largely urban-centric (Aguilera, 2015; Schueller et al., 2019). Although digital resources impose service-delivery and data costs, they will likely compare favourably to those of transport and missed work associated with face-to-face care (Moreno et al., 2020; Naslund et al., 2017; Wozney et al., 2017). Finally, many patients consulting primary care physicians experience extensive waiting times, especially in low socio-economic status settings (McIntyre & Chow, 2020). As such, screening online prior to attending an appointment may mean that patient care will be more efficient and the strain on overpopulated and understaffed facilities may be reduced. For example, in one study among Danish general practitioners who implemented a web-based version of the Major Depression Inventory (eMDI) into their practice, several positive perceptions are noted (Krog et al., 2018). These include that the eMDI greatly reduces the administrative workload associated with using the paper-and-pencil version of the tool. Moreover, the eMDI allows practitioners to better prioritise and prepare for their consultations. Similarly, because patients may complete the eMDI at home, not only can they do so at their own pace, but the practitioners then also have more of the consultation time available to talk to the patients, thus improving the provision and quality of patient care.

A more complete discussion of available online depression screening tools and their psychometric properties has been published (see Hassem & Laher, 2019). Among these screening instruments, the Centre for Epidemiologic Studies Depression Scale (CES-D Scale) is one of the most commonly used online screening tools, reflects depression criteria in line with contemporary diagnostic systems in its most recent revision, the CESD-R, and is an open-access resource (Hassem, 2021; The Center for Epidemiologic Studies, n.d.).

The CES-D Scale and CESD-R

The CES-D Scale was originally developed by Radloff (1977). It is a brief measure of self-reported depression symptoms based on one's present frequency of symptom experience over seven days and is intended for use among the general population. The scale's focus is on the symptoms of depression typically categorised as affective in nature, that is, a depressed mood. However, its items were drawn from each major component of depressive symptomology based on various findings in the then current literature, including also physical and psychological criteria such as sleep disturbances, appetite changes and feelings of hopelessness and guilt. The instrument makes use of a cut-off point system to indicate whether an individual presents as a potential case of depression, with scores of 16 or higher indicating a positive case (Eaton et al., 2004). In calculating this cut-off, the final score typically denotes an individual who has experienced either 6 or more of the symptoms frequently over the seven day period or a majority of the symptoms for a lesser period of time (Eaton et al., 2004).

Although a systematic review and meta-analysis conducted by Vilagut et al. (2016) on the CES-D Scale's depression screening accuracy in general and primary care populations demonstrated that those at risk for MDD were adequately detected, scholars have identified several limitations of the tool regarding certain contextual factors and the diagnostic criteria upon which it was based (Eaton et al., 2004; Radloff, 1977). Firstly, when initial reports of the tool's validity and reliability were published, Radloff (1977) noted that readers should be cognisant of the fact that the tool was not suitable for individual assessment and treatment planning, but rather as a means of identifying at-risk populations. Further, issues of language and comprehension were also found to be problematic for certain groups. In addition, Eaton and colleagues (2004) have suggested that the tool does not efficiently assess fluctuations in depression levels over time and, crucially, it was not consistent with the most recent DSM criteria for MDD at the time of its conceptualisation.

Consequently, a revised version of the CES-D Scale, the CESD-R, was later developed to address these pitfalls (Eaton et al., 2004). The CESD-R is similarly intended to screen the general population for depression and further aims to optimise the CES-D Scale by building on its strengths and updating its other aspects to align more closely with the criteria for depression. This adaptation thus includes important depressive symptoms described in the DSM-IV which was then in use such as anhedonia and suicidal ideation. Furthermore, the CESD-R also addresses the imbalance in symptom-focus of the CES-D Scale in terms of the number of items related to affective versus other symptoms and removed items that were no longer considered symptomatic of MDD. Moreover, the response categories were revised to account for the two-week period stipulated as constituting a depressive episode in the DSM-IV and adjustments were made to certain questions to correct for issues of ambiguity and complexity. As such, the screening measure is reflective of what is now delineated as a major depressive episode in the DSM-5 (The Center for Epidemiologic Studies, n.d.).

The CESD-R has thus become a popular measure in contemporary mental health related research as a means of operationalising and assessing depression. Such research has comprised a wide array of research designs, including surveys and randomised control trials (Faisal et al., 2022; Francis et al., 2019). Research has also been conducted to determine the CESD-R's efficacy as a clinical tool. A recent study conducted in South Africa among individuals receiving HIV care, for example, concluded that the CESD-R may be used in primary care facilities to identify individuals likely to be suffering from depression (Kagee et al., 2020).

In light of its utility and the fact that the CESD-R was originally validated in American populations (Eaton et al., 2004), the scale has since been adapted for use within several other populations, including Brazil, Indonesia, Korea, the Netherlands, and Poland (Donker et al., 2010; Faro et al., 2021; Heo et al., 2018; Koziara, 2016; Tran et al., 2019). In cases where formal validation studies were carried out, the adapted versions of the CESD-R were all determined to have sufficient reliability and validity indicators to support their use in the respective populations for which they were tested. Such indices included Cronbach's alpha values ranging from 0.88 to 0.95 as well as exploratory and confirmatory factor analyses to determine the latent structure of depression according to the adapted scales (Donker et al., 2010; Faro et al., 2021; Heo et al., 2018; Koziara, 2016; Tran et al., 2019). In addition, convergent validity tests correlating the CESD-R with various established tests of negative psychological functioning such as the Kessler Psychological Distress Scale, the Beck Depression Inventory, and the Reynolds Suicide Ideation Questionnaire, among others,

indicated positive correlations ranging from 0.60 to 0.84 (Donker et al., 2010; Heo et al., 2018; Koziara, 2016).

Interestingly, both the CES-D Scale and the CESD-R are also available in web-based versions (Eaton et al., 2004; The Center for Epidemiologic Studies, n.d.). According to the literature, these online versions of the screening tool have demonstrated reliability coefficients that are extremely similar to, if not higher than, those reported for certain paper-and-pencil versions of the measure (Donker et al., 2010; Hassem & Laher, 2019; Herrero & Meneses, 2006). However, according to a systematic review conducted by Hassem and Laher (2019), despite the many contextual and online variations of the CESD-R and other similar online screening instruments, no research studies have reported on the use of online depression screening tools specifically for the South African context.

The Online Adapted CESD-R

As a result of this pronounced gap in the literature, Hassem (2021) created an adapted version of the CESD-R to be used in an online format which is sensitive to the demographic and socio-cultural needs of the South African general population. The online adapted CESD-R is an open-access resource available via the Major Depressive Disorder South Africa website (www.MDDSA.co.za). The website interface displays various tabs which provide relevant, easy to understand information pertaining to what depression is; the symptoms of the disorder; and potential risk factors such as family history and hormonal changes (Hassem, 2022; MDDSA, 2022). The website also includes resources to foster more positive mental health and wellbeing in one's personal capacity as well as the contact details for mental health help lines and a collation of links to information depositories for clinics and mental health professionals across South Africa. Most importantly, the website allows individuals to take the adapted depression screening test. It is also important to note that the information presented on the website underscores that the screening test is not definitive, and that professional assessment may be sought if individuals are uncertain about the contents of the website or their screening result.

The intended target population for the screening test is any member of the South African general public who is over the age of 18. The test consists of 19 questions presented in a Likert-type scale format with four response options ranging from 0 ("not at all") to 3 ("all of the time"). The scale is thus presented in a multiple-choice format whereby individuals can click the option that most accurately captures the frequency of experience of symptoms that they have faced over a two-month period (see Appendix E). After having

completed each question, the individual is then presented with feedback regarding their screening outcome (Hassem, 2022). The possible outcomes are demarcated into low, medium, or high risk and are colour-coded into yellow, orange, and red accordingly (see Appendix F). Moreover, the results page offers tailored information based on the level of risk, with the option given to both medium- and high-risk individuals to indicate a request for help from a South African Depression and Anxiety Group Counsellor (MDDSA, 2022). The individual who has taken the screening test may also then download the results in PDF format directly to their personal device so that they may retain a copy for future follow up. Notwithstanding this feature, the results obtained from a particular set of responses are not stored on the website page if the page is later re-accessed.

The screening tool makes use of a hierarchical scoring system with two levels: the first relates to the primary conditions necessary to meet the DSM-5 criteria for a major depressive episode; that is, feelings of sadness and/or anhedonia (Hassem, 2022). The second level pertains to all other supplementary physical, emotional, and mental symptoms of depression outlined in the DSM-5 that are needed for a diagnosis such as those related to appetite, guilt, and concentration (Hassem, 2022). Individuals' responses are scored out of 57 with a low risk result corresponding to scores of 20 or less; a medium risk result corresponding to scores between 21 and 34; and scores of 35 or higher indicating a high depression risk (Hassem, 2022).

Importantly, careful consideration was given to issues of cultural sensitivity during the tool's development process (Hassem, 2021). South Africa is a multicultural and multilingual society with numerous ethnic and religious groups that hold various cultural and spiritual beliefs, and speak 11 official, and many more unofficial, languages (Hassem, 2021). Furthermore, there is a culture of violence in the country, with high rates of serious and traumatic crime (South African Police Service, 2022). As such, defining or translating psychological jargon such as 'depression' poses difficulties in mental health assessments, along with cultural-specific understandings and presentations of illness. Individuals may also experience depression symptomology as a normal response to traumatic life events. Accordingly, Hassem (2021) consulted existing South African literature to guide the adaptation of the tool and to ensure the inclusion of culturally relevant, widely understandable screening questions. Various health professionals, health and psychology students, and other individuals were also recruited in two waves to evaluate the cultural applicability of the tool's items in order to refine them (Hassem, 2021). Additionally, a two-

month period for frequency of symptom experience was used as a contingency against the high risk of traumatic events in the country (Hassem, 2021).

Hassem (2021, 2022) has since conducted research to evaluate the tool's psychometric properties, including content validity, internal consistency reliability, sensitivity, specificity, and positive and negative predictive values. All these indices suggest that the tool is technically appropriate and relevant for its given context and can accurately distinguish between those with and without depressive symptomology. Furthermore, initial pilot tests sought to determine how easily understandable and navigable the tool is which yielded similar positive feedback from users (Hassem, 2022). It should be noted, however, that the sample size in these preliminary studies was small and the results therefore need to be interpreted with caution (Hassem, 2022).

Theoretical Framework

The proposed study will be grounded within the Health Services Utilization Model (R. Andersen & Newman, 1973). The model posits that the determinants of health services utilization are threefold; they comprise societal determinants, individual determinants, and the characteristics of the health services system. These dimensions interact directly and indirectly to explain patterns of individuals' use of healthcare services, as well as how often and for what purpose. Societal determinants refer to aspects such as technological advancements and cultural norms and beliefs. Individual determinants encompass predisposing factors, enabling factors, and one's illness level. Predisposing factors include aspects which may make an individual more inclined to use health services such as age, education, ethnicity, attitudes toward health services, and knowledge of illness. Enabling factors refer to considerations such as income level, the cost of health services, and the number of health professionals per capita which then provide opportunity for individuals to seek help from health services. In the presence of predisposing and enabling factors, illness level refers to whether individuals perceive themselves as unwell and whether they have been formally evaluated as such. Finally, subsumed within the health services system determinant are the number of available resources, such as monetary and human capital, and the organization of the system itself. These two factors affect how health services are provided to the public in terms of their availability, accessibility, and capacity.

The model has several strengths and limitations. According to a scoping review concerning the application of the model in health services research, the inclusion of both individual- and environmental-level factors has been suggested as a primary strength (Lederle et al., 2021). However, certain scholars contend that factors such as cultural diversity and

health literacy are not accounted for (Lederle et al., 2021). Notwithstanding these criticisms, the model has informed recent research with different health-related foci in various African contexts, including an examination of men's use of HIV testing services in Ghana, home-birth versus health facility utilization in Nigerian women, and delayed dental care service use for children in South Africa (Ajayi et al., 2022; Mukhari-Baloyi et al., 2021; Seidu, 2020).

Online depression screening tools may be considered a form of health services. As such, it may be useful to frame their potential uptake within the three determinants of the Health Services Utilization model. This is especially true for the multicultural South African context wherein members of the population have differential MHL rates and socio-economic standings, and the distribution of health services facilities and resources is largely unequal (Docrat et al., 2019; Furnham & Swami, 2018; Statistics South Africa, 2019). In this way, health professionals' perceptions of online depression screening use may be understood holistically on the individual, community, and socio-political levels.

This chapter highlighted the evolution of depression criteria and diagnosis from the 1950s to present, as well as the importance of cultural and contextual sensitivity in the detection and treatment of the disorder. As such, while systemic problems like the large depression treatment gap in South Africa may not be adequately addressed by traditional depression screening, online depression screening tools such as the online adapted CESD-R have been put forward as potential solutions to this problem and may be explored further in the South African context from the perspective of the Health Services Utilization Model. The present study's methodological protocol will now be outlined in the following chapter.

CHAPTER 3: RESEARCH METHODS

Chapter three first provides an overview of the research approach and paradigm that ground the study and subsequently provides a detailed description of the study context, population, sample size and sampling method, inclusion and exclusion criteria, as well as the data collection and analysis techniques. The chapter goes on to describe how the trustworthiness of the study and the ethical conduct of the research was ensured and closes with the researcher's reflections on the research process and their role therein.

Research Approach

The overall approach of the present research study was qualitative. The foundational concerns of qualitative research are exploration, discovery, and understanding (Antwi & Hamza, 2015). More specifically, qualitative research seeks to gain insight into the meaning that people attribute to a phenomenon to construct a more comprehensive picture of it (Moser & Korstjens, 2017a). Qualitative research has several strengths and weaknesses. In terms of its strengths, it provides a rich, holistic impression of social phenomena from insiders' perspectives that preserves the complexity of such issues and allows for the emergence of unanticipated information through open-ended enquiry (Mohajan, 2018). On the other hand, qualitative research may be limited by the time-intensive nature of data collection, analysis, and interpretation, and the fact that the quality of the results is largely dependent on the skill and ability of the researcher to elicit in-depth responses from participants and draw meaning from such information (Mohajan, 2018). The present study was also situated within the interpretivist paradigm. One of the assumptions of interpretivism is that the researcher and participant co-construct knowledge within their interaction (Kivunja & Kuyini, 2017). Due to this dually constituted knowledge, no single, true reality can be said to exist, and context is thus paramount in understanding the participants' perceptions. This paradigm was well-suited to the study's aim in that it allowed for the exploration of health professionals' subjective perceptions regarding online depression screening use in South Africa as well as the online adapted CESD-R.

Study Context

Broadly, the context in which the present study took place was South Africa. South Africa is a sub-Saharan African country constituting nine provinces (South African Government, n.d.-b). Each province varies considerably in population size, demographic composition, urbanisation, and human resources. Moreover, each province has its own

legislative authority, including the premier and other members of the provincial cabinet. This executive council is afforded jurisdiction over certain provincial spheres, including health and welfare services (South African Government, n.d.-a). In the present study, participants were drawn from three of the nine provinces, including Gauteng, KwaZulu-Natal, and the Western Cape.

Geographically, Gauteng is the country's smallest province (Mokoena, 2022). However, it is highly urbanised, accounting for over 26% of the nation's population (Statistics South Africa, 2022b). The primary language that is spoken in Gauteng is IsiZulu, with English being the second most common language (South African Government, n.d.-b). Gauteng also accrues the highest total expenses for inpatient and outpatient mental health services in the country with its mental health expenditure per uninsured member of the population similarly elevated at 17.1 million USD in the 2016/17 financial year (Docrat et al., 2019). In terms of its human resources within the mental health care profession, estimates indicate that there are insufficient trained personnel working in the public sector within the province with only 0.51 psychiatrists and 1.38 psychologists per 100 000 uninsured members of the population (Docrat et al., 2019).

The two next most densely populated South African provinces are KwaZulu-Natal and the Western Cape, which respectively constitute a share of 19% and 11.9% of the South African population (Statistics South Africa, 2022b). The majority-spoken language in KwaZulu-Natal is similarly IsiZulu, although by a far greater majority (South African Government, n.d.-b). However, the province is much less urbanised than Gauteng, with just under 50% of inhabitants residing in urban centres (Department of Water and Sanitation South Africa, 2022). The Western Cape on the other hand is predominated by Afrikaans language speakers and has similar urbanisation levels to Gauteng with approximations of the urban to rural divide exceeding a ratio of 9:1 (Department of Water and Sanitation South Africa, 2022; South African Government, n.d.-b).

Furthermore, the total cost for inpatient and outpatient mental health services in KwaZulu-Natal and the Western Cape are similarly comparable to that of Gauteng in that they far exceed the total expenses of any other province (Docrat et al., 2019). According to Docrat et al. (2019), the expenditure per capita for the uninsured population in these two provinces was 14.1 and 22.1 million USD in the 2016/17 financial year. Finally, compared to Gauteng and the Western Cape, KwaZulu-Natal has even fewer public health human resources specifically in mental health care fields. There are only approximately 0.12 psychiatrists for every 100 000 uninsured population and 0.61 psychologists per 100 000

uninsured population (Docrat et al., 2019). In this regard, the Western Cape has 0.89 psychiatrists and 1.22 psychologists per the same parameter (Docrat et al., 2019).

The study context was thus chosen as such due to the high population density in each province and the ostensible shortage of mental health professionals available to meet this demand. These provinces may thus constitute prime locations for the implementation of online depression screening instruments.

Population and Sample Size

The study population consisted of registered health professionals including psychologists, nurses, and medical doctors who were currently practicing at the time of recruitment within one of the three aforementioned South African provinces. A total of seven health professionals participated in the research. This figure included two counselling psychologists and one clinical psychologist; two nurses; one general practitioner; and one intern medical doctor. Five of the participants practiced within Gauteng province, with the remaining two participants practicing within the Western Cape and KwaZulu Natal, respectively. The gender distribution of the sample was two males and five females. Two of the participants worked in the public sector whilst four worked in private practice, with one participant indicating that they practiced in both public and private settings. Among the sample, participants' professional experience ranged from six months to 50 years with an average number of 24 years' experience among the group. Most participants commonly saw patients exhibiting signs of depression, including suicidality. Only one participant indicated that it was uncommon to see depressed patients in their everyday work. Five of the participants also had not had previous experience with online depression screening instruments while two had been exposed to such tools in some capacity.

Sampling Method

The researcher utilised a non-probability sampling technique to recruit the participants. Specifically, a combination of purposive sampling and snowball sampling was used (Moser & Korstjens, 2017b). This method was chosen in order to recruit a diverse sample of health professionals, thus helping to ensure that a comprehensive array of views reflective of individuals working under varying conditions, and with various patients, was obtained. The researcher thus aimed to recruit individuals working in private and public institutions and in areas of diverse socio-economic status who had different backgrounds and degrees of experience. In order to do so, the researcher compiled an information flyer containing the study details and inclusion and exclusion criteria (see appendix C) to be

distributed. The researcher first approached potential participants with whom they were in personal contact who were known to work in the eligible healthcare professions. The researcher distributed the information flyer to these individuals through email correspondence or direct message on WhatsApp. The researcher then expanded the search such that their supervisor and other members of the psychology department at the University of the Witwatersrand distributed the information flyer to their own contacts through similar methods. This involved further sharing the flyer on WhatsApp stories and professional WhatsApp group chats of which they were a member and advertising the call for participants through word of mouth within the psychology department and externally among colleagues working in public hospitals, for example. In addition, the researcher also conducted targeted Google searches by entering phrases such as "clinical psychologists in Gauteng" into their search engine to identify and contact further health professionals that were potentially suitable for the study. Individuals who were successfully recruited were also then asked to distribute the flyer to any further potential participants with whom they worked or were in contact who they thought might be interested in participating.

Inclusion and Exclusion Criteria

Participants were included in the study if they met the following criteria:

- Participants should be registered as a psychologist, medical doctor, or nurse
- Participants should practice in the private or public sector
- Participants need to be currently practicing within South Africa

On the contrary, participants were excluded from the study if they were retired or otherwise on hiatus.

Data Collection

The researcher collected data using online interviews which were semi-structured in nature. This method of data collection is unrestrictive in that participants' responses are not limited to questions that were preconceived by the researcher, thus allowing for a comprehensive exploration of health professionals' perceptions of online depression screening in South Africa (Moser & Korstjens, 2017b; Queirós et al., 2017). Data collection took place from early September 2022 until January 2023. Because the context of the study spanned multiple South African provinces, the interviews were conducted via Zoom and

Google Meet based on the participants' preference and familiarity with the different platforms.

The participants were sent an email once the interview date and time were scheduled that contained the link to join the meeting. Prior to this, the participants were also sent a direct link via email to the online adapted CESD-R screening tool. All the participants were instructed to peruse the tool, including the content of the questions, the format, and the screening results page. In order to view the screening outcome, it was necessary for the participants to select response options on the tool, however, they were informed that they only needed to fill out the screening questions in order to generate this feedback page for review and not for the purpose of obtaining a screening result themselves. For a full discussion of the online adapted CESD-R and its psychometric properties, the reader is referred to the relevant literature review section.

Nonetheless, some participants did not have sufficient time or were otherwise unable to view the screening tool prior to the interview. In these cases, the researcher accessed the tool during the online interview and used the screen sharing function on the interview platform to work through the tool synchronously with the participants in order for them to examine the content.

Each interview was conducted from a private room to ensure that any disturbances or intrusions were minimised. At the beginning of each interview, the researcher switched on their computer camera to briefly introduce themselves. This was done to encourage rapport and help elicit rich, truthful responses, particularly as the interviews were virtual. However, the participants were not required to switch on their cameras due to data costs and privacy concerns but could do so if they wished. The researcher also took the opportunity to verify that each party's microphone function was operating correctly and thanked the participants again for agreeing to take part. The researcher then discussed any matters of concern to the participants before continuing.

The interviews ranged from approximately 25 to 40 minutes each. This timeframe was deemed appropriate out of respect for the participants having very demanding schedules due to the nature of their occupations. The researcher guided the direction of the interviews using an interview agenda (see Appendix D). This document contained non-directive questions that were open-ended in nature as well as demographic questions to describe the participant sample. The course of each interview was thus divided into three sections. These included first general questions regarding screening, then tool-specific questions, and finally the demographic questions. The researcher also updated the interview agenda to include in

later interviews certain questions that arose from earlier ones which were deemed important in answering the research question, such as the applicability of the online adapted CESD-R screening tool within the individual's own workplace.

The researcher used the built-in Zoom recording feature as well as the Windows 10 screen recording function for the interviews conducted via Google Meet to create audio recordings of the interviews for transcription. The recordings were automatically saved onto the researcher's personal laptop and thereafter a copy was uploaded onto Microsoft OneDrive as a precaution in the event of the unforeseen loss of the local copy.

Data Analysis

Broadly, data were analysed using thematic analysis (TA). In particular, the researcher engaged in what Braun and Clarke (2019) have termed reflexive TA. TA is a theoretically flexible method that consists of six systematic and iterative phases (Braun & Clarke, 2006). It attempts to locate and interpret meaningful patterns within and across a particular data set (Braun & Clarke, 2006; Hawkins, 2017). It thus allows researchers to gain insight into the different facets of the phenomenon under investigation, especially in the case of lesser-researched areas in the psychological literature (Braun & Clarke, 2006; Hawkins, 2017). This analytic method was therefore appropriate for the present study due to the recency of inquiry into online depression screening tools specifically for use within South Africa (Hassem & Laher, 2019). In this way, the use of TA allowed the researcher to obtain a wide-ranging overview of the health professionals' perceptions of such online tools.

During the first phase of analysis, the primary task was to become familiar with the data. As such, the screen recordings of each interview were transcribed. The researcher utilised Microsoft Word's artificial intelligence powered transcription software to create a preliminary transcript for each interview. The researcher then manually corrected each transcript by verifying them against the original audio for accuracy. The researcher thus transcribed a verbatim account of the researcher and participant's dialogue such that it retained the original sense of each speaker's words. Hard copies of these transcripts were then printed, and the researcher actively engaged with each of them, reading and re-reading the data several times. While doing so, the researcher noted their initial impressions, ideas, and links between interviews.

In the second phase of TA, a list of initial codes from the data was formulated. The researcher conducted a thorough line-by-line analysis of the entire data set and produced codes that were either verbatim extracts or self-generated. Once a comprehensive list of codes

was generated, the researcher organised the data extracts such that each instance of a particular code was grouped together.

In phase three, the researcher engaged in the process of data-driven theme development based on their reflexive interpretations. The codes identified in phase two, and the relevant extracts for each of them, were sorted into clusters of themes and sub-themes. These clusters were mapped visually to indicate the relationships between and within the different theme levels.

Phase four consisted of reviewing, reworking, and refining the thematic map such that a cohesive narrative of the data was produced. This phase included collapsing, removing, and adding new theme categories and subthemes in order to best represent the data. Next, during phase five, the researcher gave each theme a concise label that reflected its essential quality. Finally, phase six entailed organizing the themes that were generated and producing a cogent, analytical account of the data in terms of the final themes, including raw extracts, in order to provide an answer to the study's research question.

Ensuring Trustworthiness of the Study

The researcher used Lincoln and Guba's (1985) four principles of trustworthiness, namely, credibility, transferability, dependability, and confirmability, to assess the quality of the study. The principle of credibility refers to whether the researcher's interpretations of the data agree with the participants' perceptions. The researcher enhanced the study's credibility through prolonged engagement with the data during the analysis phase. Transferability denotes the ability of other researchers to translate the research findings to their own study context. A thick description of the participants and study setting has been provided to ensure this principle. Dependability relates to the degree of confidence that others may have regarding the consistency of findings under comparable circumstances. The dependability of the study was demonstrated by an audit trail in the research report. Therein, the researcher documented their reasoning for their theoretical and methodological choices and conclusions throughout the research process such that a clear trace of their research activities was evident. Lastly, confirmability concerns whether the researcher's interpretations and conclusions are evidently grounded in the data. The researcher kept a reflexivity journal to uphold the principle of confirmability. The reflexivity journal detailed the researcher's assumptions, thought processes, and analytical decisions that informed the procedure of theme development and interpretation.

Ethical Considerations

Throughout the study, the researcher observed the ethical principles of beneficence, non-maleficence, respect for autonomy, and distributive justice (Beauchamp & Childress, 2019). The researcher underwent ethical training (see appendix G) and applied for ethical clearance to conduct the study from the Human Research Ethics School Committee (Non-Medical) of the University of the Witwatersrand. Upon receipt of clearance (protocol number MASPR/22/03; see appendix H), the researcher began to recruit participants. They distributed a letter of informed consent to participate and a participant information sheet (PIS; see appendix A and B, respectively) via email to those interested. Once participants signed and returned the informed consent letter to the researcher via email, data collection commenced. The PIS comprised a general description of the study, what was required as a participant, and the length and procedure of the interviews. It also explained confidentiality and the voluntary nature of participation and participants' right to withdraw freely at any time. Participants were also informed that the data collected would only be used for the present research and potentially to inform that of the researcher's supervisor. It was noted that the researcher would store the data in a password-protected file on their computer, with a backup on their personal Microsoft OneDrive account, to ensure privacy. The PIS contained the researcher and their supervisor's contact details and those of the ethics committee for any further clarification.

Additional ethical considerations such as participant fatigue, the protection of personal information, distress protocols, and access to results were addressed in the following ways. Firstly, the participants were able to take a short break at any time during the interviews if needed. Secondly, the researcher only captured information pertaining to the participant that was necessary to the study, in accordance with the Protection of Personal Information Act. The researcher also used pseudonyms to refer to the participants in transcription and in the research report to protect their identities. Thirdly, because the participants were health care professionals and the study did not concern their personal experiences of depression, the research was not deemed to pose any risks. No participants indicated any distress or discomfort, however, they were advised of the number of the South African Depression and Anxiety Group's toll-free counselling help line in the PIS and that, if distress did occur, the researcher would assist the participants in locating a therapist or counsellor equipped to treat them. Finally, the participants were advised that they could access the study results through the University of the Witwatersrand online library and were given the option to receive a summary of results directly from the researcher upon completion of the study.

It is also necessary to note that, during data collection, an ethics amendment request was processed and ratified to expand the initial study context and inclusion criteria from health professionals practicing solely in Gauteng to other South African provinces due to difficulties in locating suitable, willing participants.

Reflexivity

Throughout the study, the researcher put several measures into place to ensure that they remained cognisant of their active role in recruitment, the interview proceedings, and the process of constructing meaning through analysis and interpretation as well as the effect that this inevitably had on the researcher-participant dynamic, the data, and, ultimately, the results of the study.

Firstly, when disseminating the call for participation to potential participants, careful consideration was given to the phrasing of the invite as well as the light in which the study was portrayed. The researcher tried to ensure that the invite was cordial yet professional and highlighted the study's positive contribution without appearing peremptory. In saying that, the researcher acknowledges that due to the nature of snowball sampling, they could not control the way in which this same information was conveyed to individuals within one participant's social and professional circle.

After having completed each interview, the researcher also recorded their immediate impressions of the process in order to revisit them during data analysis. This included noting any problematic aspects related to the interview process such as participants needing to reschedule at late notice and issues due to Loadshedding. Importantly, the researcher reflected on the impact that such disturbances may have had on their emotional and mental state prior to and during the interview and whether this may have affected their ability to build rapport, actively listen to responses and probe further insight when necessary, and the participants' perception of them as a researcher. In retrospect, the researcher thus found that certain important points raised by the participants were not explored further, which limited the researcher's ability to draw conclusions from that which the participant had said.

These reflections also included the researcher's impression of the participant, how freely they seemed to offer information, as well as what preconceived ideas the researcher had regarding the kind of responses the individual might provide. For instance, it was important to note that participants who were clinical psychologists were assumed to have the most expertise in depression and screening tools. However, the researcher later observed that much insightful and pertinent commentary was raised by the counselling psychologists,

registered nurses, and medical doctors. This led to further introspection regarding who is considered an authoritative figure in the health professions and why, as well as how this might influence which specific voices are 'heard' in the researcher's report of the results.

The researcher also noted how their interactions with the participants prior to the interview affected the dynamic between the two parties. For individuals with whom organizing and scheduling the interview was relatively without difficulty, the researcher tended to be more at ease during the interview and obtained more detailed answers to a broader scope of questions. Finally, during the interviews, the researcher also strived to remain aware of their language when probing participants. It was the researcher's intention to avoid inadvertently encouraging an anticipated response or that which reflected the other participants' views.

It is the researcher's opinion that all the aforementioned attempts to remain present and mindful of their place as a researcher and the contribution that this made to the findings at all stages of the research process strengthened the study overall.

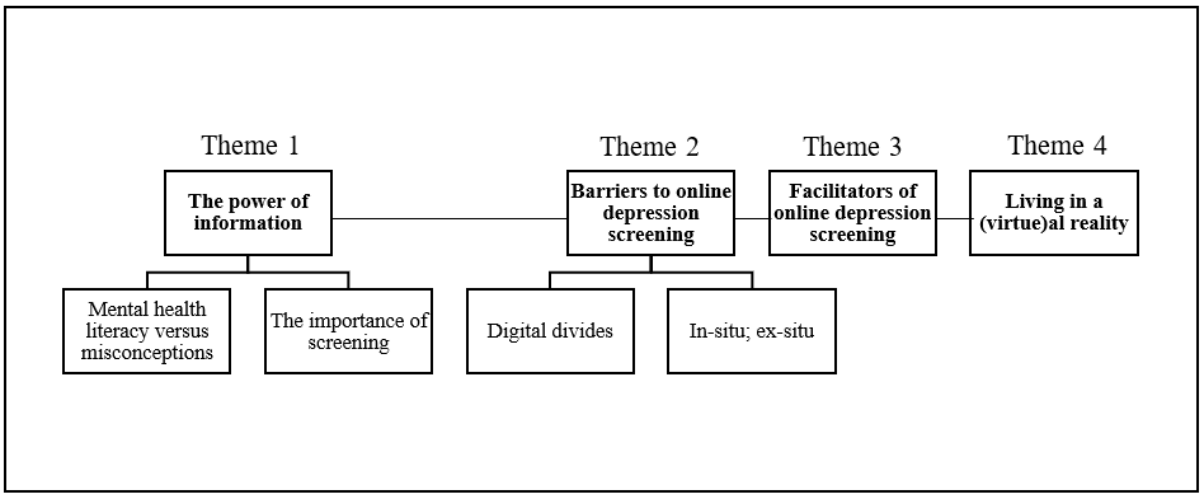
This chapter has offered a discussion of the study's research approach, including the strengths, limitations, and suitability of qualitative inquiry. It has also delineated the structure and characteristics of the South African provinces from which the sample was drawn to contextualise the study and explained how and why the specific healthcare professionals were chosen to participate in this research. The chapter then explained the process of obtaining data as well as outlined the procedure for the thematic analysis of the data and concluded by emphasising the principles of trustworthiness, ethical considerations, and researcher reflexivity. The following chapter presents the results of the thematic analysis.

CHAPTER 4: RESULTS

This chapter reports the results obtained from thematically analysing the interview data collected during the study in the form of verbatim quotations from each participant. The analysis yielded four main themes as well as sub-themes which are depicted in Figure 1 and which will be presented in turn. These include (1) the power of information; (2) barriers to online depression screening; (3) facilitators of online depression screening; and (4) living in a (virtue)al reality.

Figure 1

Relationship Between Themes and Sub-Themes in South African Healthcare Professionals' Perceptions of Online Depression Screening Use



The Power of Information

The first theme consists of two sub-themes, namely, Mental Health Literacy Versus Misconceptions; and the Importance of Screening.

Mental Health Literacy Versus Misconceptions

The research participants demonstrated diverse views regarding the state of MHL and psychoeducation in South Africa. According to one participant's perspective, the level of MHL is presently at a high in the country on account of increased public campaigns on radio stations, the news, as well as in advertisements and information pamphlets. According to this participant, engaging in such conversations has led to greater acceptance, and therefore, more individuals being open to, and receiving, mental health treatment:

There's a much greater awareness than ever there was before. People are more aware of mental illnesses, they are aware of mental health, they are aware of anxiety, which they always were sweeping under the carpet before, and they are aware of depression. So it's become more treatable […] People don't shy away from it like before, it used to be taboo […] They wouldn't want to accept it, but because of the awareness it actually makes it easier to talk about these things. – Participant 7, General Practitioner

However, on the other hand, most of the other participants described how inaccurate or ill-informed beliefs about psychology, mental illness, mental health practitioners, and help-seeking continue to permeate the South African public's understanding of healthcare. When elaborating on this concept of the state of patients' MHL, one participant explained:

You'd ask [patients] the question, ["What is a psychologist?"] and you'll hear someone answering that a psychologist is someone that works with children only. And I mean, yes, it's a partial truth, but it's not the essence of a psychologist. – Participant 3, Counselling Psychologist

Moreover, participants also described how such levels of MHL might influence individuals' use of health services, or the lack thereof, as well as whether they disclose their symptoms and experiences:

I find that with my own work interviewing people or consulting with them for pre-op consultations, they've often got unreasonable ideas or unreasonable expectations of what's going to happen […] I think belief system, and I don't just mean a spiritual belief system, but the belief system about what is illness and what is health and what is normal and what is not normal [also plays] a significant role […] That comprehension of is it okay to say that I am not feeling well, or I think I might have a problem, that I can do an online assessment or is it something that I'm just going to ignore. It's just that belief system about should I be doing something about it or not. – Participant 4, Nurse

Similarly, when discussing the feasibility of online depression screening within the South African context, another participant also noted how, particularly in the older generations, individuals have become desensitized to their own distress and suffering after prolonged periods of struggle:

[A lot of elderly people] have been put through so much adversity that for them it's now normal to experience what they are currently experiencing despite [it] actually causing maladaptive functioning […] But they're not understanding, and they are kind of being conditioned to think, "This is normal for us to function this way. We've got to function this way; we've got no choice." – Participant 3, Counselling Psychologist

Importantly, however, when faced with this normalisation of illness, two participants highlighted how the information provided by a depression screening tool such as the online adapted CESD-R may work to counteract these engrained beliefs by fostering a deeper understanding of mental health and mental illness as well as one's experience and therefore alleviating some of that emotional burden:

I think that online screening can actually be really useful for identifying [symptoms] and especially if you don't have a lot of knowledge about what depression is […] You really find a lot of clarity […It could indicate that] what you're experiencing is not entirely normal; you're not just sad, this is more pathological than that and you should probably get some help [… You] can find some relief just in knowing what's going on and then you can take it from there […because] it's difficult sometimes to connect the dots […] You don't necessarily make that link to "I need medical care." – Participant 2, Intern Medical Doctor

If people are really battling with [depression], for them to be able to understand it, realize what's going on, [it] very often brings a great relief […] Being able to put a name to different things they are feeling […] they can understand that, you know, the fact that I'm not sleeping or that I can't concentrate or whatever, all of this falls under this one umbrella […] It gives them access to information that they may not otherwise be able to acquire. – Participant 6, Clinical Psychologist

Furthermore, the second of these participants elaborated on the ability of this newfound information to foster a sense of personal agency and choice within individuals whereas they previously felt that they could not take action to improve their mental health as explained above. Referring to the help-seeking behaviour of screening test users, this participant remarked:

What I would anticipate can happen [is], "Oh, okay, I have this [result] now", and then people may go about doing whatever, and then they may come back to do [the

test] again at a later stage. It's there in their mind, it's fermenting, and then something may happen and then it's kind of, "Oh okay, but maybe I should just go [get help]." […] It's like a seed you've sown; it's there […] it's in their mind, they think about it and maybe in time they will then go to someone […] It's information; information empowers you. – Participant 6, Clinical Psychologist

Despite this, two participants recounted the role of the continued prejudice and stigma surrounding mental illnesses in shaping individuals' attitudes to help-seeking and treatment and the adverse consequences thereof. As a result of these misconceptions, a hesitancy or refusal to obtain professional psychological help is apparent, especially among certain groups:

Cultural prejudice against therapy is still very, very big with a lot of my clients who come from a traditional African background. I mean, there's just no getting around it. They still have difficulty having depression and anxiety accepted as real illnesses, you know, there's still the shame regarding seeing a psychologist. – Participant 5, Counselling Psychologist

There's still a stigma in South Africa about depression […] if [people are not] familiar with psychiatrists and psychologists […] I can [more easily get them] to a GP[…because] a psychiatrist is for crazy people, you know, that's still the perception […] it's for crazy people. So [it's] kind of, "I'm seeing a psychologist, but you're pushing it if you want me to go to a psychiatrist now." – Participant 6, Clinical Psychologist

The importance of the beliefs and attitudes of one's family and community and the role that they can play in whether an individual receives the assistance they require for their mental health is further highlighted by another participant who suggests that any clarity that comes from taking an online screening test may be negated when met with such prejudiced beliefs and resistance from others:

Even if you take this questionnaire and you go, "Oh yeah, this makes sense", [it] might be challenging for the rest of the community to take that on. Maybe you're a child and you want to go to therapy or you're trying to explain to your mother why you can't get out of bed […] there could be a little bit of difficulty getting outside of the person themselves, recognizing that they're depressed, getting the people around

them to recognize that they're depressed and help them out […] Not everyone is open to that. – Participant 2, Intern Medical Doctor

This participant thus concluded that educational mental health resources and information should also be made available to an individual's extended network.

The Importance of Screening

In spite of the disaccord between practitioners regarding the level of MHL in South Africa, the participants were in agreement regarding the necessity of having mental health screening processes in place, especially in relation to factors such as epidemiology, symptom presentation, preventive healthcare efforts, and treatment protocols and effectiveness.

The first participant emphasised the increased prevalence of mental disorders during and following the COVID-19 pandemic as a reason to implement mental health screening into primary healthcare patient consultations, especially given that many patients' symptom profiles in South Africa tend to be more physical in nature:

Mental illnesses are really very much on the rise, especially with COVID and post-COVID […] It's really important to, with every consultation, do a little bit of screening into that because some illnesses are psychosomatic. More so than just being here at the doctor, [patients] actually need more help and it turns out to be mental, whether it's anxiety, depression, something happening in the home, in the relationships. So I think it's very, very important. – Participant 7, General Practitioner

Considering this increased prevalence of mental illnesses, another participant remarked that a further benefit of screening is that it improves the early detection of psychological disorders, thereby preventing the exacerbation of an individual's symptoms and a reduction in their psychosocial functioning and wellbeing. Importantly, this participant suggested that having a tool, specifically, to execute the screening process is critical due to lay-people and professionals' failure to recognize depressive symptomology, especially in its initial stages, as well as the lack of initiative of some healthcare practitioners when it comes to mental health:

I think a screening tool is extremely important simply because it could prevent severe pathology […] It would undoubtedly serve a purpose in terms of picking it up because often many people don't recognize the symptoms. Even sometimes you have GPs, they'll have an idea, but they won't know entirely what this is. If it's a mild

depression, sometimes they'll just give medication […] There's a lack of knowledge in terms of understanding what it is and when to refer, because there's a lack of a screening tool […and] what I've noticed is very seldom do nurses actually refer to psychology unless it is requested by the patient […and when they do], even doctors, it's usually a severe case. – Participant 3, Counselling Psychologist

Similarly, one of the other participants aired their concern that some healthcare providers too hastily prescribe depression medication in cases where it is not medically justified:

I'm just a little bit concerned that a lot of people go to GPs with other health issues and they come away on antidepressants. So, you know, is there referral screening? Is there a proper screening? I think there should be before people are just put willy-nilly onto antidepressants. – Participant 4, Nurse

Lastly, another participant explained that psychotherapeutic treatment and positive patient outcomes are dependent on recognizing potential underlying disorders and proceeding in accordance with a patient's specific diagnosis, further underscoring the importance of mental health screening:

You cannot really help a patient unless you know if there is something that is maybe created by a chemical imbalance or neurological problem. You can do therapy 'till you're blue in the face, but you won't get a shift until you've properly diagnosed the mental illness. – Participant 5, Counselling Psychologist

Barriers to Online Depression Screening

In light of the perceived need for mental health screening assessments, the second theme sheds light on the individual, interpersonal, and contextual factors that health professionals perceived to be potential hurdles to the uptake of online screening for depression in South Africa. These can be divided into two sub-themes that are titled Digital Divides, and In-Situ; Ex-Situ.

Digital Divides

The first sub-theme that constitutes the barriers to online depression screening relates not only to the figurative gulf created by unequal technological access among different groups of people, but also the tangible divide between patient and practitioner that is an electronic device screen.

With regard to the former, most of the participants mentioned factors relating to the availability of, individuals' familiarity with using, and openness toward, digital technologies on both the patient and practitioner level and how this may impede the use of digital mental health screening tools such as the online-adapted CESD-R. Firstly, many participants emphasised problems with "connectivity", "data", "internet connection" and other "technological challenges" as potential barriers to the implementation of online screening. Additionally, when participants were asked about their view of online methods of screening for mental illness, a user's age was also perceived to be a possible obstacle to the uptake of such tools due to different generations' relative technological savviness:

> *It's maybe more applicable to a younger generation. It's something they're familiar with, you know? [...] For people that are a bit older, I would not necessarily use it. It would depend on each individual's own comfort with using anything that is online. – Participant 6, Clinical Psychologist*

> *I think the one [consideration] would be tech literacy and how competent are people on actually using an online platform. Do they feel confident about logging in and actually doing it? They might need guidance for it to be set up to enable them to do it properly […and] I think the younger generation are way more tech-literate […so it depends] on your patient. – Participant 4, Nurse*

Moreover, another participant reiterated the importance of considering user age and also reflected on how the lack of computer literacy of older age groups affects their willingness to consider and engage with new digital methods of service delivery and care, drawing a comparison to other service sectors besides healthcare:

> *I think age has got a lot to do with it. If you're going to do screening for a young population, I think definitely it can work […] but if you ask maybe the 50 year olds and upward and you get to the elderly, it becomes a challenge […even] with the banking industry […] the banks are telling them, "Guys, you need to know how the banking app works 'cause you're no longer gonna be able to come into the bank and do things like you did before." […] But you always see the elderly in the queue saying, "I don't know how to use the app", I don't know what's a website", "I don't know what Zoom or Zoom link is." […] They are very resistant to online." – Participant 1, Nurse*

Importantly, two participants recounted how at two critical periods of technological shift – more recently, the COVID-19 pandemic and, much earlier, the introduction of computers into the workplace – health practitioners' attitudes towards such changes also influenced the successful implementation thereof:

> *In the beginning, it was my own discomfort with the whole digital platform that then I think made therapy less effective, but after I transitioned over that initial resistance to change and discomfort and dealing with the fact that you have less information because you don't have the whole person in front of you […] I found that a digital platform is just as effective as therapy in the room. – Participant 5, Counselling Psychologist*

> *I started on computers way back in 1987. The nurses were very resistant to using computers when we actually implemented a computer system […] because it wasn't their forté and it was uncomfortable and unfamiliar, but when they got used to it […] once they'd embraced the technology and it made their work easier they enjoyed it more. So, if you've got people who are not comfortable with the technology, if you can get them and say, "This is how you use it, this is the benefit", you get much better buy-in. – Participant 4, Nurse*

In each case, however, the practitioners noted that such resistance is typically a by-product of an initial discomfort with the unknown that may be remedied by demonstrating the use and practical utility of the technology.

Finally, several participants raised questions about the accessibility and visibility of the online adapted CESD-R and how potential users will find out about the tool, and that such a tool exists for them to use, particularly with regard to factors such as the domain name of the website on which the tool is available:

> *I don't know what you would have to type into Google for this to come up […] I just think that a general person who's feeling depressed won't know about major depression, they're just like, "Okay, I'm depressed, let me see if I'm depressed." So they will type in, "What is depression", or, "Rating my depression." – Participant 5, Counselling Psychologist*

> *If you go online […] obviously you have questions, so it's already partially in your mind […but] I don't think people will necessarily think, "Okay, I need to go look for a*

tool to measure depression." I don't think they will necessarily go for such an explicit search. – Participant 6, Clinical Psychologist

In addition to the traditional sense of the phrase, many of the study participants also emphasised a digital divide in the way in which practitioners relate to their patients which may act as a further barrier to the acceptance and use of online depression screening. That is, with in-person care, there is a certain level of rapport that is established and nurtured over time, with one participant, for instance, remarking:

The thing is, being a family doctor and a GP, your patients become your family and you are their first base and as a result, over the years, you know the family, you know the friends, you know what's happening. You tend to ask them, "How's things at home? How's the kids?" – Participant 7, General Practitioner

Moreover, several health practitioners also highlighted the necessity of having the ability to probe patients, clarify ambiguities and other misunderstandings in what is being asked of them, and elaborate on concepts and their responses during a consultation:

People don't forget how you make them feel […] You put them at ease by asking the right questions. Sometimes they don't want to talk […] Everybody's different and everybody is individual in the way that they are treated and the way that they are examined, the way that they are approached […] You need to make them feel open and comfortable enough. – Participant 7, General Practitioner

I always believe that when there's a face-to-face interview where there's eye-contact, you can read a lot from the patient's body language about do they actually understand what's going on and if you see that you're not getting that connection on the communication, you can always take a different tactic and explain from a slightly different way or phrase a question slightly differently to elucidate more answers from them so that you get a better understanding of where they're coming from so that you know what their needs are. – Participant 4, Nurse

However, many of the participants believed that online modes of screening for mental illnesses come across instead as "cold" and detached, with the loss of important non-verbal communication and physical cues affecting the patient-practitioner dynamic and level of understanding and trust that is possible:

I prefer face-to-face, seeing the patient. In COVID, we were doing a lot of online, and I just feel that personal touch is lost; that empathy is not well-conveyed in an online situation […] The way you can question them one-on-one, it's very much different to an online survey, you know, you can tell [certain things] from facial expressions and body language […] I feel it's more holistic. – Participant 7, General Practitioner

This sentiment that online screening methods are heavily reliant on conjecture and tend to lose the intimacy of the patient-practitioner relationship was echoed by another participant who also reflected on the specific nature of depressive disorders in relation to this loss:

I don't think you can always read the person's reality [online]; you can maybe hear what the person's saying and read into it, but […] I wouldn't say it's the perfect platform to use […] I like the face-to-face and the human touch. I think online and websites are very impersonal. So for depression which is a very personal thing, I think online might work for some but not for others. – Participant 1, Nurse

Similarly, another participant also described the deeply personal nature of depression and the inherent difficulty of trying to convey and comprehend it in general:

Depression is a very unique experience and very hard to empathize with if you have not experienced it […With] normal sadness, we can all empathize with each other because we've all had certain experiences, but to be depressed is a very specific, deeply demoralizing experience that can be hard to understand. – Participant 2, Intern Medical Doctor

As such, the participants concluded that an integrative approach to care wherein online depression screening tools are used as an initial point of reference or guide to obtain basic patient information followed by an in-depth, face-to-face professional assessment by a qualified practitioner would be the optimum way forward.

In-Situ; Ex-Situ

The second sub-theme pertains to potential issues with online depression screening tools that arise when considered within specific micro- and macro-contexts. At the individual level, one participant underscored their concern that information might be taken out of context if individuals were to complete a depression screening tool online in the absence of professional facilitation, thus creating the possibility of mis- or overdiagnosis:

What I fear is that these screening tools online don't take context into consideration […] It's very easy to say someone has depression or someone doesn't have [it] based on a misunderstanding or without contextual information […] I've had a patient not too long ago [who] said, "I used to enjoy playing soccer and now I've lost interest in it." Upon probing the reason as to why he's lost interest in that, it was simply that he's got a knee injury and every time he goes back [to play soccer] he injures his knee a lot more and therefore that caused him to lose interest [in it]. And his results were kind of elevated, however, when taking his reasoning into consideration, this person was not suffering from even a mild depression. It was appropriate to the phase of life that he was in. – Participant 3, Counselling Psychologist

Similarly, in making reference to a specific question in the online adapted CESD-R tool regarding experiencing difficulty maintaining focus on important tasks, another participant further emphasised how the current fast-paced, over-stimulating climate in which we live may influence the way in which individuals respond to some of the screening questions, thereby distorting the validity of the results:

I didn't feel that that was really a depression question […] Won't we all answer, "Yeah, most or some of the time." We can't focus because we are at this stage so overloaded with the lifestyles that we are leading […] I don't know if you're actually assessing depression with those answers or whether you're assessing the environment that we're living in. – Participant 5, Counselling Psychologist

Furthermore, in addition to the fact that online screening tools may neglect the more immediate context of the individual, therefore meaning that users' responses may be removed from their true lived experience, the participants also pointed to various wider contextual issues that are specific to South Africa such as Loadshedding and the loss of internet access which also need to be considered to introduce online depression screening methods successfully. Three consequential macro-factors warrant further discussion.

Firstly, several participants noted that because South Africa is a multilingual society both in that there are several official languages and many individuals also speak a first or second additional language, many people have variable proficiency levels in these different languages, with one healthcare practitioner also noting that certain patients in their practice are not literate at all. Relatedly, another participant further reflected on the notion of privilege and how those South Africans with a greater English fluency and educational attainment

would be better equipped for, and more greatly profit from, a screening tool like the online adapted CESD-R:

> *This screening tool is targeted to the privileged South African where English might be their main language, […] people that have an education beyond a matric qualification […] I don't refer to any colour, race, religion, gender, no, I'm speaking of the level of education and their insight into mental health. – Participant 3, Counselling Psychologist*

As such, some participants suggested that the online adapted CESD-R may benefit from being translated into all official South African languages such that individuals may complete the test in their mother tongue, thus aiding their comprehension. However, as another participant indicated, doing so may pose its own problems regarding the extent that the meaning of mental health concepts can be accurately translated cross-culturally:

> *The first thing is language literacy, like how are things translated and things like that. Some of the ideas can be quite Western in some respects and difficult to convey appropriately. I don't think it's as simple as just translating it to Xhosa or Zulu. – Participant 2, Intern Medical Doctor*

Secondly, participants also spoke to the spatial structure of South Africa in terms of the various geographical and socioeconomical characteristics and the implications thereof for online screening. For instance, one participant discussed how the challenges of connectivity and language may unevenly affect members of the population in different districts:

> *Our population is so diverse. For example, if you're gonna screen a person in a rural area or in an urban area or in an informal settlement, all those situations would be different […] it would come with its own challenges […] In a little village in KwaZulu-Natal, in a typically rural area where the person might need screening […they] will have to understand that, for example, if there's no internet connection, it's not going to happen […] In a township type setting […] maybe they speak the lingo or maybe they speak in a different language, I think that would be a challenge. – Participant 1, Nurse*

Moreover, another participant described differences in attitudes and help-seeking among patients in areas of contrasting financial standings. According to them, online screening requires "proactive" organization and enforcement such as disseminating the test

and reviewing results prior to the consultation, to which some patients are not receptive, and which is thus not conducive to universal online screening:

> *The practice that I'm in in the medium-to-low-class area, [patients] don't come in by appointment – I have a lot of walk-ins. I've tried the appointment system for years; it doesn't work. Because for them, when they're sick, they do something about it, they go straight away, whereas in the [more affluent] suburbs, patients work by appointments, they phone in. That can work because you can get them to fill out online things before they come in; you can structure it. But [in the lower-class areas], it's really difficult because if you have a room of 10 patients waiting and you're busy with one and you take over the time, they'll just walk out and find another doctor. – Participant 7, General Practitioner*

Finally, in terms of the healthcare system in South Africa, two participants described the current limitations of the public health sector with respect to resources and service delivery; meeting the needs of the public and healthcare professionals; and functional infrastructure. On account of such long-established problems like insufficient human capital and the high patient load as well as the consequent excessive patient wait times, implementing an online depression screening tool like the adapted CESD-R would require significant reform, as one participant remarked:

> *From a public health perspective […] they are so overwhelmed and overburdened and understaffed. To actually be running or using a tool like this, it would have to be a pretty sharp clinic […] It's possible, but I think it would be quite a significant amount of work to actually get it functioning. – Participant 4, Nurse*

Similarly, another participant reinforced this idea and further noted that, in addition to promulgating the use of online screening assessments, ongoing follow-up and treatment provision in accordance with user screening outcomes would remain in question:

> *It's just a problem with the structure of South Africa […] I work in a public hospital, and I don't even think we have a psychologist – we only have a social worker […] So even if you have this diagnosis, it can be quite challenging to get someone in person you get with and talk to. – Participant 2, Intern Medical Doctor*

Thus, at the highest level, one of the healthcare professionals foregrounded the role that governmental bodies have in the execution of wide-scale online depression screening.

More specifically, they indicated the necessity of efficient top-down initiative, administration, and leadership to identify and address problems with suitable solutions. Commenting on a pilot project in clinics and community centres on which this participant had previously worked, they stated:

> *It was very significant to see [that] where there was good management in a clinic, where the person in charge took ownership and was managing the place, the program flourished; but in other places where there wasn't that level of management, the program floundered […] So, I think from a governmental perspective, the adoption of a program like this would very much depend on commitment from the management side of do they want it in place, and will they make it work, and will they create the infrastructure where it could work. – Participant 4, Nurse*

Facilitators of Online Depression Screening

The next major theme delineates the factors perceived to promote the use of online depression screening tools in South Africa. These facilitating aspects include technical, personal, and procedural factors.

Firstly, all the participants had positive perceptions of the technical aspects of the online adapted CESD-R. Overall, they perceived the tool to be "useful", "valuable", and "forward-thinking", as well as culturally appropriate for assessing depression in a South African context. Moreover, the participants also remarked that the tool has a good layout, with a "neat" and "clean" format that is not too compact, nor information-dense, making it "simple and straightforward" and therefore "non-threatening" which is imperative when considering depressive symptomology. According to one participant:

> *I think that for someone that is depressed, it's one page, it's questions [you] can just tick […] When you're depressed and can easily feel overwhelmed […] it's not a lot of information [you] have to take in, [such that] it's kind of, "Oh no, this is too much, I'm not even going to try."[…] When you do not have a lot of energy […] things that are presented in a very simple, straightforward way are easier to cope with." – Participant 6, Clinical Psychologist*

As such, the health professionals believed the tool to be "user-friendly" and further remarked that the instructions were "clear", and that it "flows logically" from question to question, making it "easy to understand", "easy to answer", and quick to complete. Finally, the participants also felt positively towards the way in which feedback is provided with two

participants stating their approval of the tentative phrasing of the results. The participants further indicated that the actionable steps and resources provided in the feedback were beneficial and may eventually prompt further help-seeking:

> *I like the results where it says low risk and high risk. Immediately I suppose if the person sees that they're in a red category they would seriously think, "Next step is to see my doctor or go to the clinic or whatever." – Participant 1, Nurse*

Secondly, the participants described various user benefits of online depression screening tools. For instance, participants observed that it may be completed without another party's knowledge and that informal referral and support systems may be constructed through word of mouth wherein individual can share the tool with someone about whom they are worried.

Moreover, one participant noted how having an online screening tool may reduce the amount of travel that is necessary for patients and affords them the comfort of a familiar setting in which to complete the assessment, thus encouraging openness:

> *Especially now, people would love to be in their own space and sit like I'm sitting in a little office space where I feel free to talk [as opposed to] if I know I'm gonna have to drive and meet the person. – Participant 1, Nurse*

Another participant further reflected on the fact that a tool such as the online adapted CESD-R might affirm an individual's experience of mental illness and decrease potential feelings of isolation or loneliness with the understanding that others similarly share their emotional and mental distress:

> *A questionnaire might be quite validating 'cause it could be like, "It's not just me feeling this. Look at this questionnaire, this question is really specific, why would they ask these questions if this wasn't a reality?" – Participant 2, Intern Medical Doctor*

Lastly, the participants also noted different ways in which online depression screening tools may improve patient care and the processes involved therein. In general, many of the participants suggested that the online adapted CESD-R would be advantageous as it could increase diagnosis rates of depression and help practitioners gain a greater level of insight into their patients, thus positively affecting patient interactions. As one participant indicated:

> *[The tool] would be a really good thing to implement […] It will add value to your consultation; it will add value to your patient-doctor relationship; it will add a better*

understanding as well of your patient, of yourself. – Participant 7, General Practitioner

Moreover, the same participant also remarked that a wider variety of questions that cannot be covered in a consultation alone could be answered with the online adapted CESD-R. As such, the screening tool was perceived to be a potential aid in risk assessment as well as a means of informing further treatment planning. According to this participant, for example, by "giving you that low risk, medium risk, you know where [patients] are. You know if you should be following them up sooner rather than later." This sentiment was echoed by another participant who also highlighted the importance of having such knowledge about a patient's psychological state in situations where they may be a risk to themselves, but are hesitant to disclose as much during an in-person appointment with a healthcare practitioner:

[An online screening tool] would really help clinicians to identify what they're dealing with and then obviously assess risk as well, like how desperately does this person need help, and what sort of help do they need […] Because I could have a client who's been here for a session, but maybe withholding information and only towards the last five minutes will [they] then feel that they've established enough rapport or a sense of trust or they've evaluated me as a psychologist and feel they can now open up and will then start talking about their self-mutilation or their suicidal thoughts which they didn't feel they could share right in the beginning. – Participant 5, Counselling Psychologist

Similarly, in the experience of another participant, such hesitancy to divulge sensitive information is a prominent problem with in-person healthcare, albeit the fact that it is often a result of practitioners not soliciting the specific information from their patients:

I think people are a little more honest when they do something online than when they're doing a face-to-face interview and I know that a lot of people don't disclose information to a medical practitioner unless they ask specific questions. So, if they have to go through a screening process where it's a step-by-step-answer-the-questions, I think it could add a lot of value. – Participant 4, Nurse

However, it should be noted that according to some participants, failing to ask specific questions of their patients is not due to reluctance, but rather the inability to do so. This is often due to unavoidable constraints inherent to their professions and work

environments that limit the possibility of having in-depth discussions face-to-face. This is particularly apparent with regard to mental health matters in state hospital settings, as one participant remarked:

> *We have so many patients that you can't easily go, "Are you feeling sad? Are you feeling happy?" [...] The hospital is really busy and there's a lot of really sick, very urgently ill patients […] You wait two or three hours to get a nursing thing and then you wait another two or three hours to be seen, and then two to three hours, four or five hours for blood results […] I just feel like the public sector is not as inviting of "I'm feeling sad" [as the private sector is.] – Participant 2, Intern Medical Doctor*

Similarly, another participant highlighted that a single in-person consultation period is insufficient to obtain a complete picture of a patient's mental health profile. As such, they described how having an online screening tool that patients may complete outside of scheduled sessions reduces the amount of contact time required to document patient information. Consequently, more of this time becomes available to delve into important issues thus potentially reducing the number of required sessions and the associated costs thereof:

> *Let's say there's a first session and you talk about things, and I get the impression this person is depressed. I may not necessarily be able to have a discussion about that and what the symptoms are […] there's literally just not time. So then I think this would be ideal, [you could say], "Just do this screening, bring the feedback back and then we can discuss it next time." So it would support me in that way […when] I'm not able to really go into [everything] so we have to wait for next time […] I can then in a way fast-track the process […] It will save time and then there can potentially be cost implications [too]. – Participant 6, Clinical Psychologist*

Alternatively, it was also indicated that having patients complete the online adapted CESD-R might be a more productive way to utilise dead time during patient consultations which also addresses the issue of time-sensitivity:

> *What could actually be useful is to have this questionnaire, have this website ready, and then just ask [patients] to pull out your phone, put it in front of them, and then ask them to do the questionnaire quickly maybe while you're writing up notes or something […] then if it says medium risk or high risk, you can explain what that means. – Participant 2, Intern Medical Doctor*

Finally, other participants also provided their thoughts on different ways in which the online adapted CESD-R could potentially be incorporated into their work and approach to patient care. For instance, in addition to supplementing patient intake information, one practitioner also proposed that the online adapted CESD-R could be used as a referral resource for existing patients who suspect that their loved ones might be suffering from depression:

> *If the client could actually print it out and bring it with to say, "I completed this and this is my outcome", and give it to me, then I could obviously see, alright, there's been a change in sleeping patterns, there's been a change in eating patterns, and use that as part of a structured interview for the intake […or] I could maybe say to a woman who thinks that the reason why her marriage is in trouble is because her husband suffers from depression, "There is this [tool] that'll take him five minutes to complete, I would recommend that you follow this link and there you will find it." – Participant 5, Counselling Psychologist*

Living in a (Virtue)al Reality

The third theme pertains to the current digital age as well as important considerations for navigating mental healthcare provision in such an age in ways that are ethical and virtuous.

When asked about their impressions of virtual methods of screening for mental illnesses, one participant reflected on the inevitability of the shift to incorporating online mediums into patient care, especially post-COVID-19:

> *I think that's the way the world is going now. I mean, two years ago we weren't allowed to do anything online and now we're doing everything online. So, I think that online is just as good a medium as anything else. - Participant 5, Counselling Psychologist*

Similarly, five of the participants remarked on the wider availability and usage of mobile and other electronic devices among many members of the population, particularly the youth. Importantly, one of these participants also indicated that such increased technological device access is becoming evident even in the more remote areas of South Africa:

> *I've had clients who I've seen in my office and the next time I see them, they've gone home for a week away from all the stress and are sitting in a little house in the middle of KwaZulu-Natal in the middle of nowhere, but they have a laptop, and they have a*

dongle and because of that they can connect for their therapy session [...] the technology has taken people wherever they want to go – Participant 5, Counselling Psychologist

Other healthcare professionals also expressed how technology could be further integrated into mental health service delivery. One of the participants suggested that the online-adapted CESD-R may be made available in primary care facilities using barcodes that can be scanned and filled out "while the patients are waiting in the waiting room." Similarly, another participant suggested the incorporation of built-in computer algorithms to help establish the validity of individuals' responses to the online adapted CESD-R, similarly to other assessments such as the MMPI or MCMI. Finally, a third participant also proposed the inclusion of mobile applications under the resources provided on the online adapted CESD-R tool's screening feedback page. Specifically, they suggested the cognitive-behavioural therapy application Bloom and other online mental health tools that may be more affordable and easier to access should individuals not be able or ready to seek further in-person care.

However, another participant also noted that, despite the increasing availability of devices and the traction that this technological shift is gaining, it is a prolonged process that requires growing accustomed to such novel ways of doing things. They further note that this process is complicated by the rapid advancements in technology which make it difficult for practitioners and patients to keep abreast of the latest developments:

All this, you know, like the Internet and online […] people are saying now you really need to get into that space […] but that I think will take another generation or another 10 years before we get there. We're just getting used to Zoom and getting used to Teams and getting used to all these online platforms because of COVID. It took us two years […] Now Zoom has become a normal thing, but when I was first made aware of [it], I was like, "What's this?" I had to learn how to use Zoom […] and when you just get used to that, then there's another app or another platform. – Participant 1, Nurse

Moreover, one of the participants explained the utility of the digitized movement, stating that having electronic data systems in place would simplify and increase the efficiency of providing treatment. For instance, these systems would give various health practitioners access to patient test results, thereby minimising the duplication of assessment procedures and improving the organization and management of patient care. They described how:

In the Western Cape, they have done a lot on working on that. If you've got a clinic number and you go from one facility to the other, they can pick it up – it's on a central database. So they can pick up how many times you've been to the clinic; what treatment you've been on; what assessments you've had and that's certainly been streamlined a lot. I don't think that's working in the other provinces yet […] often healthcare is very fragmented. – Participant 4, Nurse

In addition to these considerations regarding the ever-changing techno-landscape and the national uptake of virtual tools, the online realm of mental health care is also governed by unique ethical challenges. Firstly, two participants raised concerns particularly with regard to the privacy and confidentiality of online depression screening and the potential consequences of such personal information being unwillingly disclosed to others. In particular, the power relations that arise from knowledge of an individual's mental health status are highlighted, as well as certain considerations unique to socio-historical problems in South Africa such as household size and composition:

Who has access to the data number one? Number two, what is being done with the data? How is it being protected? How is privacy and confidentiality maintained throughout? [...] The person that has access to that data […] you have power with [it]…that's how it is; it's power […] You can blackmail people saying, "Well, I'm going to tell everyone you're suffering from depression" […] and a lot of harm could be done in that […] If you look at the HPCSA scope of practice […] I mean, the first thing is do no harm. – Participant 3, Counselling Psychologist

The problem with online is that sometimes you don't have privacy if you're in a house and you can't go and close the door or it's not quiet enough. So it's not always as private as we think it will be […] If anybody else uses the same computer, will they then be able to access those results or will it disappear the minute you go off the site? [...] Just in terms of confidentiality, if somebody uses your laptop and they see that you have got a medium risk or that you've accessed this site […] I just think that might put some people in a compromising situation. – Participant 5, Counselling Psychologist

Secondly, some participants emphasized the importance of one's motivation behind performing a depression screening and the consequent validity of the assessment and possible negative repercussions. Due to the nature of an online test, participants suggested that it

would be difficult to discern the integrity and honesty with which the questions were completed, with one individual stating that:

> *There will have to be a high level of trust that when [the screening] was filled out, it was filled out with the intention of really wanting to seek help […] that this person wants to seriously look at it. – Participant 1, Nurse*

Lastly, another participant described how, in certain lines of work wherein individuals have a material or financial incentive to receive a low-risk depression screening, accepting the results of an online assessment without further professional consultation may lead to serious personal and wider ramifications:

> *You need to be in the correct mental state to do the work effectively […] Without clinical judgement, every single worker [would screen negative] provided that obviously everyone wants to because […] it's a bit of an extra income or bonus […or] it leads to more promotions. So who wouldn't want to do that regardless of how they're feeling? [...] Worst case scenario they have a breakdown or whatever it is, [and] it comes back, were they actually mentally fit to be here in the first place? [...] The thing is, if there are no consequences to somebody experiencing a mental health challenge, then it would work; if there are consequences, it's a problem. – Participant 3, Counselling Psychologist*

The above chapter has presented four main themes and sub-themes that encapsulate the health professionals' views of online depression screening use in South Africa. These are: the importance of being well-informed with regard to mental health and the concomitant dangers of misinformation; the material, systemic, and cultural barriers to the adoption of online depression screening tools in the country, as well as factors which promote their use; and specific ethical considerations that arise with the use of novel technologies. These findings will subsequently be discussed and interpreted in relation to the literature and used to inform conclusions and recommendations for future research.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

The final chapter will elaborate on the themes and sub-themes that were developed from the data and emphasise the ways in which the present findings are similar to, and diverge from, other literature in the field. This chapter will further explore these results in relation to the Health Services Utilization Model and offer conclusions about the current state and future of online depression screening tool use in South Africa. The chapter will end with a consideration of the study's strengths, limitations, and contribution, and provide recommendations for future avenues to further develop the online depression screening corpus of knowledge in the country.

The present study sought to explore various health professionals' perceptions regarding the use of online depression screening within the South African context, with a focus on the online adapted CESD-R, a depression screening tool that was revised with the express purpose of accurately assessing depression risk in the general South African adult population.

The main findings of the study highlighted four key interrelated thematic areas: The power that information holds, barriers to, and facilitators of, online depression screening, and ethical considerations in the digital age. The results demonstrated that South African health professionals have varied perceptions regarding the potential implementation of online depression screening in the country. Specifically, there are certain cultural, contextual, and ethical considerations still needing to be addressed to fully realize the personal and practical benefits of online depression screening tools for patients and healthcare providers. These findings therefore demonstrate that online depression screening instruments may be a feasible and effective tool to aid health practitioners in patient assessment in the future.

The first theme calls attention to the ways in which information can be a powerful agent of progress when it comes to mental health and healthcare as well as how misinformation can prevent such progress. More specifically, the importance of greater awareness and its relationship to online depression screening is highlighted. One important finding pertains to professionals' perceptions of MHL rates in South Africa and their implications for online depression screening tool use in the country. The term mental health literacy was coined by Jorm et al. (1997, p. 182) and refers to the "knowledge and beliefs about mental disorders which aid their recognition, management or prevention." The term encompasses whether an individual can identify and differentiate between different disorders, including their risk factors, aetiology, and both unofficial and professional treatment options;

and confidently acquire mental health information. It also includes positive attitudes toward mental illness recognition and help-seeking. According to a recent vignette study on the MHL of individuals attending clinics in the Tshwane one region in Gauteng, approximately half of the participants were unable to recognize major depression as a mental illness (Madlala et al., 2020). Instead, the depiction of MDD in the vignette was attributed to a physical illness or something else altogether, with some participants indicating uncertainty in their response (Madlala et al., 2020). However, a study in Kwazulu-Natal argued that participants' conceptualisations of mental illness reflect indigenous explanatory systems more so than that typical of Western nosology and thus do not necessarily indicate a lack of MHL, but a different kind of knowledge and understanding (Kometsi et al., 2020). The findings of the present study mirror these varied results with regard to the perceived state of MHL in South Africa and intriguingly suggest that one reason why there is such ambiguity surrounding MHL is that individual desensitization to distress blurs the lines between illness and health and what is normal and abnormal. These results thus remain largely inconclusive and require deeper interrogation.

These contradictory findings are concerning when viewed in light of a review of the literature on MHL and its importance conducted by Furnham and Swami (2018). According to this review, low MHL is associated with low help-seeking rates, negative perceptions of mental health professionals, increased stigma, and low treatment compliance. Nevertheless, research has suggested that depression screening instruments facilitate increased individual awareness of the disorder and accompanying symptoms and greatly increase diagnosis and referrals for treatment initiation (Costantini, Costanza, et al., 2021; Pfoh et al., 2020). Similar results were obtained from the participants in the present study with reference to online depression screening tools specifically, indicating that similar perceptions of their utility exist in this regard across different modes of screening. This might suggest that online screening instruments for depression are an acceptable substitute for paper-and-pencil tools in cases where in-person screening is inconvenient, inaccessible, or inappropriate based on a patient's situation and needs.

As mentioned, MHL is also related to stigmatising attitudes about mental disorders. The participants highlighted the role of stigma and unaccepting community beliefs and how such prejudicial attitudes may impede tool users' engagement with the online adapted CESD-R. According to these participants, such stigma promulgates the idea that psychological distress is either an invalid experience and thus does not warrant treatment or, on the other end of the spectrum, constitutes a severe mental disturbance only, in which case treatment is

similarly inappropriate for anything less extreme. This finding may be better understood in terms of the fact that many African cultures subscribe to collectivist, relational modes of being traditionally encompassed by the term *ubuntu* (Ewuoso & Hall, 2019). This emphasis on interdependence and connectedness may thus explain the mechanism through which negative societal views regarding depression influence the uptake of online depression screening tools, despite the perceived benefit to the individual. As such, the findings suggest that before online depression screening tools can be implemented, it may be necessary to focus on disseminating information about such tools and depression in general to the public in order to disarm scepticism and negative beliefs. However, since mental illness stigma is determinedly difficult to counteract (Walsh & Foster, 2021), it might prove challenging to accomplish such an attitude shift. Psychoeducation about online depression screening should therefore align with contemporary change theories that are empirically shown to have an effect on stigmatising beliefs (Walsh & Foster, 2021).

Furthermore, the results of the study also contribute to the debate on the utility of depression screening. The findings align with those in favour of routine depression screening (Mashaba et al., 2021; Siu & US Preventive Services Task Force, 2016). They suggest that, in the South African context at least, the potential benefits of comprehensive, informed, formal depression screening with validated tools in terms of increased and more accurate detection and treatment provision as well as stricter control of dispensing medication are reason enough to implement screening processes. Additionally, routine screening with an online depression instrument specifically would address at least some of the concerns raised regarding universal versus targeted screening in countries with limited resources (Akincigil & Matthews, 2017; Mashaba et al., 2021). This would mean that more members of the population, including those at risk of being overlooked, will have the opportunity to undergo assessment.

Moreover, the findings regarding the various barriers to and facilitators of online depression screening tools in South Africa are largely in accordance with previous international and local literature related to digital depression screening and other e-mental healthcare initiatives, including the results of earlier pilot testing of the online adapted CESD-R. Factors related to the availability and knowledge of digital technology and internet access costs (Aguilera, 2015; Anderson et al., 2020; Breedvelt et al., 2019; Mindu et al., 2023; Passchier et al., 2019); health practitioners' reluctance toward the adoption of e-mental health tools (McClellan et al., 2020); potential users' awareness of available digital mental health resources (Breedvelt et al., 2019; Mindu et al., 2023); and the establishment of a trusting patient-practitioner relationship online (McClellan et al., 2020) have all been identified as

potential obstacles to the implementation of digital mental health care such as online depression screening. Additionally, contextual issues such as one's lifestyle (Hassem, 2021); linguistic limitations and the complexities inherent to translation (Hassem, 2021; Passchier et al., 2019); as well as, perhaps most importantly, structural and systemic problems in South African healthcare have also been cited as barriers to the use of online depression screening (Passchier et al., 2019). Many of the aforementioned barriers to digital mental health advancements such as online depression screening may be traced to South Africa's historical anti-Black institutional control (Coovadia et al., 2009; Delobelle, 2013; Eyles et al., 2015; Howell, 2019). South Africa's health system governance, including mental healthcare, is notoriously under strain, with infrastructure that lacks integrity; insufficient health information technology integration; and unsustainable financial decision-making stemming from generations of poor stewardship and organization that have endured since before the Apartheid era (Malakoane et al., 2020; Petersen et al., 2017). Consequently, the introduction of the online adapted CESD-R into preventive depression treatment efforts will likely require sustained and deeper engagement with these foundational issues of inequity and exclusion.

The results also indicated certain barriers that were not prevalent in online depression screening research conducted elsewhere. These include the inability to probe and clarify misunderstandings online and differences in urban versus rural and low versus high socioeconomic areas. The importance of in-person clinical judgement and follow-up may have been a prominent concern due to certain aforementioned factors such as language competency, technological savviness, and culturally specific understandings and presentations of depressive symptoms in South Africa which could exacerbate the potential for misinterpretation online. Secondly, because South Africa is a middle-income country with intra-level disparities in development (The World Bank, 2021a, 2021b), urbanisation and income were perhaps more readily apparent issues for the study participants in comparison to international literature. Careful attention to the intersectionality of barriers to online depression screening with regard to education, culture, class, and geography is therefore necessary to implement tools such as the online adapted CESD-R successfully on a country-wide scale.

Notwithstanding these potential barriers to online depression screening, most of the participants had predominantly favourable views regarding online screening measures. With regard to potential facilitators of online depression screening tool use in South Africa, the results of the present study echoed related research that cited technical aspects such as convenience, ease-of-use, non-invasiveness, and sensitivity to depression symptomology

(Anderson et al., 2020; Hassem, 2021); improved access to mental health services (Aguilera, 2015; Krog et al., 2018; Schueller et al., 2019; Whitton et al., 2021); increased efficiency of service delivery and patient care (Breedvelt et al., 2019; Eisner et al., 2022; Krog et al., 2018; McIntyre & Chow, 2020); and discretion (Cortelyou-Ward et al., 2018; Schueller et al., 2019) as benefits of digital mental health interventions including online screening tools for depression. Moreover, the conclusion that the online adapted CESD-R may increase recognition rates of depression was also reached with regard to a similar web-based depression screening tool (Anderson et al., 2020; Whitton et al., 2021). This convergence of results further cements the potential for the online adapted CESD-R to be utilised by healthcare professionals in their everyday practice as an approved mental health assessment instrument.

Interestingly, the present study also yielded novel insights in terms of the benefits of online depression screening such as the potential to mitigate feelings of isolation and loneliness among depressed individuals. This finding is important considering the protective role of a strong sense of belonging in relation to depression onset and treatment prognosis (Fisher et al., 2015). Future refinements of the online adapted CESD-R could thus consider incorporating digital support forums into the MDDSA website interface seeing as such online networks provide the opportunity for interpersonal connection over shared experiences of depression (Naslund et al., 2017).

In view of the participants' enthusiasm toward integrating the online adapted CESD-R into their current work, the final theme demonstrates the participants' perceptions that mental healthcare for depression is shifting toward online and hybrid forms of treatment. This digital shift is also apparent in much mental health literature. Several authors (Aguilera, 2015; Cortelyou-Ward et al., 2018; Eisner et al., 2022; Hollis et al., 2015; Krog et al., 2018; Naslund et al., 2017; Passchier et al., 2019; Pretorius et al., 2019; Schueller et al., 2019; Wozney et al., 2017) have highlighted the growing role of various digital technologies including online screening tools in the detection and treatment of, and education about, depressive disorders and other mental illnesses. This research includes reports on pilot tests for the use of a mobile phone screening application for postnatal depression as well as a web-based depression screening tool in primary care similar to the online adapted CESD-R (Eisner et al., 2022; Krog et al., 2018). Importantly, such studies on digital technologies in mental healthcare have also been conducted in South Africa and other low-and-middle income contexts, suggesting that this digital mental health revolution is not restricted to the global north (Naslund et al., 2017; Passchier et al., 2019). However, as some participants

noted, there are important inter-provincial disparities in the extent to which South African health facilities have successfully capitalised on available technological resources such as online networks to record and monitor patient information. This suggests that similar lags may be evident in the implementation of online depression screening tools and would require increased support for those that are behind. Nonetheless, such perceptions among healthcare practitioners in combination with this empirical support for the transition into digital mental healthcare may suggest that healthcare workers are increasingly likely to endorse online depression screening tools to patients and their professional counterparts. Consequently, this would mean that the online adapted CESD-R would have even further reach, with more individuals taking it on board.

In accordance with this technological shift, research has demonstrated an awareness of the specific ethical considerations that surround the digital provision of mental health care, and, in particular, online depression screening tools. These ethical concerns generally relate to the infringement of individuals' privacy and data security (Aguilera, 2015; Passchier et al., 2019; Pretorius et al., 2019), and the protection of sensitive patient health information and individual rights (Hollis et al., 2015; Naslund et al., 2017). These results are in alignment with the findings of the present study. Additionally, the participants indicated that online depression screening tools open the possibility for fictitious responses thus leading to false negatives or positives in screening that could have personal and societal consequences. Each of these factors would suggest that online depression screening tools necessitate rigorous security processes to be in place at all stages, including data capture, storage, access, and sharing and that the pace with which technology is forging ahead is matched by up-to-date ethical practice guidelines.

In light of these ethical concerns, Hassem and Laher (2022a, 2022b) drafted and evaluated one such set of guidelines for ethical online depression screening in South Africa. The guidelines delineate seven aspects of ethical online depression screening, namely, purpose and scope; modes of testing; psychometric properties; informed consent; ensuring minimal risk to participants; feedback; and data security. These ethical guidelines address the participants' concerns in theory. However, the findings of the study suggest that such guidelines may be more difficult to uphold in practice where the contextual nuances underlying general recommendations become increasingly evident. Online depression screening tools used in the South African context such as the online adapted CESD-R should therefore be subject to further intensive thought and revision with regard to how users'

privacy and confidentiality may be maintained while also ensuring that the risk of abusing the tool is sufficiently mitigated.

These results, when viewed from the lens of the Health Services Utilization Model (R. Andersen & Newman, 1973), aid in demonstrating how multilevel factors are implicated in understanding the potential uptake of digital depression screening technology. Moreover, they also highlight crucial access points for policy reform and targeted intervention for improved mental health service delivery. Firstly, potential tool users' age, attitudes about mental healthcare and treatment, and their mental health literacy; whether they reside in rural or urban locations; and their perceptions of their own state of mental health respectively constitute predisposing, enabling, and illness level individual determinants in the health services utilization model (R. Andersen & Newman, 1973). These factors are affected directly by societal determinants of health services utilization such as the move toward the digital age, the incorporation of new technological tools such as digital mental health interventions into patient care, and normative beliefs about mental illness in the form of stigma (R. Andersen & Newman, 1973). These societal determinants also indirectly influence individual determinants through the health services system which includes aspects related to the poor coordination and management of public healthcare in South Africa and its lack of sufficient human, financial, and other resources, including their unequal distribution (R. Andersen & Newman, 1973). Ultimately it is then the individual determinants which influence one's use of online depression screening tools. As such, each level of factors, as well as the dynamic way in which they intersect and influence each other, needs to be further explored.

The study therefore contributes important knowledge to what is a nascent field of research in South Africa. In this way, researchers, test developers, and health service providers can be better informed on the context-specific considerations that need to be accounted for regarding online depression screening tools. More specifically, this study has provided further input towards the piloting of the online adapted CESD-R which will allow for further refinement and revision of the instrument, bringing it one step closer to public use, and, ultimately, confronting the treatment gap in South Africa. Relatedly, a further strength of the study lies in its contribution toward the current state of mental health legislation and policy. The results indicate that the implementation of the online adapted CESD-R aligns with the goals and visions of both international and South African mental health laws and frameworks in that it offers an empirically grounded preventative effort to address depression in the country in a manner that is sensitive to the context. In this way, the study offers

important information that may be used to ensure that the guidelines for effective mental health provision in South Africa are fulfilled in practice.

It is necessary to note, however, that the study was not without limitation. Whereas the intention was to recruit a group of 12 participants consisting of equal numbers of psychologists, nurses, general practitioners, and psychiatrists, the researcher was unable to locate this number of willing participants. This was largely due to potential participants not having sufficient time to dedicate to the study on account of their demanding occupations. Moreover, the participants who were recruited practiced in only three of South Africa's nine provinces. As such, the sample was not sufficiently diverse to capture the perceptions of a wide array of health professionals, with psychiatrists being entirely absent from the sample. It was further limited in terms of being unable to explore the unique factors presumed to influence mental health care in the provinces not under investigation.

In light of these limitations, the findings of the present study point to several potential avenues for future research into online depression screening in South Africa and the online adapted CESD-R tool. In terms of qualitative research, it may prove valuable to explore the views of more health professionals from a wider variety of backgrounds such as psychiatrists, specialised psychiatric nurses, psychometrists, and community health clinic workers, as well as other key stakeholders in the South African health sector. Important to include in such samples would be those in managerial and business administrative roles within targeted establishments in which the online adapted CESD-R might be implemented such as Dis-chem and Clicks pharmacies' patient health services as well as key departmental representatives within provincial government. Furthermore, potential tool users' perceptions of the CESD-R would be important to examine in order to determine whether it is feasible and acceptable to the lay-public. Lastly, researchers may also consider conducting further quantitative research into the online adapted CESD-R, such as an exploratory factor analysis in order to further validate the tool within the South African context.

The present research puts forth salient themes that are present within South African health professionals' perceptions of online depression screening use in the country. While the development of such screening instruments is still in its infancy, great strides have been made towards their initiation into established mental healthcare systems, with health practitioners offering favourable appraisals of one such example of these digital depression screening tools: the online adapted CESD-R. What is evident is that South Africa is to a great extent a multi-faceted country in terms of population demographics; mental health and digital literacy rates; socioeconomic status; geographic dispersion; and governance, all of which shape the

way in which mental health service provision is conceptualised, configured, and communicated. Despite the many barriers that exist in this regard, and the unique ethical challenges that accompany them, online depression screening tools like the adapted CESD-R will prove valuable in increasing public awareness, acceptance of mental illness, and subjective wellbeing; disorder detection and treatment; and the overall efficiency of patient care. The realization of these factors, however, requires multi-level buy-in from multiple stakeholders, including the health, business, and governmental sectors. Effective communication and cohesive collaborative efforts between these entities are therefore paramount in the success of the tool and should be the first steps moving forward.

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Appendix A: Participant Consent Form

Title of project: Health Professionals' Perceptions of Online Depression Screening Use in South Africa

Name of researcher: Arianna Fadda

I, …….., (Full name) agree to participate in this research project.

I agree to the following:

(Please circle the relevant options below)

The research study was explained to me. I understand what this study is about.	YES	NO
I understand that I can volunteer to take part in the study	YES	NO
I agree that the online interview may be screen-recorded to capture the audio	YES	NO
I understand that although it is not necessary, if I choose to turn on my video camera during the online interview my video will also be captured in the screen recording	YES	NO
I agree that direct quotations from my online interview may be used by the researcher in their research report	YES	NO
I understand that my identity and other identifying information will be kept confidential by the researcher	YES	NO
I agree that my participation will remain anonymous (my name will not be used by the researcher in their research report)	YES	NO
I agree that other researchers may use the information I provide in my online interview (depending on their own ethics clearance being obtained) but my name and any personal information will not be used or passed on	YES	NO

…….. (signature)
…….. (name of participant)
…….. (date)

……. (signature)
……. (name of researcher)
……..(date)

Appendix B: Participant Information Sheet

Good day

My name is Arianna Fadda. I am a Masters student in Social and Psychological Research at the University of the Witwatersrand, Johannesburg. I am conducting a research study under the supervision of Dr Tasneem Hassem about health professionals' views regarding the use of online screening tools for depression within the South African context. The study title is: "Health Professionals' Perceptions of Online Depression Screening Use in South Africa."

I am inviting you to take part in a once-off individual interview. Prior to the interview, you will be sent the link to the Major Depressive Disorder South Africa website and asked to look through the online adapted CESD-R depression screening tool. The interview will then entail being asked a few demographic questions about your professional experience as well as some questions regarding your views of the use of online depression screening in South Africa, and your impressions of the online adapted CESD-R. If you decide to take part, your participation in this research study will last about 30 to 45 minutes. The interview will take place online via Google Meet or Zoom at a date and time that is convenient to you.

With your permission, I would like to audio record the online interview by screen recording the meeting. This data will be stored on my personal computer in a password-protected folder as well as on my personal Microsoft OneDrive account for five years. Only my supervisor and I will have access to the data.

The online interview will be entirely confidential. When I share the results of the research study, I will not include your name or anything else that could identify you. With your permission, other researchers may use the data collected from this research study, but your name and any personal information will not be used or passed on.

If you decide to take part in the research study, it should be because you want to volunteer. You do not have to take part. You can stop being in the study at any time. You do not have to answer any questions if you do not want to. You will not get any direct benefits if you choose to join the research study, however your participation will contribute to the research literature on online depression screening in South Africa. You will not lose any services, benefits or rights you would normally have if you decide not to join. By taking part in the research study, you will be responsible for the data costs associated with attending the online interview. You will not be paid for being in this research study.

The risks for this research study are no more than what happens in everyday life. If the discussion does cause you any distress, please contact the South African Depression and Anxiety Group (SADAG) on the following toll-free number: 0800 567 567 (SADAG provides 24-hour telephonic counselling). If you feel the SADAG help line is not appropriate given your personal and professional capacity, I will do everything in my power to assist you in locating a therapist or counsellor who is equipped to meet your needs.

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

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

Yours sincerely,

Arianna Fadda

Researcher:

Arianna Fadda, 2495100@students.wits.ac.za

Supervisor:

Dr Tasneem Hassem, Tasneem.Hassem@wits.ac.za

Appendix C: Recruitment Information Flyer

Appendix D: Interview Agenda

Topic 1: Online depression screening in the South African context

What is your position regarding screening for mental illnesses?

How do you perceive online depression screening?

Could you tell me about your views regarding the use of online depression screening in the South African context?

Topic 2: The online adapted CESD-R

What are your impressions of the online adapted CESD-R screening tool overall?

What are your impressions of the online adapted CESD-R format?

How do you potentially see the online adapted CESD-R being used in your own work context if at all?

Demographic Questions:

Do you currently practice in the public or private sector?

How many years of experience do you have in your field?

How often do you diagnose depression in members of the general public?

Have you ever used an online depression screening tool?

Appendix E: Online Adapted CESD-R Screening Tool

I have been experiencing more body aches and pains (e.g. headache, neck pain or back pain) *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have been thinking too much *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have been feeling sad or down *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I had trouble keeping my mind on what I was doing *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

My weight has changed without me trying (lost weight or gained weight) *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I felt like I have been moving too slowly *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I could not make a decision about simple things *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I could not get rid of this sad feeling *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have lost interest in my usual activities *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I felt that most things are my fault *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have not liked myself *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

My sleep has changed (having trouble sleeping or sleeping more than usual) *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I could not do things that I always done *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have been feeling tired *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I could not focus on important things *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

My eating has changed (eating less than normal/more than normal) *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

Nothing has made me happy *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have been feeling alone *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

I have not felt like myself *

Not at all	Some of the time	Most of the time	All of the time
○	○	○	○

Appendix F: Online Adapted CESD-R Feedback for Low-, Medium-, and High-Risk Individuals

Results Confirmation

Remember:

- The result below is not a diagnosis, it is a guide to help you understand your feelings.
- If you have any questions or concerns regarding your health, please visit your local clinic, a psychologist, psychiatrist or doctor for advice.

Your screening results:

Based on your answers, you are experiencing very few or no symptoms of depression.

Low Risk	Medium Risk	High Risk
✓		

To download a PDF confirmation of this result, please click here.

Your screening results:

Based on your answers, **you may be experiencing symptoms of depression.**

Low Risk	Medium Risk	High Risk
	✓	

These symptoms could cause difficulty in everyday tasks. There are various ways in which you can cope with the symptoms you are experiencing. With the correct treatment the symptoms you are experiencing can be treated.

To download a PDF confirmation of this result, please click here.

Based on your answers, **you appear to be experiencing the symptoms of depression.**

Low Risk	Medium Risk	High Risk
		✓

These symptoms can make your everyday tasks very difficult. There are various ways in which you can cope with the symptoms you are experiencing. With the correct treatment the symptoms you are experiencing can be treated.

To download a PDF confirmation of this result, please click here.

Getting help in South Africa:

Please contact one of the following organisations telephonically if you are in South Africa for immediate assistance:

- Adcock Ingram Depression and Anxiety Helpline: 0800 70 80 90
- Akeso Psychiatric Response Unit 24 Hour: 0861 435 787

Please contact a GP, go to your local clinic or make an appointment with a psychiatrist or psychologist who can aid you with an accurate diagnosis. You may show them your report from this website.

Request for Help

Do you want or need to speak to a SADAG (South African Depression and Anxiety Group) counsellor? *

- (●) **No**
- ( ) Yes

Getting help outside of South Africa:

Please contact a GP, go to your local clinic or make an appointment with a psychiatrist or psychologist who can aid you with an accurate diagnosis. You may show them your report from this website. You may also find online or telephonic support services available in your area.

Appendix G: Ethics Training Certificate

CERTIFICATE OF COMPETENCE IN RESEARCH ETHICS

Name: Arianna T Fadda

Student/Staff No: 2495100

Date of Certification: 16 March 2022- 15 March 2025 (This certificate is valid for a period of three years)

TRAINED BY:

PROFESSOR JASPER KNIGHT
(RESEARCH ETHICS)

SIGNATURE

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

ISSUED BY:

DR ROBIN CRENYAN
(DIRECTOR: RESEARCH
OFFICE)

SIGNATURE

This certificate is confirmation of successful completion of a training course in Research Ethics for Non-Medical human research, based upon achieving a minimum level of competence in different assessment tasks.

Appendix H: Ethical Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

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

CLEARANCE CERTIFICATE:	**PROTOCOL NUMBER: MASPR/22/03**
PROJECT TITLE:	Health Professionals' Perceptions of Online Depression Screening Use in South Africa.
INVESTIGATOR	Fadda Arianna Tello (2495100)
SCHOOL/DEPARTMENT OF INVESTIGATOR	SHCD/Psychology
DATE CONSIDERED	30 May 2022
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	Minimal Risk
EXPIRY DATE	31 December 2024

ISSUE DATE OF CERTIFICATE 19 July 2022 **CHAIRPERSON** ____ (Dr Sahba Besharati)

cc: Dr Tasneem Hassem (Supervisor)

DECLARATION OF INVESTIGATOR

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

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

Signature **Date** 27, 07, 2022

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES