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Depression and Resilience in Emerging Adults in Mozambique: A Quantitative Analysis of Risk and Protective Factors

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Master in Psychology of Intercultural Relations,

Supervisor:

Professor Carla Marina de Matos Moleiro, Associated Professor,
ISCTE - Instituto Universitário de Lisboa

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CIÊNCIAS SOCIAIS
E HUMANAS

Department of Social and Organizational Psychology

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*This work is dedicated to those all around the world whose lives are affected by depression
and to those who build others up and empower resilience.*

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Resumo

A depressão é um tema globalmente relevante, com um elevado impacto no bem-estar das pessoas em todo o mundo. Embora tenha sido realizada muita investigação sobre o tema no Ocidente, o impacto é igualmente significativo, e muitas vezes mais significativo, fora deste contexto, devido a factores como a infra-estrutura de saúde mental com poucos recursos e os tabus culturais em torno da doença mental. Com base nos quadros dos determinantes sociais da saúde mental e da literacia em saúde mental, este estudo analisa os factores de risco e de protecção relacionados com os sintomas depressivos em adultos emergentes em Moçambique. Esta investigação é motivada pela questão: "Como se relacionam os sintomas depressivos entre os adultos emergentes em Moçambique com os factores de risco e protecção situados localmente?". Recorrendo a dados nacionalmente representativos de Moçambique, recolhidos pelo Programa de Inquéritos Demográficos e de Saúde em colaboração com o Instituto Nacional de Estatística (INE) e a ICF, este estudo analisa dados demográficos e utiliza a análise quantitativa para correlacionar os determinantes sociais da saúde mental com os sintomas depressivos reportados. A análise encontrou suporte para a relação entre educação e literacia em saúde mental, mediada pela utilização da internet. Adicionalmente, a situação laboral relacionou-se com o desfecho sintomas depressivos reportados, mediado pela condição socioeconómica; este foi também moderado pelas condições de género. Estes resultados oferecem considerações fundamentais para futuras direcções políticas e institucionais e delineiam áreas de foco nas quais as mudanças e as políticas podem ser alavancadas para obter os melhores resultados.

Palavas-chave: determinantes sociais da saúde mental, literacia em saúde mental, sintomas depressivos, Moçambique, adultos emergentes

Abstract

Depression is a globally relevant topic with a high burden on the well-being of people worldwide. While much research has been done on the topic in the West, the impact is equally and often more significant outside of this context due to factors such as under-resourced mental health infrastructure and cultural taboos around mental illness. Building on the frameworks of social determinants of mental health and mental health literacy, this study looks at risk and protective factors related to depressive symptoms of emerging adults in Mozambique. This research is motivated by the question: “How are depressive symptoms among emerging adults in Mozambique related to locally situated risk and protective factors?” Using nationally representative data from Mozambique collected by the Demographic and Health Surveys Program in collaboration with the Instituto Nacional de Estatística (INE) and ICF, this study looks at demographic data and uses quantitative analysis to correlate social determinants of mental health with reported depressive symptoms. The analysis found support for the relationship between education and mental health literacy, as mediated by internet usage. Additionally, employment was related to the outcome of depressive symptoms reported, as mediated by socioeconomic status; this was also conditionally moderated by gender. These results contribute considerations for future political and institutional directions, and delineate areas of focus in which economic growth and policy can be leveraged for the best outcomes.

Keywords: social determinants of mental health, mental health literacy, depressive symptoms, Mozambique, emerging adults

Index

Acknowledgements	iii
Resumo	v
Abstract	vii
Index of Figures and Tables	xi
Glossary of Acronyms	xiii
Introduction	1
Chapter 1. Literature Review	5
1.1 Theoretical Framework	5
1.1.1 Cultural Competence	5
1.1.2 Social Determinants of Mental Health	7
1.1.3 Mental Health Literacy and Stigma	9
1.2 Current Understanding of Depression and Risk Factors in Mozambique	11
1.2.1 Risk Factors for Depression	12
1.2.2 Protective Factors Against Depression	13
1.3 Research Aims	14
Chapter 2. Method	17
2.1 Study Design	17
2.2 Participants	17
2.3 Materials	20
2.4 Procedure	22
Chapter 3. Results	25
3.1 Descriptive Statistics and Correlations	25
3.2 Mental Health Literacy Predicted by Education, Mediated by Internet Use	26
3.3 Depressive Symptoms Predicted by Employment, Mediated by SES under Conditions of Gender	28

Chapter 4. Discussion	33
4.1 Discussion of Results	33
4.2 Policy Implications	36
4.3 Limitations and Future Directions	37
Chapter 5. Conclusion	39
References	41
Appendix	47

Index of Figures and Tables

Figure 1.1	Conceptual Models	16
Figure 3.1	Education Level Mediation Model	27
Figure 3.2	Employment Moderated Mediation Model	29
Table 2.1	Sociodemographic Characteristics of the Participants	18
Table 3.1	Descriptive Statistics and Correlations	25
Table 3.2	Regression Results for Mediation	28
Table 3.3	Regression Results for Moderated Mediation	31

Glossary of Acronyms

DHS	Demographic and Health Surveys Program
DSM	Diagnostic and Statistical Manual of Mental Disorders
H1	Hypothesis 1
H2	Hypothesis 2
INE	Instituto Nacional de Estatística
IDS 2022-23	Inquérito Demográfico e de Saúde 2022–23 em Moçambique
MDD	Major Depressive Disorder
MLH	Mental Health Literacy
LMICs	Low- and Middle-Income Countries
PHQ9-MZ	Patient Health Questionnaire - Mozambique
PFPs	Protective Factors and Processes
QSP-9	Questionário de Saúde do Paciente
SDOMH	Social Determinants of Mental Health
SES	Socioeconomic Status
WEIRD	Western, Educated, Industrialized, Rich, Democratic
WHO	World Health Organization

Introduction

Depression is a burden to well-being around the world, in countries of every level of economic development, cultural background, and historical context. It is a challenge faced by both individuals and societies. Much research has been done over the course of the last half century in the Western context to create tools for evaluation and treatment of depression. This has resulted in a widespread acceptance of the mental health burden of depression in Western cultures, with it arising often as a topic of conversation and even as a self-diagnosis (Greenberg, 2010). While the treatments for depression in this cultural context are broad solutions aimed at a very general qualification of the condition, they are nonetheless widespread and often accepted with little stigma (Greenberg, 2010). Conversations can be overheard in public places in which individuals refer to their mental health and their treatments, both therapeutic and pharmacological.

Outside of the West, there is a different picture. Cultural taboos around mental illness often result in only the most unwell being treated, and in diagnosis being reserved for those either who seek treatment because of their mental illness, or tangential to it, for example, in cases of attempted suicide or self-harm (Mandlate et al., 2022). Outside of Western, Educated, Industrialized, Rich, and Democratic (WEIRD) nations, the burden of mental health disorders carries very unique connotations that are not well understood without taking the local culture into perspective (Arnett, 2008; Henrich et al., 2010). Given the established burden that mental health challenges such as depression place on society, the focus has been on expedience when exporting solutions from the West. This has resulted in some level of success, but becomes dangerous when the speed with which treatments are implemented outstrips their cultural sensitivity.

Here, the nuances and specificities arise. In order to understand the global burden of depression, it is crucial not just to understand the challenges of depression, but also the context in which they are situated. Different cultures view health differently; this shapes the context, openness, and content of the conversations around well-being. Ike et al. (2025) found widely varying prevalence of depression symptoms in different sub-Saharan African countries, with similarly disproportionate outcomes in mental health. They note that these outcomes are shaped consistent to existing research on the social determinants of mental

health (Ike et al., 2025). In addition, they note the role that stigma plays in mental health in sub-Saharan African countries (Ike et al., 2025). This research demonstrates the urgency of the issue of studying depression in these contexts: many countries in the sample were found to be in or near a mental health crisis (Ike et al., 2025).

Dividing the world along the lines of the West versus the East, developing versus developed nations, or the Global North versus the Global South can result in overly broad generalizations that lead to assumptions that ultimately hinder the understanding of the burden of disease outside its historically studied contexts (Horner & Hulme, 2017; Wagenaar et al., 2016). However, the majority of the global population lives outside the cultural context in which studies on depression have historically been conducted, and so studying mental health in these places is nonetheless crucial to an expanding understanding and a positive outlook for the challenges to well-being that depression can cause. This new focus of investigation requires the attenuation of research on mental health to the the cultural and historical frameworks which shape the experiences of the people in that context.

It is fundamental to understand the role of culture in psychopathology. While historically much Western research has left out the component of culture, a transcultural understanding of psychopathology is key to understanding what is dysfunctional, rather than simply a behavior or thinking pattern that exists out of context (Delille, 2016; Moleiro, 2018). It is important to consider the definition of culture itself, and its influence on psychological research and the understanding of mental illness. Culture entails the sum of the collective societal and personal influences that shape a person's identity (Kirmayer, 2012). The factors that fall under the definition of culture can vary; the crucial element is that there are many representations that contribute to the construction of what a person perceives as normal and healthy behavior. This is compounded in different situations which elicit different socially and culturally sanctioned responses and these vary throughout the world.

The present research uses a nationally representative sample from Mozambique to survey the burden of depression in a specific and understudied context. This focus was chosen because of the historical circumstances influenced by colonization and due to the current challenges faced by Mozambicans in the context of economic and civic development. This context should not be broadly extrapolated, but instead provides a window into both the

experiences in this country, as well as external and implicit factors which contribute to health outside of the West.

The following work begins with a literature review exploring the existing research in social determinants of mental health and mental health literacy. It looks at both risk and protective factors, and their impact on outcomes for depression. This research focuses on this subject in the context of the local culture of Mozambique. Although the current literature on the topic is limited, this project examines the research that has been done in this area and establishes the justification for choosing Mozambique as topic of study, as both a specific context in the Global South but also as a country in which there is a high burden of depression on well-being.

Having established the theoretical framework underlying this research, we approach the topic with a quantitative methodology using a nationally representative sample collected by the Demographic and Health Surveys Program (IDS 2022-23) in Mozambique (Instituto Nacional de Estatística (INE) & ICF, 2024). This program has collected data in Mozambique and countries all over the world for decades. The IDS 2022-23 was the first research project in Mozambique to collect a nationally representative sample that included mental health measures (Instituto Nacional de Estatística (INE) & ICF, 2024). This data represents a unique and crucial window into understanding both the burden of depression in Mozambique, as well as the attitudes around mental health, and does so in the context of social factors that can provide a deeper understanding of well-being and the challenges that are faced. Based on the analysis of this data, we discuss implications for policy and social direction that can be taken to improve health in Mozambique while at the same time doing so within the specific context and with sensitivity to the local cultural situation of those who are directly affected.

CHAPTER 1

Literature Review

1.1 Theoretical Framework

Research in diverse cultural contexts is regrettably limited, but the burden of depression on well-being in Mozambique is already empirically established. Mozambique has persistently ranked in the top ten countries in terms of suicide rates, and as of the most recent data collected by the World Health Organization (WHO), ranked 9th in the world (2021). Halsted et al. (2019) found rates of lifetime suicidal ideation of 19% in their sample of individuals interviewed in the Sofala and Manica Provinces in Mozambique, of which only 46% sought care and received it. Additionally, according to Mandlate et al. (2022), the prevalence of major depressive disorder (MDD) in Mozambique was 12.1%, and the prevalence of depressive symptoms was 26.9%. Crucially, as in other countries in Africa, the burden of depression is particularly high on young adults (Kutcher et al., 2019). These studies demonstrate a challenge inherent in understanding and treating depression in the Mozambican context: even with severe symptoms, the availability of care is limited.

The sociodemographic context of Mozambique is a key consideration for understanding the place in which this literature review is situated. As of 2023, Mozambique has a population of 33.635.160, of which 73% are between the ages of 15 and 64 (*Mozambique*, 2024). The life expectancy for women is 60.5, and for men is 54.8; the top causes of death in 2021 were HIV/AIDS, stroke, COVID-19, and malaria. The domestic government healthcare expenditure in 2021 was 8.21% of GDP, and the density of doctors was 1.75 per 10,000. The World Bank Income level of Mozambique is Low Income (LIC) (*Mozambique*, 2024). Demographically, Mozambique faces many health and economic challenges to well-being.

1.1.1 Cultural Competence

Mental health is necessarily situated in a given context. Taking culture into consideration has proven an illuminating and useful approach for more deeply understanding the antecedents of both well-being and mental illness. Transcultural psychiatry is one of the oldest frameworks for approaching this understanding. Bains (2005) traces the history of transcultural psychiatry to shortly after World War II, at which time the impacts of culture on psychological outcomes

first came to be consistently acknowledged. First adopting a definition of culture from an anthropological basis, and then applying this concept as a lens through which individuals' psychologies can be better understood, transcultural psychiatry arose as the field matured and cross-cultural differences were validated (Bains, 2005). This broadening understanding of the role that culture plays in mental health laid the groundwork for transcultural psychiatry to give a more nuanced understanding of well-being.

Transcultural psychiatry understands psychopathology from the point of view of the local culture. This takes into consideration the fact that what may be considered a mental illness in one context may mean something very different given cultural expectations, for example, of grief (Moleiro, 2018). By taking culture into perspective, it is possible to better understand which responses are adaptive, and which are not. As Mills (2014) points out, the West has often exported both the disease and the cure. In the context of Mozambique, this is especially pertinent in the context of a growing mental health system where efficiency can be advantageous, but should not come at the cost of quality care (Vacchiano et al., 2023).

Culturally competent mental health care is foundational to sustainable well-being. Kirmayer (2012) argues that even the impact of poverty cannot be understood outside of the cultural context in which it occurs, as where social status and esteem are not based on material items, to be materially poor would have a different effect. It is fundamental to understand the role that culture and locally-situated factors play not only in tandem with the social determinants of mental health, but also on how they are defined. Tervalon and Murray-García (1998) emphasize the role of cultural humility, especially when interacting with vulnerable communities. This attitude of prioritizing those who are facing the challenges of depression is crucial to both deeply understanding the difficulties, and also to discovering their antecedents.

Cultural competence itself looks differently in different contexts. Different countries have their own specific needs based on their historical, social, and economic situations (Kirmayer, 2012). In the context of mental health in Mozambique, it is crucial to consider the lived experiences of Mozambicans, whose interactions and (mis)trust of the healthcare infrastructure has been shaped by their colonial past (Vacchiano et al., 2023). Specific to this context, a culturally competent approach involves understanding the ways in which mental health literacy is understood and discussed in Mozambique. Intercultural competence training

among healthcare professionals is crucial to leveraging strategies to improve well-being in a sustainable and ecologically appropriate manner (Leung et al., 2014).

There are various means through which mental healthcare practitioners can be empowered to engage effectively with individuals in the context of mental health, including a variety of tools which shift the focus towards the background of an individual, giving a more granular understanding of their context (Hoshmand et al., 2023). This step is crucial in crafting culturally sensitive responses that build on the strengths of the specific cultural background, while at the same time practicing both a cultural humility and thoughtful integration of the local circumstances (Bobowik et al., 2017). Other strategies could include ethnocultural matching, in which the providers have the same backgrounds as the people receiving treatments (Kirmayer, 2012).

1.1.2 Social Determinants of Mental Health

An important theoretical framework to consider when surveying the mental health burden of depression in Mozambique are the social determinants of mental health (SDOMH). Shocks to social conditions (with the COVID-19 pandemic being a classic example) can cause massive disruption to mental health, especially in children and young adults (Kirkbride et al., 2024). However, also important to note is that much of the existing research focuses on the Global North; specific risk factors should also be considered which address populations outside of this context.

SDOMH are the exigent factors that shape well-being. As Marmot (2005) points out, there are substantial disparities between health outcomes attributable to resource inequality. Wilkinson and Pickett (2010) cite the Gini coefficient as an effective means for understanding where these inequalities exist, and note that unequal societies face myriad challenges. Social determinants of mental health are a tool for operationalizing this inequality. SDOMH exist at two levels: the individual and the wider societal level (Kirkbride et al., 2024). On the individual level, social determinants of mental health include socioeconomic disadvantage, early life adversity, childhood adversity, migration, ethnoracial discrimination, inequalities experienced by the LGBTQ+ community, sex-based inequalities, and loneliness and social isolation (Kirkbride et al., 2024). Each of these has specific contributions to health outcomes, but especially crucial for this study are socioeconomic disadvantage and social isolation. Socioeconomic disadvantage is one of the most basic determinants of mental health, with a

wide body of research demonstrating its effects. The lack of resources, which often exists in a context of broader societal inequality, makes engaging with mental health even more challenging (Kirkbride et al., 2024). Additionally, social isolation can negatively affect support seeking behavior, which can reduce its potential resilience-building and protective effects. On a societal level, social determinants of mental health include neighborhood socioeconomic disadvantage and inequality, social capital, fragmentation and ethnic density, and physical environment (Kirkbride et al., 2024). Each of these factors builds on the existing individual factors and compounds the effect. This results in progressively worse outcomes and perpetuates the cycle.

Addressing the research inequality between the Global North and the Global South, Porter et al.'s (2021) study examining the effect of the COVID-19 pandemic on young people in India, Peru, Ethiopia and Vietnam is instructive. Crucially, they note that the risk factors were similar in the countries in their sample (Porter et al., 2021). However, it is key to acknowledge that many of these risk factors, for example, reducing food consumption, simply do not look the same for similar populations in the Global North (Porter et al., 2021). Equally important to consider is the ways in which these risk factors are handled in these countries. Specifically, in Low and Middle Income Countries, the young population's access to mental health resources are far below those in the Global North. Limenih et al. (2023) note that Western understandings of risk factors and a care gap can be detrimental to understanding risk factors for depression in the Global South. Building instead from the local understandings of adversity, it is possible to better understand what can give rise to mental health challenges. In this way, it is key to begin in an emic fashion, first understanding the risk factors that are locally perceived (Limenih et al., 2023).

It is also key to consider the role that social inequalities play (Kirkbride et al., 2024). Marmot (2005) notes that there are massive differences in health outcomes both within and between nations, with life expectancies varying as much as 20 years between groups. Taking this into consideration, it is key to focus on the social determinants of mental health, and the way in which these practically impact not only outcomes, but also the point from which members of a given society start (Allen et al., 2014). Both the colonial past, which contributed to a mistrust of mental health institutions, and the lack of resources in Mozambique have led to an under-resourced infrastructure (Vacchiano et al., 2023). This

compounds social challenges that arise due to economic and community factors. Wilkinson and Pickett (2010) argue that various social determinants are crucial for our understanding of what shapes mental health, and that the imbalance of these is strongly and consistently correlated with poorer outcomes.

1.1.3 Mental Health Literacy and Stigma

Mental health literacy (MHL) is the ability to effectively understand and seek solutions for mental well-being (Jorm, 2012). First defined by Anthony Jorm and colleagues in 1997, the definition of MHL has undergone some revisions over time, but remains a key construct for understanding how people engage with their mental well-being. Jorm (2012) notes key concepts of mental health literacy to include the knowledge of how to prevent mental disorders, recognizing them, knowing where and how to seek help (including self-help for milder problems), and first aid skills for those who are in crisis. Mental health literacy is a concept rooted in empowering people, rather than simply defining “mental health patients” (Jorm, 2019).

Developed in Australia, the concept of MHL remains rooted in Western understandings of mental health. Ganasen et al. (2008) note that what is considered science-based understandings of mental well-being are rooted in concepts that may not be locally recognized. They also note that strategies for increasing mental health literacy should be based on locally relevant formats and with information that makes sense in the cultural context. Primary healthcare workers are one potential resource for increasing mental health literacy in these contexts, but are often already under-resourced for the work they do (Ganasen et al., 2008).

Building on the construct of MHL, e-Health Literacy or digital health literacy refers to the ability for individuals to engage with their health via digital means (Norman & Skinner, 2006). This is crucial opportunity in a globalized world in which so much information is interconnected; nonetheless, leveraging this information effectively can prove difficult, especially for some populations, resulting in reduced interactions and usage (Norman & Skinner, 2006). Mindu et al. (2023) noted that among young adults in rural South Africa, the access to the internet was relatively widespread in spite of infrastructural and economic limitations, however, use of digital applications related to mental health was absent in their sample. Specific to the context of Mozambique, Mootz et al. (2023) developed a digital

mental health platform for internally displaced people in northern Mozambique, with positive outcomes, especially for under-resourced, non-specialized providers who were able to leverage the technological integrations.

Mental health literacy in Mozambique is shaped by colonial legacies as well as stigma and mistrust around mental health infrastructure, resulting in lowered mental healthcare seeking, as well as various treatment paths, including religious and traditional medicine (Vacchiano et al., 2023). Mental healthcare is often integrated in primary healthcare (Santos et al., 2016), and frequently only debilitating disorders are treated, often by physicians without specialized training (Mandlate et al., 2022). This combination of factors leads to a lack of mental health literacy and stigmatization of mental illness, rooted in historical practical antecedents. Mozambique has implemented strategies for improving the human resources directed to mental health treatment, and increasing literacy is a target outcome of this investment (Santos et al., 2016). Additional research and synthesis in this area remains crucial for continuing growth.

Stigma is a complicated and multi-factored challenge to mental well-being. As Goffman (1969) notes, stigma is a reaction to an attribute that is perceived as a defect, resulting in the “othering” of a person, and very often precipitates an inhibitory or conciliatory behavior on behalf of the person who possesses that attribute. Herek (2009) defined stigma as a negative regard and relative powerlessness of a person or group based on a characteristic. Noting that this occurs not just in interpersonal interactions, but also as a social phenomenon, Frost (2011) connects stigma to the constructs of stereotyping, prejudice, and discrimination. Stigma can be conceptualized as an issue of knowledge, behaviors and attitudes (Di Vincenzo et al., 2024). Crucially, stigma exists in a variety of types, including public stigma, structural stigma, felt/perceived stigma, internalized stigma, and associative stigma (Di Vincenzo et al., 2024). Of particular relevance to this study are public stigma and internalized stigma. Public stigma finds those with mental health disorders undesirable, and seeks to create distance between those who are “well” and those who are “not” by categorizing people based on various behaviors (Latalova et al., 2014). This categorization can then be internalized by those with, for example, depression, leading to lowered self-esteem (Latalova et al., 2014). Stigma associated with mental health can lead to poorer outcomes on a variety of levels. Specifically, in addition to lower self-esteem, stigma can also

reduce treatment-seeking (Corrigan & Blink, 2016). On a public level, mental health stigma can result in other challenges. For example, housing, employment and access to resources may be actively impaired due to stigma around mental health (Di Vincenzo et al., 2024).

In the context of other challenging circumstances, especially socioeconomic ones, mental health can be deprioritized and seen as a less urgent issue (Ager, 2002). When paired with under-resourced infrastructure and a legacy of mistrust in the historical systems, this can lead to strong stigmatization of mental illness as both lacking in urgency as well as demonstrating a risky level of vulnerability (Ager, 2002). This stigma exists not only at the layperson level, but also among both health professionals and policy-makers (Sweetland et al., 2014). This is a key vulnerability which can compound the challenges that face the people living in this context. With stigmatization from both above and beside, mental health and mental health literacy loses centrality in the narrative around well-being.

However, work is being done to address these issues. With North-South and South-South cooperation in research, systemic improvements are being attempted and successfully implemented. Universidade Eduardo Mondlane in Mozambique, Columbia University in the United States, Vanderbilt University in the United States, and Universidade Federal de São Paulo in Brazil, are working to build research partnerships in Mozambique and other Portuguese-speaking African countries (Sweetland et al., 2014). This interaction focuses on building both infrastructure and collaboration for systematic research that creates solutions that can be applied in a variety of contexts, and which can overcome political and social barriers that have been in place for decades. Mootz et al. (2023) highlight experiences of mental healthcare providers who note the substantial burden, but also the lack of support and infrastructure when confronting mental health literacy.

1.2 Current Understanding of Depression and Risk Factors in Mozambique

Further extenuating the challenges to mental well-being, the understanding of depression symptoms and available treatments is limited. In a study looking at lay HIV counselors' knowledge and attitudes toward depression, Mandlate et al. (2022) found that fewer than half of the counselors reported knowing someone with depression, though nearly all (98.1%) recognized the symptoms of depression. Additionally, a majority (60.75%) reported stigma associated with depression, and there was little agreement over risk factors for depression (Mandlate et al., 2022). Additionally, this study used a mixed methods

approach and gained substantial insight from qualitative research, however, there was low reliability for their quantitative surveys using the Depression Attitudes Questionnaire. This highlights another key challenge to adequately treating depression outside of its historically studied contexts: a lack of reliability in assessing it. A better measure, crafted in an emic fashion and not transposed from the West to other contexts would therefore need to be developed.

1.2.1 Risk Factors for Depression

Socioeconomic Status

Socioeconomic opportunities are a key differentiator in outcomes related to mental health (Marmot, 2005). There is a fundamental element to simply having the requisite resources to respond to a given situation in order to leverage positive or even neutral outcomes. Arndt et al. (2006) note that, in spite of economic growth in Mozambique over the years, the improvements have not led to demonstrably better outcomes for the poor, continuing existing inequality. Crucially, not only have these levels not substantially improved quality of life, but these trends in economic growth have actually reversed in the years following 2015 (Barletta et al., 2022). Socioeconomic status (SES) therefore remains a useful indicator for the risk factors associated with inequality faced by emerging adults in Mozambique.

Low SES and poverty can substantially negatively impact mental health. In a study looking at poverty as a SDOMH across 13 countries, adolescents reported concepts that they associated with poverty which contributed to poor mental health outcomes (Maina et al., 2025). Participants from over 70 focus groups reported intrapersonal, interpersonal, and community and societal factors, such as stigma and mistreatment that linked poverty and mental health (Maina et al., 2025). These participants highlight the perceptions of young people of the connection between their economic status and opportunities and their mental health outcomes.

Education Level

In addition to mental health literacy, general levels of education correlate strongly with increased mental well-being; in an illuminating cross-sectional study looking at several African countries including Mozambique, Magakwe et al. (2025) found that years of educational attainment were correlated with outcomes in mental health, specifically around

reduced reports of depression and anxiety symptoms. Not only can educational levels relate to increased well-being, but Zhang et al. (2019) found that higher levels of education are correlated with lower levels of stigma. Especially for emerging adults, whose lives are at a critical point of change and development, low levels of education can be a significant risk factor for depression.

Gender

Gender plays a crucial role in depression as well as in related outcomes such as suicidality around the world. In a survey looking at rural districts in Mozambique, Audet et al. (2017) found that 14% of female heads of household screened positive for depression. Further supporting the burden of depression on women in Mozambique, Machado and Mukamutara (2022) found that social determinants of mental health such as unemployment typically resulted in poorer outcomes for women than for men. This gender disparity highlights the importance of understanding the locally relevant determinants of mental health. The challenges faced by women in the cohort of emerging adults look differently than those faced by men, and are correlated with different outcomes.

1.2.2 Protective Factors Against Depression

Symptoms of depression and risk factors provide only a partial understanding of depression and mental health. Equally important, if not more so, are protective factors that buffer populations against depression. While it has many definitions, resilience has resurged in literature in the past years as a key area for understanding strategies of well-being in the face of risk factors (Egeland & Sroufe, 1993). Stainton et al. (2018) argue that resilience is a dynamic process that advantages protective factors, even when risk factors are present. Resilience therefore serves as the process by which protective factors are used to overcome adversity and even enhance well-being.

Theron et al. (2023) studied the Protective Factors and Processes (PFPs) that distinguished emerging adults in South Africa who, while experiencing stressors and economic disadvantages, demonstrated resilience to depression. Personal resources, such as mental health literacy, were very common strategies for resilience (Theron et al., 2023). Participants in the study who had higher levels of depression also typically had less access to education and services; conversely, those who did have this access typically were less likely

to develop depression. Access, through media like the internet, remains forefront in protective factors.

Theron et al. (2023) found that active and creative downtime helped to cope with adverse situations and improve resilience. Additionally, relational resources were key in developing resilience; specifically, direct references to family and friends were particularly strong indicators in those who experienced buffers against depression (Theron et al., 2023). Theron et al. (2023) conclude that access to a variety of resources in multiple areas are key to coping with stress and developing resilience to depression. Kutcher et al. (2019) also found that mental health literacy was also a key component of empowering youth in Tanzania and Malawi to combat depression. Simply understanding the challenges which are faced can be a key means to overcoming them.

Vacchiano et al. (2023) surveyed mental illness and means of coping and healing in Mozambique, and found that faith-based organizations served both as key resources, but also as complicating factors for the treatment of some illnesses. Considering the complex colonial history of countries in Africa, and especially in Mozambique, Vacchiano et al. (2023) recommend considering post-colonial and decolonial strategies when considering local means of treatment and resilience. Medical treatment finds resistance among local populations due to historical issues (Vacchiano et al., 2023). This highlights the importance of bearing in mind the specific history of places and countries when proposing to understand both mental illness and strategies for overcoming challenges. This has been too often overlooked in Mozambique; instead, it is key to consider local, decolonial strategies for understanding depression and improving resilience in the Mozambican context (Vacchiano et al., 2023).

1.3 Research Aims

Building on the research presented above, several key aims emerge for the present study. Based on the developmental research of Arnett (2000), who notes that emerging adults aged 18 to 29 inhabit a space where they are no longer children, but also have not yet attained many of the aspects of adulthood, such as marriage, parenthood, or financial independence, this population presents a crucial window into how people structure their lives and plan their futures. Additionally, this is a time of identity exploration (Arnett, 2000), and when paired with the demographic youth of the population of Mozambique (*World Bank Open Data*, n.d.), provides a key insight into the future of the country. Additionally, it is relevant to contribute to

the scarce research on contextual protective factors and provide insight into resilience and coping strategies that help people to effectively deal with the adverse events they may face.

This study proposes to give a basis for better understanding depression in Mozambique as a specific context in the Global South using data from the Instituto Nacional de Estatística and ICF in collaboration with Demographic and Health Surveys Program (Instituto Nacional de Estatística (INE) & ICF, 2024). The research question guiding this study is: “How are depressive symptoms among emerging adults in Mozambique related to locally situated risk and protective factors?” More specifically, examining the role of variables such as mental health literacy, education, employment, socioeconomic status, and gender, this study tests these hypotheses:

H1: The positive effect of education level on mental health literacy will be mediated by internet usage; more educated individuals will use the internet more frequently to access mental health information, which will increase their mental health literacy.

H1a: Higher education level will be positively associated with mental health literacy.

H1b: Higher education level will be positively associated with internet usage.

H1c: Internet usage will be positively associated with mental health literacy.

H1d: The direct effect of education on mental health literacy will be reduced when taking into account internet usage.

H2: Gender will moderate the indirect pathway from employment status to depression symptoms via socioeconomic status. Specifically, among men, not having worked in the last 12 months will predict lower socioeconomic status, which will strongly predict increased depressive symptoms. This indirect pathway will be significantly weaker among women, who may be less psychologically affected by the SES consequences of unemployment.

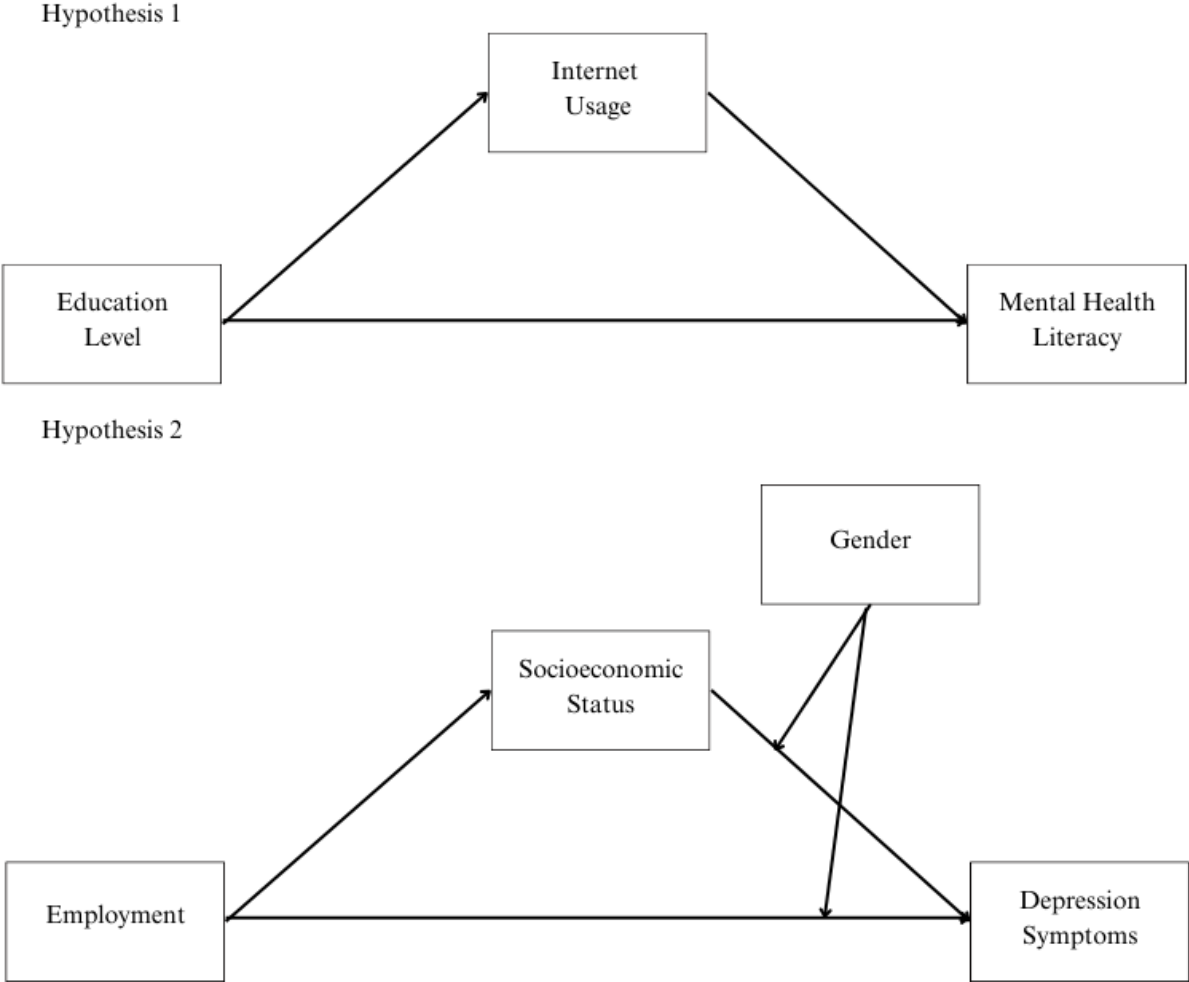
H2a: Not having worked in the last 12 months will be associated with lower socioeconomic status.

H2b: The effect of socioeconomic status on depressive symptoms will be moderated by gender, with a stronger effect for men.

H2c: The indirect effect of unemployment through reduced SES on depressive symptoms will be significant for men but weaker for women.

Figure 1.1

Conceptual Models



CHAPTER 2

Methods

2.1 Study Design

The research question directing this study is “How are depressive symptoms among emerging adults in Mozambique related to locally situated risk and protective factors?” A quantitative approach was applied to data collected by the Instituto Nacional e Estatística (INE) and ICF in collaboration with Demographic and Health Surveys Program (DHS). This research looked at a nationally representative sample in Mozambique in the years of 2022-2023, a period following economic and political unrest, as well as in the wake of the COVID-19 pandemic (Instituto Nacional de Estatística (INE) & ICF, 2024). This program has collected data in Mozambique and countries around the world for decades. This research project was the first in Mozambique to collect a nationally representative sample that included mental health measures (Instituto Nacional de Estatística (INE) & ICF, 2024). This data provides key insights into a population which faces myriad risk factors, but which also finds paths to resilience through various protective factors.

Participants were interviewed in their language of choice, with a translator present when needed. Participants answered a broad range of questions as well as having the option to participate in health testing including for malaria and tuberculosis. Participants’ data was anonymized and participation was voluntary (Instituto Nacional de Estatística (INE) & ICF, 2024). Participants were interviewed with five questionnaires: Questionário do Agregado Familiar, Questionário da Mulher de 15–49 anos, Questionário do Homem de 15–54 anos, Questionário de Biomarcadores and Questionário de Testagem de Qualidade da Água. These were developed based on the Model Questionnaire created by the Demographic and Health Surveys Program, which were translated into Portuguese and adapted for the cultural context (Instituto Nacional de Estatística (INE) & ICF, 2024). The data collected in this research project were analyzed following the process detailed below.

2.2 Participants

The participants in the dataset used for this research project were part of a nationally representative study conducted through the Inquérito Demográfico e de Saúde 2022–23 em Moçambique (IDS 2022–23) as a part of the Demographic and Health Surveys Program.

Participants were recruited in a manner demonstrative of the demographics of the country, including representation from both rural and urban settings in each region of Mozambique, as well as the capital (Instituto Nacional de Estatística (INE) & ICF, 2024). A total of 13,183 women with ages ranging from 15-49 from 14,250 households were interviewed. Further, 5,380 men with ages between 15-54 in half of the selected households were interviewed. The study had a response rate of 95% for women and 86% for men (Instituto Nacional de Estatística (INE) & ICF, 2024). Further sociodemographic data reflecting the subset of emerging adults (N = 8336) can be found in the table below.

Table 2.1
Sociodemographic Characteristics of the Participants

	Total	
	<i>N</i>	<i>%</i>
Age		
15-19	1899	22.8%
20-24	3606	43.3%
25-29	2831	34.0%
Gender		
Male	2292	27.5%
Female	6044	72.5%
Religion		
Catholic	1926	23.1%
Islamic	1634	19.6%
Zion	1115	13.4%
Evangelical/pentecostal	2675	32.1%
Anglican	172	2.1%
No religion	754	9.0%
Other	60	0.7%
Native Language		
Emakhuwa	1682	20.2%

Português	3603	43.2%
Xichangana	638	7.7%
Cisena	374	4.5%
Elomwe	216	2.6%
Echuwabo	73	0.9%
Cinyanja	188	2.3%
Cindau	290	3.5%
Xitswa	348	4.2%
Cinyungwe	266	3.2%
Ciyao	224	2.7%
Shona	152	1.8%
Other	282	3.4%
Region		
Niassa	760	9.1%
Cabo Delgado	869	10.4%
Nampula	972	11.7%
Zambézia	682	8.2%
Tete	749	9.0%
Manica	781	9.4%
Sofala	870	10.4%
Inhambane	509	6.1%
Gaza	642	7.7%
Maputo	680	8.2%
Cidade de Maputo	822	9.9%
Type of place of residence		
Urban	3645	43.7%
Rural	4691	56.3%
Total number of years of education		
0	1223	14.7%
1-7	3454	41.1%
8-12	3318	39.8%

13+	341	4.1%
Literacy		
Cannot read at all	3071	36.8%
Able to read only parts of sentence	881	10.6%
Able to read whole sentence	4371	52.4%
Other (Visually impaired/no card)	13	0.1%
Owns a mobile telephone		
No	3513	42.1%
Yes	4823	57.9%
Has a bank account		
No	7288	87.4%
Yes	1048	12.6%
Covered by health insurance		
No	8211	98.5%
Yes	125	1.5%
Ever been told by a doctor/healthcare worker you have depression		
No	8247	98.9%
Yes	89	1.1%
Last 2 weeks took medication prescribed by doctor/healthcare worker for depression		
No	8286	99.4%
Yes	50	0.6%
Ever tried to commit suicide?		
No	8120	97.4%
Yes	200	2.4%
Refused to answer	16	0.2%

2.3 Materials

The Demographic and Health Surveys Program used a variety of questionnaires during the interviews, with a substantial breadth of data being collected, ranging from health indicators like STI, anemia and tuberculosis testing to personal and interpersonal data such as measures for inter-partner violence as well as in-depth demographic data. This was collected

following the protocols and planning developed by INE in 2020-2021 (Instituto Nacional de Estatística (INE) & ICF, 2024). Not only was this data extracted, but value was provided back to the participants in terms of referrals and test results, when appropriate, as well as summaries and graphics of the findings which were created and made publicly accessible online (Instituto Nacional de Estatística (INE) & ICF, 2024).

Demographic data. The Demographic and Health Surveys Program researched a broad-ranging amount of topics and collected data on a variety of dimensions. Of interest for this study were several demographic questions. These looked at age and gender as well as religion, with answers which included Catholic, Islamic, Zion, Evangelical, Anglican, no religion and other. The geographic information collected looked at the region in which each participant lived, including Niassa, Cabo Delgado, Nampula, Zambézia, Tete, Manica, Sofala, Inhambane, Gaza, Maputo, and Cidade de Maputo. Additionally, type of residence was also collected, including urban and rural. The languages spoken collected included Emakhuwa, Português, Xichangana, Cisená, Elomwe, Echuwabo, Cinyanja, Cindau, Xitswa, Cinyungwe, Ciyao, Shona, and Other.

This study also collected total years of education, ranging from zero to 19, as well as literacy, which coded values of cannot read at all, able to read only parts of a sentence, able to read whole sentence, no card with required language, and blind/visually impaired. It also collected yes or no values for “Do you own a mobile phone?”, “Do you have a bank account?”, “Are you covered by insurance?”, “Have you ever been told by a doctor/healthcare worker you have depression?”, “In the last 2 weeks, have you taken medication prescribed by doctor/healthcare worker for depression?”, and “Have you ever tried to commit suicide?”. For the independent variables, this study used values collected relating to education level and employment. The measure for education level was collected with values which ranged from no education (0) to higher education (3). Employment was measured by the question “Have you worked in the last twelve months?”, with answers of “No” (0), “In the past year” (1), and “Currently working” (2).

Socioeconomic Status, MHL, Internet Usage. Socioeconomic status was measured by the wealth index of the household. This was based on the combined wealth index, which was the Gini coefficient for the household and was measured with values of “Poorest” (1), “Poorer” (2), “Middle” (3), “Richer” (4), and “Richest” (5). Mental health literacy was

assessed via the question “Have you heard about mental disease?” to which the answers were “Yes”, “No”, and “Don’t Know”. “Don’t Know” was recoded as “No” for the analysis. Internet usage was measured using the item for use of internet, which was recoded in order of time when used with the values “Never” (0), “Yes, can’t establish when” (1), “Yes, before the last 12 months” (2), and “Yes, in the last 12 months” (3).

Questionário de Saúde do Paciente (QSP-9). This study used the psychometrically validated Patient Health Questionnaire developed by Kroenke and Spitzer (2002), which is based on the Diagnostic and Statistical Manual of Mental Disorders (DSM) for the evaluation of depression symptoms (Instituto Nacional de Estatística (INE) & ICF, 2024). While there are some limitations of using tools developed in the West in diverse cultural contexts, Cumbe et al. (2020) found the PHQ-9 to be a psychometrically valid and effective tool for screening in Mozambique. While external tools may not provide the nuance of those developed in an emic fashion, they do provide crucial insights and a starting point for the discussion around mental health.

The QSP-9 focuses on respondents’ experiences in the two weeks preceding administration of the questionnaire. The severity of symptoms is measured via a Likert scale with responses of 0, 1, 2 and 3, which correspond to the categories “nunca” (never), “vários dias” (rarely), “mais de metade dos dias” (frequently), and “quase todos os dias” (always), respectively. A score of 10 or more indicates referral for healthcare evaluation and 88% specificity for Major Depression (MDD) (Kroenke et al., 2001; in Instituto Nacional de Estatística (INE) & ICF, 2024). Following responding to the questionnaire, those who reached this threshold were referred to mental health practitioners (Instituto Nacional de Estatística (INE) & ICF, 2024). The outcome variable for this study, depressive symptoms, was measured via the psychometrically validated PHQ-9 (Kroenke et al., 2001), and so the final score, ranging from 0 to 27 was used in the data analysis without further reliability analysis.

2.4 Procedure

This study used a publicly available dataset from the Demographic and Health Surveys Program (https://dhsprogram.com/data/dataset/Mozambique_Standard-DHS_2022.cfm). This is a secondary data source, and therefore no ethical approval was required for the present study. The databases for both men and women were downloaded, and variables of interest were selected from each. The datasets were then merged, with variables of interest matching

in both datasets. Additionally, the dataset was restricted to the age range of emerging adults, removing participants outside of the ages of 18 to 29 (inclusive).

SPSS Version 29 was used to analyze the data. Missing values were handled with pairwise deletion; only MHL had missing values ($N = 5346$). Descriptive statistics and correlations using Pearson's r were run first. To test Hypotheses 1 and 2, analyses were run using Models 4 and 15, respectively, of the SPSS PROCESS macro developed by Hayes (version 4.1; 2022). The independent variable for H1 was education level, and for H2 was employment. The dependent variable of focus in H1 was MHL and in H2 was depressive symptoms, with mediators of internet usage and SES. Gender was dummy-coded and used as a categorical moderator for H2. Each hypothesis was tested in its own model, using the PROCESS macro for analysis.

CHAPTER 3

Results

3.1 Descriptive Statistics and Correlations

Descriptive statistics were calculated for main study variables, and then bivariate correlation analysis was conducted using Pearson’s *r* to examine relationships among the variables. Most correlations between variables were significant, as reported in Table 3.1. Notably, depression symptoms were negatively and significantly correlated with education and employment (Education, $r = -.024$ $p < 0.05$; Employment, $r = -.067$; $p < .001$). SES was significantly and positively correlated with education and employment, as well as internet usage (Education, $r = .613$; Employment, $r = .078$, Internet Use, $r = .588$; all $p < .001$). SES was significantly and negatively correlated with gender (Gender, $r = -.034$, $p < .01$). MHL was significantly and positively associated with education, employment, internet use, and SES, (Education, $r = .271$; Employment, $r = .205$, Internet Use, $r = .322$, SES, $r = .255$; all $p < .001$), and significantly and negatively associated with gender (Gender, $r = -.209$; $p < .001$).

Table 3.1
Descriptive Statistics and Correlations

	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6
1. Gender ¹	—	—						
2. Employment (0-2)	0.96	0.975	-.457***					
3. Education (0-3)	1.35	0.769	-.135***	.106***				
4. Internet Use (0-3)	1.06	1.415	-.193***	.169***	.559***			
5. SES (1-5)	3.39	1.414	-.034**	.078***	.613***	.588***		
6. MHL (0, 1)	0.74	0.441	-.209***	.205***	.271***	.322***	.255***	
7. Depression Symptoms (0-27)	2.73	3.922	.113***	-.067***	-.024*	-0.020	-0.014	0.002

Note: $N = 8336$. $N(MHL) = 5346$. *SD* = standard deviation. Correlations are Pearson’s *r*.

¹ Gender is dummy coded (0=male, 1=female).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The above descriptive variables were analyzed in the following regression analyses. These were considered in context of the demographic variables presented in the Table 2.1. Age (15-19 = 22.9%, 20-24 = 43.3%, 25-29 = 34.0%), gender (male = 27.5%, female = 72.5%), region (Niassa = 9.1%, Cabo Delgado = 10.4%, Nampula = 11.7%, Zambézia = 8.2%, Tete = 9.0%, Manica = 9.4%, Sofala = 10.4%, Inhambane = 6.1%, Gaza = 7.7%, Maputo = 8.2%, Cidade de Maputo = 9.9%), and type of residence (urban = 43.7%, rural = 56.3%) indicate the overall demographics of the sample. Religion (Catholic = 23.1%, Islamic = 19.6%, Zion = 13.4%, Evangelical/pentecostal = 32.1%, Anglican = 2.1%, No religion = 9.0%, and other = 0.7%) and native language (Emakhuwa = 20.2% Português = 43.2%, Xichangana = 7.7%, Cisena = 4.5%, Elomwe = 2.6%, Echuwabo = 0.9%, Cinyanja = 2.3%, Cindau = 3.5%, Xitswa = 4.2%, Cinyungwe = 3.2%, Ciyao = 2.7%, Shona = 1.8%, and other = 3.4%) were also demographics that were analyzed. Variables related to total years of education (0 = 4.7%, 1-7 = 41.1%, 8-12 = 39.8%, 13+ = 4.1%), literacy (Cannot read at all = 36.8%, Able to read only parts of sentence = 10.6%, Able to read whole sentence = 52.4%, Other (Visually impaired/no card) = 0.1%), ownership of a mobile telephone (No = 42.1%, Yes = 57.9%), having a bank account (No = 87.4%, Yes = 12.6%) and health insurance coverage (No = 98.5%, Yes = 1.5%) were also considered. In addition, the variables related to whether participants had ever been told they had depression (No = 98.9%, Yes = 1.1%), had taken medication in the last two weeks (No = 99.4%, Yes = 0.6%), and had ever tried to commit suicide (No = 97.4%, Yes = 2.4%, Refused to answer = 0.2%) were also analyzed.

3.2 Mental Health Literacy Predicted by Education, Mediated by Internet Use

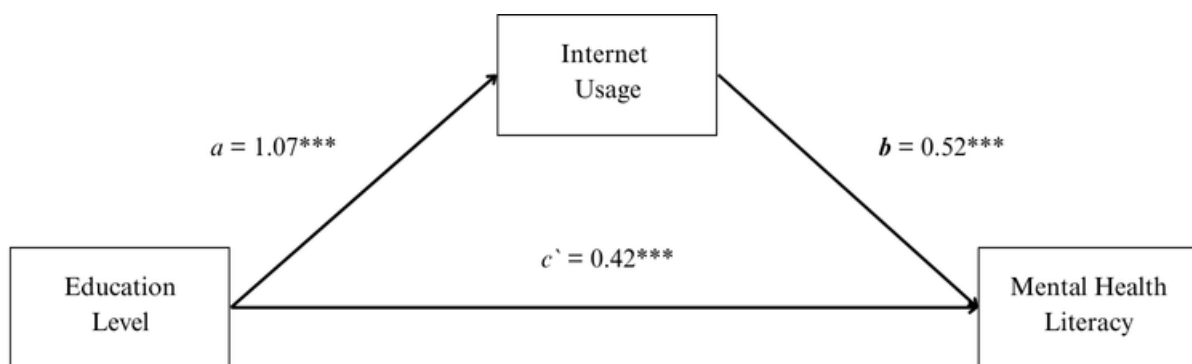
Hypothesis 1 was tested using a simple mediation model. Table 3.2 details the results of the mediation analysis for Hypothesis 1. The model tested the effect of education on MHL, as mediated via internet usage. Figure 3.1 depicts the analysis for the mediation model.

Education Level Mediation Model. This model proposed that the relationship between education level and MHL would be mediated by internet usage. The mediation analysis was conducted using the PROCESS macro Model 4 by Hayes (version 4.1; 2022) with 5,000 bootstrap samples. Hypothesis 1a was tested via the relationship between education level and mental health literacy; education level had a significant, positive relationship on MHL ($B = 0.416$, $SE = 0.05$, $p < .001$, 95% CI [0.32, 0.52]). Hypothesis 1b was tested via path a, the relationship between the independent variable and the mediator; education level significantly predicted internet usage, supporting this hypothesis ($B = 1.068$, $SE = 0.02$, $p < .001$, 95% CI [1.03, 1.11]). Hypothesis 1c was tested via path b, the relationship between the mediator and the outcome variable; internet usage significantly predicted MHL, supporting this hypothesis ($B = 0.519$, $SE = 0.03$, $p < .001$, 95% CI [0.46, 0.58]).

Hypothesis 1d was tested via path c'; education level significantly predicted MHL ($B = 0.416$, $SE = 0.05$, $p < .001$, 95% CI [0.32, 0.52]). When controlling for internet usage, the direct effect of education on MHL remained significant, but was reduced; thus, Hypothesis 1d was supported.

Figure 3.1

Education Level Mediation Model



Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The indirect effect of education on MHL through internet use was significant ($B = 0.555$, $SE = 0.04$, 95% CI [0.49, 0.63]). Because the confidence interval does not include zero, mediation is supported, though on a log-odds scale. The mediation of internet usage on the effect of education level on MHL is partial, as the indirect effect is significant, but the direct effect is also significant. Therefore, the positive effect of education on MHL is partially explained by internet usage.

Table 3.2

Regression results for mediation

	Internet Usage		MHL	
	B	SE	B	SE
<i>Direct effect</i>				
Education Level	1.068***	0.022	0.416***	0.051
Internet Usage			0.519***	0.033
<i>Indirect effect</i>				
Education Level			0.555	0.036
95% Bootstrap CI for ab			0.488	0.627

N = 5346. Unstandardized regression coefficients are reported. 5000 bootstrap samples. CI – Confident interval. LL – lower limit. UL – upper limit.

** $p < 0.01$ *** $p < 0.001$

Source: IDS 2022-23 Own calculations.

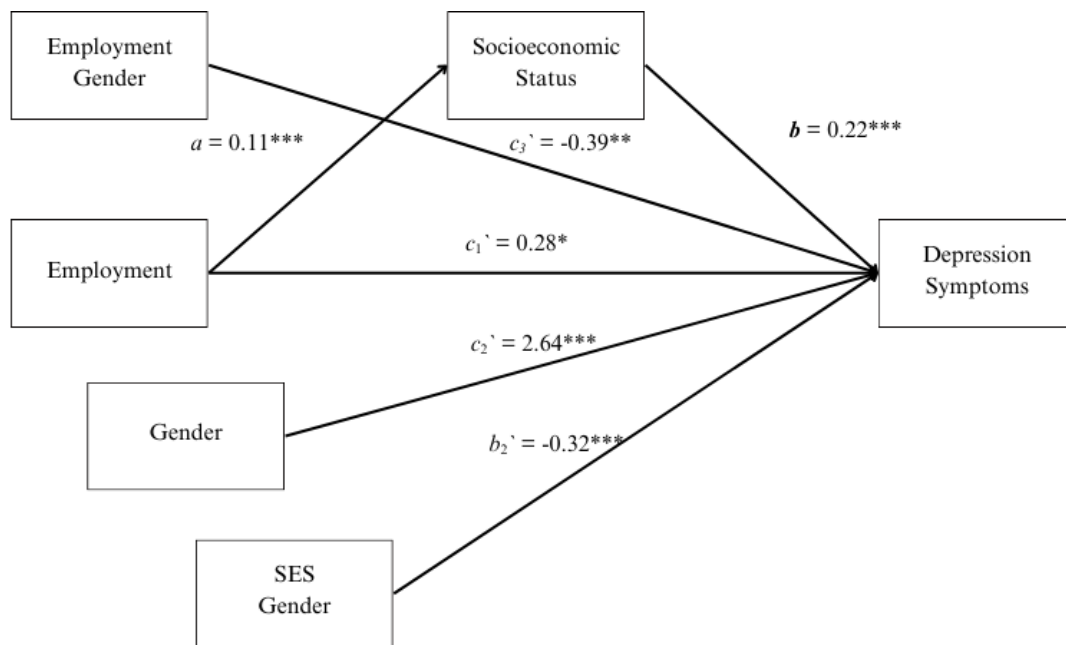
3.3 Depressive Symptoms Predicted by Employment, Mediated by SES under Conditions of Gender

Expanding on the analysis above, respondents' work status over the past twelve months was analyzed in relation to depression symptoms, as mediated by SES. This was hypothesized to be moderated by gender, whereby the effect would be greater for men than for women.

Hypothesis 2 and 2a through 2c were tested via a moderated mediation model using Model 15 of Hayes's PROCESS macro (version 4.1; 2022), whereby the moderation effects are on both path b and path c' of the mediation. This moderated mediation was constructed to test the conditions of gender on the outcome variable of depression symptoms.

Figure 3.2

Employment Moderated Mediation Model



Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Employment Moderated Mediation Model. This model proposed that the relationship between employment status in the past 12 months and reported depressive symptoms would be mediated by SES. The mediation analysis was conducted using the PROCESS macro Model 15 by Hayes (version 4.1; 2022) with 5,000 bootstrap samples. Hypothesis 2a was tested via path a, the relationship between the independent variable and the mediator; SES was significantly and positively associated with having worked in the past 12 months ($B = 0.114$, $SE = 0.02$, $p < .001$, 95% CI [0.08, 0.15]), thus, this hypothesis was supported. Hypothesis 2b was tested via the moderation conditions on path b, the relationship between the mediator and the outcome variable; the interaction between SES and gender on depression symptoms was significant ($B = -0.32$, $SE = 0.07$, $p < .001$, 95% CI [-0.45, -0.19]). This indicates that gender moderated the relationship between SES and depression symptoms. The interaction accounted for an additional 0.3% of variance in depression symptoms ($\Delta R^2 = .003$, $F(1, 8330) = 21.865$, $p < .001$). The effect of SES on depression symptoms was negative and significant for women ($B = -.11$, $SE = .054$, $p < .05$, 95% CI [-.22, -.01]), but positive and significant for men ($B = .28$, $SE = .122$, $p < .05$, 95% CI [0.04, 0.52]).

The index of moderated mediation was negative and significant ($B = -0.04$, $SE = 0.01$, 95% CI $[-0.05, -0.02]$), indicating that the indirect effect of employment on depression through SES differed significantly by gender. Hypothesis 2c was tested by the conditional indirect effects of employment on depression symptoms as mediated by SES; the analysis indicated that the effect was significant and negative for women ($B = -0.01$, $SE = 0.01$, 95% CI $[-0.22, -0.01]$), and significant and positive for men ($B = 0.03$, $SE = 0.01$, 95% CI $[0.04, 0.52]$), indicating that even at higher levels of employment and higher levels of SES, men have higher levels of depression symptoms. The difference of 0.04 units between these conditions was statistically significant, as indicated by the index of moderated mediation. Hypothesis 2 was partially supported, with the results of the moderated mediation analysis showing that the effect of unemployment on depression symptoms as mediated by SES was problematic for men in a way that did not appear for women.

Table 3.3*Regression results for moderated mediation*

	B	SE	95% CI
<i>Path a</i>			
Employment	0.114***	0.016	0.08, 0.15
<i>Paths to Depressive Symptoms</i>			
SES	0.217***	0.058	0.10, 0.33
Gender main effect	2.638***	0.347	1.96, 3.32
SES × Gender	-0.320***	0.068	-0.454, -0.186
<i>Conditional Effects</i>			
SES → Depression			
Men (Gender = 0)	0.280*	0.122	0.04, 0.52
Women (Gender = 1)	-0.111*	0.054	-0.22, -0.01
Indirect effects			
Men	0.025	0.006	0.01, 0.04
Women	-0.012	0.005	-0.02, -0.01
Index of moderated mediation	-0.036	0.008	-0.05, -0.02

N = 8336. Unstandardized regression coefficients are reported. 5000 bootstrap samples. CI – Confident interval. LL – lower limit. UL – upper limit..

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Source: IDS 2022-23 Own calculations.

CHAPTER 4

Discussion

Understanding the risk and protective factors for depression is a foundational step to increasing well-being around the world. When thoroughly studied, antecedents emerge in regard to what contributes to mental health, and what puts it at risk. The social determinants of mental health provide a key means of understanding what functions as a risk factor and what can be a protective factor, empowering processes of resilience. Mental health literacy gives a framework for conversations around well-being and elucidates the ways in which both health and stigma around mental health is understood. Combining these factors in a transcultural approach to well-being, more nuance around locally-situated factors can emerge and empower deeper understanding and, ultimately, better outcomes.

4.1 Discussion of Results

This study aimed to situate the SDOMH in their cultural and historical context in Mozambique, acknowledging the complexities of the country's past, while at the same time exploring the ways in which mental health was understood and experienced through mental health literacy. By focusing on depression among emerging adults, this study focused on a pivotal age range in which participants are on the precipice of impactful life decisions and opportunities, but at the same time are still differentiating themselves from their families and childhoods (Arnett, 2000). Mozambique's young population is crucial for the future of the country, and their experiences up to this age already constitute a social determinant of mental health (Kirkbride et al., 2024).

The regressions among the study variables demonstrate important connections between the SDOMH and reported depression symptoms. Both education and employment were significantly negatively correlated with reports of depressive symptoms. Notably, employment was also positively correlated with SES. This reflects the importance of resource availability, and the precarity resulting from a lack thereof. When paired with the findings of Saxena et al. (2007), this precarity is compounded by a systemic lack of resources devoted to mental health infrastructure in LMICs.

The present study looked at the relationship of education level to MHL as explained by internet usage. Among the participants in this study, MHL was positively correlated with education, employment, and SES. The findings support the hypothesis that internet usage was correlated with increased levels of MHL. Participants were familiar with mental disease at both a higher level of education and higher level of internet usage. Crucially, when taken together, the result was the highest levels of MHL. This expands on the findings of Magakwe et al. (2025), who highlighted the correlation of lower educational attainment with poorer mental health outcomes. As both the direct and indirect effects in this model were significant, there is a partial mediation, indicating that both education level and internet usage contribute to mental health literacy.

Considering the demographic information reported in the descriptive statistics, this is an impactful finding. Of the sample for this study, 14.7% reported zero years of education, with an additional 41.1% reporting fewer than eight years of education. This highlights the fact that the majority of the sample falls into the category which Magakwe et al. (2025) highlighted as highest risk for poor mental health outcomes. With education levels correlated with internet usage and with MHL, the lower levels of these correspond to less awareness around mental well-being. Also important to note is the fact that, while the sample corresponds to emerging adults who may not have completed all of their education yet, the entire sample was composed of adults ages 18 through 29, whose age would not have excluded them from having 12 years of education.

Employment was significantly and positively correlated with education levels, and SES was positively correlated with employment. As the economy of Mozambique grows, this offers new and promising opportunities, especially for young people; however, this growth is happening in an irregular manner, which ultimately results in greater inequality (Barletta et al., 2022). Instead of new career paths and improved conditions, the irregular growth in Mozambique contributes to challenging outcomes related to employment. Looking at the descriptive data for this study, there was a significant, negative correlation between employment and reported depression symptoms, highlighting the fact that having employment was correlated to better mental health outcomes. This study approached the relationship between employment and reported depressive symptoms via a moderated mediation model, in which mediation via SES was explored as being conditionally moderated by gender. The

results found that SES was, as expected by Hypothesis 2a, significantly and positively associated with employment status. This reflects the findings of Barletta et al. (2022), who note the outcomes for employment which, though unevenly distributed, are positive.

The effect of SES on depressive symptoms under the conditions of gender was tested by Hypothesis 2b. Overall, the effect of SES on depressive symptoms was greater for women, with a stronger and negative correlation in this condition. The results indicated that employment mediated by higher SES resulted in lower depressive symptoms for women. However, the effect of SES on depressive symptoms for men was positive, indicating that higher SES was correlated with higher depressive symptoms. Considering the above-mentioned inequality, this relationship can be seen to reflect the uneven growth throughout Mozambique in which greater inequality can result in poorer outcomes; in this case with men reporting higher rates of depressive symptoms, even when they have access to resources (Wilkinson & Pickett, 2010). This can also reflect the impact of expectations whereby men who have work and improve their SES feel frustrated by the inequality in positive outcomes.

The data collected by the Demographic and Health Surveys Program in collaboration with the Instituto Nacional de Estatística (INE) and ICF constitutes a remarkable representation of the experiences of Mozambicans throughout the country, in a wide variety of living situations. In focusing on emerging adults, the present work highlighted crucial data surrounding the experiences of this population. Notably, the nationwide sampling painted a broad picture of the languages spoken, the religions followed, and the level of globalization experienced. Crucially, while Portuguese was the native language of 43.2% of participants, Emakhuwa was spoken by 20.2% and Xichangana was spoken by 7.7%. This already begins to paint a picture of the nuance required when approaching mental health: in a country in which infrastructure is situated in the southern capital city and many people have to travel a great distance to receive care, sensitivity to the unique needs of various populations, including language, is fundamental (Vacchiano et al., 2023). Similarly, religious backgrounds are a key consideration when it comes to understanding mental health in a diverse country; as Vacchiano et al. (2023) point out, these religious backgrounds play into health outcomes, both positively and negatively, especially in terms of from whom care is sought.

Building on this diversity, globalization makes the world increasingly interconnected, but it affects individuals on different levels. With only just over half (57.9%) of participants

owning a mobile telephone, it is key to understand that access to information around mental health varies widely. This analysis found that the relationship between education level and mental health literacy was mediated by internet usage; connection to global information available online can bring benefits for mental well-being.

Not all demographic data represented such diversity among the sample. It is key to highlight that large majorities of the sample did not have a bank account (87.4%) and were not covered by insurance (98.5%). While the age range of emerging adulthood is a time of growth and setting out on one's own, these numbers demonstrate challenges faced when engaging with financial security and access to healthcare. Additionally, only 1.1% of the sample reported ever having been told by a doctor that they have depression, and only 0.6% had taken a medication prescribed for depression in the last two weeks. In the context of the significant correlations between employment, SES and depressive symptoms, these demographic numbers represent a lack of access to and awareness that compounds the challenges faced by this population. Economic inequality as measured by the Gini coefficient has been demonstrated to have a substantial impact on well-being (Wilkinson & Pickett, 2010). The Gini coefficient for Mozambique in general is 0,40, which is an elevated risk from inequality; the inequality is less in cities (0,23) than in rural areas (0,45) (Instituto Nacional de Estatística (INE) & ICF, 2024). There are substantial challenges, such as stigma around both mental health and poverty, which are compounded by these inequalities.

4.2 Policy Implications

The above discussion of the results from the study highlight the complexity of the challenges facing emerging adults in Mozambique. At this pivotal age, emerging adults are facing a variety of challenges and opportunities. The uneven development and growth in Mozambique can lead to complicated outcomes for this cohort, with men reporting higher levels of depressive symptoms, in spite of SES and employment. This study has approached the topic through a culturally sensitive approach, starting with the locally-situated factors such as economic growth and access to both mental health resources and broader infrastructure such as internet usage that contribute to outcomes related to mental health.

Crucial for policy considerations are the relationships between education level, internet usage, and MHL. The partial mediation of internet usage indicates that access to

online resources that can build digital mental health resources are a key opportunity for access to protective factors and processes that can empower emerging adults to engage with their mental health in a way that builds processes of resilience. Efforts like those of Mootz et al. (2023) to create digital resources that enhance mental health can be leveraged to make a meaningful impact, especially in the most vulnerable communities and groups in Mozambique. It is important to consider the widespread lack of access to the internet via lack of resources like mobile phones, as well as broader infrastructure like internet coverage. Prioritizing this, along with educational opportunities, can empower emerging adults to have conversations around mental health and build awareness and mental health literacy.

Similarly, policy decisions around even economic development, specifically in regard to giving emerging adults the opportunity to engage in work that can increase their SES can lead to positive mental health outcomes, especially for men. This is a key area for policymakers to prioritize, as the history of economic development in Mozambique has proven uneven and in reality has increased inequalities (Barletta et al., 2022). This analysis demonstrated that this is related to poorer mental health outcomes for men, but this is an area in which there are crucial opportunities for policy development that can substantially improve health outcomes.

4.3 Limitations and Future Directions

Notably, there are limitations to the present study. While the sample was nationally representative and included participants from throughout the country, there are always nuances to be considered, and therefore future studies could delve more specifically into research in each province in local languages. Additionally, different regions of Mozambique face different challenges, such as climate issues in the coastal areas and conflict in the north, and have different demographics. Although this study approached the work with cultural sensitivity, there were substantial limitations in terms of the questionnaires and surveys used. Although these were validated for clinical use in Mozambique, they represent constructs created from the West and therefore also cannot fully capture the representations of mental health and depression as they are locally understood. Working with a secondary data source provided substantial opportunity for insight, however provided some limitations as more specifically developed scales could provide increase insight and granularity to the results.

Future areas of research should focus on emic and qualitative studies that provide local understandings and expressions around mental health, and give a platform for Mozambicans to share both their concerns and challenges, as well as their processes of resilience and protective factors. Even further, this research should also consider unique, locally-situated expressions and experiences of depression and mental health as these may categorically differ from those studied in other contexts. More importantly, it is crucial for local voices to lead the research and determine research directions that are most relevant, and for researchers from around the world to partner with them to elevate these voices. In continuing to work with both emerging adults and the broader population in Mozambique, it is also crucial that sensitivity to the experience of research itself is demonstrated, as extractive research can have negative outcomes on future opportunities, and have negative impacts on the communities the research should be prioritizing. Going forward, research that benefits the broader world but especially those with whom it is conducted is crucial, and this includes ensuring that the results are made relevant to and shared with the participants and those in their community.

CHAPTER 5

Conclusion

This research project highlights a specific aspect of mental health, depressive symptoms, in a specific context, Mozambique, in a specific cohort, emerging adults. The rationale of this approach is to draw attention to a very specific segment and note the locally-situated factors which contribute to well-being, as well as the risk factors that lead to poor outcomes. By focusing on emerging adults in Mozambique, this research project used an existing dataset to test two hypotheses regarding the mediation of internet usage on the relationship between education level and mental health literacy, and regarding the mediation of SES on the relationship between employment and depressive symptoms as moderated by gender. The analysis found partial support for these. This can serve as a starting point for further research, especially in the context of more deeply understanding the nuances not just of Mozambique as compared to the rest of the world, but also within Mozambique.

This work can also serve to continue the discussion around mental health issues outside of the West. When these conversations are held, the result can be a reduction of stigma through shared experiences and connections. This can already begin to empower mental health literacy and begin a cycle of healing that carries forward. Additionally, there are key opportunities for leveraging education and internet access to improve understandings of mental health. The policy implications from this work are substantial - there are crucial opportunities for regulating economic growth and empowering the next generation of emerging adults with the opportunities that will not only increase SES, but also will empower well-being. This applies equally to education and infrastructure as to opportunities for employment.

Depression remains a challenge to well-being that has implications throughout the world. It is a deeply relevant and pervasive challenge, but by using locally-situated data, more nuance and specificity can be elucidated, giving rise to responses and processes of resilience that are meaningful in a specific context. Practically, this means approaching research in a wide variety of cultures, being thoughtful about the means in which data was collected, and using secondary sources where possible to avoid survey fatigue, especially among vulnerable populations. Approaching the data from these populations with an understanding of the

locally-situated risk and protective factors, new solutions that are culturally relevant arise and empower collective well-being through more nuanced understandings and thoughtful approaches.

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Appendix A - Scales Used for Variables

Education

Education Level: 0 - No education, 1 - Primary, 2 - Secondary, 3 - Higher

Employment

Worked in the Last 12 Months: 0 - No, 1 - In the past year, 2 - Currently working

Internet Usage

Use of Internet: 0 - Never, 1 - Yes, can't establish when, 2 - Yes, before last 12 months, 3 - Yes, last 12 months

Mental Health Literacy

Heard about Mental Disease: 0 - No, 1 - Yes

Socioeconomic Status

Wealth Level: 1 - Poorest, 2 - Poorer, 3 - Middle, 4 - Richer, 5 - Richest

Appendix B - Patient Health Questionnaire (in English)

How often have you been bothered by the following over the past two weeks?

Little interest or pleasure in doing things?

Feeling down, depressed, or hopeless?

Trouble falling or staying asleep, or sleeping too much?

Feeling tired or having little energy?

Poor appetite or overeating?

Poor appetite or overeating?

Trouble concentrating on things, such as reading the newspaper or watching television?

Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?

Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?

Appendix C - Questionário Saúde de Paciente

Durante os últimos 14 dias, em quantos foi afectado/a por algum dos seguintes problemas?

Tive pouco interesse ou prazer em fazer coisas?

Senti desânimo, desalento ou falta de esperança?

Tive dificuldade em adormecer ou em dormir sem interrupções, ou dormi demais?

Senti cansaço ou falta de energia?

Tive falta ou excesso de apetite?

Senti que não gosto de mim próprio/a — ou que sou um(a) falhado/a ou me desiludi a mim próprio/a ou à minha família?

Tive dificuldade em concentrar-me nas coisas, como ao ler o jornal ou ver televisão?

Movimentei-me ou falei tão lentamente que outras pessoas poderão ter notado? Ou o oposto: estive agitado/a a ponto de andar de um lado para o outro muito mais do que é habitual?

Pensei que seria melhor estar morto/a, ou em magoar-me a mim próprio/a de alguma forma?