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Instagram use and depression: a cross-sectional study among students at a South African university

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Instagram use and depression: a cross-sectional study among students at a South African university



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A research report submitted to the School of Public Health, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the Master of Public Health in Social and Behaviour Change Communication (SBCC)

DECLARATION

I, Tinotenda Maveneka, hereby declare that this research report is my original work. It is being submitted in partial fulfilment of the requirements for the degree of Master of Public Health in Social and Behaviour Change Communication at the University of the Witwatersrand. This work has not been submitted previously for any degree or examination at this or any other institution.

Signature: ___  _____ Place: _Harare_____Date: __17/10/2025___

DEDICATION

I dedicate this master's degree to my late uncle, Sekuru Elijah "Baba Terry" Chideme, whose belief in us all continues to inspire me. I love and miss you, and I hope you are proud of me. To my parents, thank you for always celebrating my successes and supporting me unconditionally. Your love and encouragement have carried me through this journey. I also acknowledge God at the centre of this dedication. The path of higher education has been demanding, but I am grateful for the strength and resilience I found through faith. May I continue to face future challenges with courage. My gratitude goes to my family, friends, classmates, and lecturers. Special thanks to Dr. Sara, for encouraging me to persevere when I nearly gave up, and to Dr. Faraaz, whose expertise guided my research. I am also grateful to Antenah Yalew, the Wits statistician, for assistance in analysing and interpreting my results. This degree was earned through perseverance despite obstacles—laptop failures, illness, personal setbacks, relocation, and balancing new responsibilities. Though writing this report was difficult, the process taught me that I can achieve what once felt impossible. Earning this master's in public health affirms that I can overcome challenges and embrace learning without fear. I dedicate this achievement not only to those who supported me, but also as a reminder to myself that resilience leads to growth. I look forward to living a life of independence, purpose, and continued service to others (Maveneka, 2025).

ABSTRACT

Introduction

The prevalence of mental health conditions is rising globally, with depression being a significant concern in South Africa, affecting over 20% of the population. Depression, characterized by persistent sadness, low motivation, and hopelessness, is linked to maladaptive behaviours and suicide risk. The incidence of depression among young adults (18–35 years) has increased over the past two decades, potentially due to improved diagnostic tools and increased accessibility. However, modern behavioural changes, such as the impact of social media, may also contribute. Social media, particularly Instagram, has become a popular communication tool in South Africa. Instagram's algorithm promotes curated and engaging content, which has raised concerns on its effects on mental health. Studies have found contradicting results on how the type of social media use contributes towards mental health. Some studies have found a benefit to social media use on mental health, while others have found social media use can lead to negative mental health outcomes.

Understanding Instagram's impact on depression severity is crucial. Limited information exists on the description and understanding of Instagram Use (IU) and Type of Instagram Use (TOIU) in South Africa. This study aimed to identify the prevalence of depression, depression severity, IU, TOIU, and potential associations among university students.

Methods

A quantitative cross-sectional design was used. Ethical approval was obtained from the university, and participants provided informed consent before completing the survey. The university email server sent out an email with all the information and the questionnaire to a total of 32 000 registered university students. The questionnaire gathered demographic data, Instagram usage patterns, and self-reported depression severity using the PHQ-9 scale, TOIU and attitudes toward Instagram (ATI) which was managed and analysed using RedCap and Stata 18.

Results

The total number of completed entries was 383, of which 85% had used Instagram before. Among users, 88% engaged passively, while 12% were active users. Regarding participants

ATI, 49% held negative views, 23% were neutral, and 27% viewed it positively. A significant association was found between active use of Instagram and positive attitudes toward the platform ($p = 0.019$). Regarding depression, 58% of participants had minimal to mild depression while 9% were severely depressed. Critically, there were no significant associations between gender, age, level of study, IU, or TOIU and depression severity.

Conclusion

The data indicates that ATI and TOIU influence how people view Instagram's impact on mental health. While most ATI was negative, there was no association found between IU and depression severity or prevalence. More data is needed to understand how IU and TOIU affect depression severity and prevalence. The findings of this study could be used to create future studies to explore the association of IU on depression.

TABLE OF CONTENTS

Contents

DECLARATION i

DEDICATION ii

ABSTRACT iii

TABLE OF CONTENTS v

LIST OF TABLES vii

ACRONYM LIST viii

1. INTRODUCTION 1

1.1. Background 1

1.1.2 How social media works 2

1.1. 3 How Instagram works 3

1.1. 4 Social media and its impact on young adults 4

1.1. 5 Social media regulations 5

1. 2. Literature Review 5

1.2.1 Social media use and Instagram use 6

1.2.2 Types of Instagram use 6

1.2.3 Attitudes towards Instagram 7

1. 2.4 Prevalence and severity of depression 7

1. 2.5 Measuring depression 8

1.2.6 Social media and depression 8

1.3 Problem statement 11

1. 4 Study justification 11

1.5 Research question 12

1.6 Aim and objectives 12

2. METHODS 14

2.1 Study design 14
2.2 Study population and sampling 14
2.3 Measurement and data collection 14
2.4 Data management and analysis 16
2.5 Ethical considerations and protocols 19
3. RESULTS 20
4 DISCUSSION 25
6.2 Limitations 29
5. CONCLUSION AND RECOMMENDATIONS 32
5.1 Conclusion 32
5.2 Recommendations and areas of further research 32
5.2.1 Recommendations based on Instagram use 32
5.2.2 Recommendations based on depression and mental health conditions 35
REFERENCES 37
APPENDICES 44
Appendix 1 Plagiarism/Turn it In Report 44
Appendix 2 Wits Ethics Clearance 45
Appendix 3 Ethics Clearance document- Participation Information Sheet 46
Appendix 4 Research Questionnaire/ Research Tool 48

LIST OF TABLES

Table 2.1 Scoring for Attitudes Towards Instagram 15

Table 2.2 PHQ-9 Severity Categories 16

Table 2.3 Data analysis based on objectives…… ……17

Table 3.1 Results obtained from the Questionnaire 21

Table 3.2 Attitude towards Instagram and test of association: Overall, by demographic characteristics and type of Instagram use 22

Table 3.3: PHq9 Severity Results and test of association: Overall, by demographics characteristics, Instagram Use and Type of Instagram Use.....223

ACRONYM LIST

AI- Artificial Intelligence

ATI- Attitude towards Instagram

IU- Instagram Use

LOS – Level of Study

PHQ-9- Patient Health Questionnaire – 9

Q1 – Lower quartile

Q3 – Upper quartile

SA- South Africa

TOIU- Type of Instagram Use

USA- United States of America

WHO – World Health Organisation

Wits – University of the Witwatersrand

WHREC- Wits Human Research Ethics Committee

1. INTRODUCTION

This section provides a background on depression prevalence and its increase in young adolescents in South Africa. It goes on to look at the emergence of social media, particularly Instagram, as a modern tool of communication, explaining how it works and exploring research around its potential association with depression.

1.1. Background

The global prevalence of people with mental health conditions has emerged as a critical concern, with an increasing number of individuals diagnosed annually (WHO, 2022). In South Africa, the incidence of severe depression has risen significantly over the past two decades, with its prevalence exceeding 20% of the population (Craig et al., 2022). Depression, as defined by the World Health Organisation (WHO), is a serious mental health condition characterised by persistent sadness, low motivation, and feelings of hopelessness, which may result in maladaptive behaviours such as physical inactivity, poor hygiene, and chronic fatigue (WHO, 2022). The condition is strongly linked to suicide, and evidence suggests that individuals with severe depression experience reduced life expectancy compared to non-depressed individuals (Donnelly, 2022). Notably, young adults aged 18–35 years in South Africa have shown a significant increase in depression diagnoses over the last 20 years (Craig et al., 2022). With a global reduction in stigmatisation associated with mental health conditions such as depression , along with new tools for diagnosing depression, it has become easier to diagnose depression (Adewuya et al., 2006; Parker, 2007; Sorsdahl et al., 2023). It is important however, to identify if depression could be associated with other modern changes in behaviour that have happened in the last 25 years, such as the rise and impact of social media.

Social media, now the dominant mode of global communication, has gained substantial traction in South Africa (Ortiz-Ospina & Roser, 2023). These online platforms, such as Facebook, Instagram, Twitter (now X), WhatsApp, TikTok and YouTube, connect billions of users worldwide (Statista, 2023a). Each platform operates online and is used to share content with other users. Understanding how social media works and how it affects behaviour and society is important in noting potential health concerns associated with social media use.

1.1.2 How social media works

Social media is defined as an online community where people can communicate with each other individually or in groups through various forms, including text messages, pictures, videos, and audio recordings (Oxford Dictionary, 2010). To access social media, one must join a social media platform. Social media platforms are websites or mobile applications used by people online to communicate with each other and can share what is happening in their lives, advertise their business or sell a product and service (Paljug, 2025). Most social media platforms offer their services in exchange for personal information from their users (Epic, 2019). One key aim for social media platforms is to keep users actively engaged with the platforms as much as possible; each platform achieves this using algorithms. Algorithms are unique coding and programs built into a social media platform to keep you using it as much as possible (O'Brien, 2023).

The most popular social media platforms are Facebook, X, Instagram, TikTok, WhatsApp, and YouTube, all boasting over 500 million users each (DataReportal, 2025). Although they are each social media platforms, their main use varies for each platform (Frida, 2020). For instance, Instagram is mainly used for pictures and short videos, while X is mainly used for discussions (Instagram, 2023). While social media platforms have similarities, they operate and engage with their users differently. Each platform has different internal features and functions for users. For example, Facebook allows users to share content in groups where others who have similar views on a topic can share content on such a topic and chat with each other. This feature is not available on Instagram currently (Instagram, 2023). For this reason most people use multiple social media platforms for different things. As such narrowing this research paper to focus on Instagram allowed us focus on its isolated impact on its users without conflicting data from the use of different social media platforms.

As social media platforms have grown and technology has developed, it has become easier for social media platforms to record data on how each platform is used by its users (O'Brien, 2023). This includes features to measure how much time users spend on a specific social media app and what they primarily do on the social media app. This has given us public information such as the average amount of time users spend on social media in South Africa, which is currently over three hours per day (Statista, 2024a). This is the combined total for all social media platforms. Also, social media apps can track a user's main uses for social media, meaning whether they mainly use a social media platform for viewing other people's content,

what type of content they view or if they mainly use social media platforms to post their content and communicate with others.

Like other social media platforms, Instagram has rapidly grown in popularity, undergoing significant functional transformations since its inception. Instagram now ranks among South Africa's top 10 most-used social media platforms (Antonelli and Delfino, 2023; Cowling, 2023; Instagram, 2023; Statista, 2023a) . Its user base is predominantly composed of individuals aged 18–35, who constitute over 65% of active users (Statista, 2024b). Given its popularity amongst young adults, the relationship between Instagram usage and rising mental health challenges, particularly depression, warrants closer scrutiny.

1.1. 3 How Instagram works

Instagram functions as a social media platform where users share aspects of their lives primarily through photos and videos (Instagram, 2023). These are shared as posts, reels or stories on Instagram. With millions of daily posts from individuals worldwide, the platform often emphasises curated and idealised content that is different for each user. As for users who post on the platform, they typically showcase the most exciting or extravagant parts of their lives to maximise engagement with other users. This is measured by views, likes, comments, shares, and saves. Content that is interesting and engaging, with higher visual quality and extravagant appeal, is more likely to go viral, facilitated by Instagram's algorithms and engagement metrics (Eclincher, 2023). Additionally, the platform enables users to enhance their posts through filters, allowing them to modify their appearance or the aesthetic of their content, shaping how they present themselves online (Instagram, 2024). With the new addition of easy-to-use editing software like Capcut, along with new content driven and created by Artificial Intelligence (AI), Instagram now contains a variety of content displayed on the platform (Cena, 2024; Instagram, 2023).

Instagram and content creation have become a massive global business, with Instagram being worth more than 100 billion dollars and content creation being worth over 30 billion dollars (Grandviewresearch, 2023; Simon, 2024). Businesses set up Instagram accounts to promote and sell their products to customers. Instagram sells advert space to these businesses so that users on Instagram can see their content more. This then helps the businesses make money, and as such, they pay Instagram for the exposure to people (Simon, 2024). This enforces the need for Instagram to keep people as active as possible on the app, watching and viewing

content. Top users in every category of Instagram are being paid to post content by the platform and by businesses. Instagram influencers are paid by businesses and Instagram to make viral content (content that has a high view count and a high engagement rate) or content that promotes a business product or brand. This has become a new form of employment, with users earning an income from making content. Content creators can also have paid subscribers on Instagram. This has positively affected many Instagram users and also increased the amount of time people spend on Instagram (Geuens, 2025). Instagram ranks as one of the highest-paying social media platforms (Kalum, 2025).

Instagram's algorithm-driven design amplifies content. This approach fosters social media echo chambers, where users repeatedly encounter content reinforcing their preferences and promoting continuous engagement (Cinelli et al., 2021). Prolonged exposure to such content can lead to psychological dependency, as was highlighted in this study that examined echo chambers created on Facebook and how Facebook affects its users (Cinelli et al., 2021).Overuse of Instagram may result in behaviours akin to addiction, disrupting daily life and diverting attention from essential activities (Kuss & Griffiths, 2017; Ponnusamy et al., 2020).

1.1. 4 Social media and its impact on young adults

In South Africa, 65% of social media users are under 35 (Statista, 2024). This age group is most likely to have been affected the most by social media. Whether the effects have been positive or negative on their mental health is unclear, as was explored in the literature review. Although social media has grown exponentially in the last decade, there has been a limited amount of research on individual social media platforms like Instagram alone. Most studies have grouped all social media platforms. Many studies on social media seem to contradict each other in findings on how it affects users in terms of mental health (Lopes et al., 2022; Mackson et al., 2019; Vuorre and Przybylski, 2023). Social media has become a very effective way to communicate, with data showing its increase in usage, especially among young adults (Statista, 2023a). This cannot be understated because social media usage has increased; there is an increase in importance to understanding its use and its effects on young adults who make up most of its user base in South Africa.

1.1. 5 Social media regulations

As social media has grown in popularity worldwide, its use has raised several concerns, from national security concerns to mental health concerns (Lutkevich, 2025; Thorbeckee, 2023). This led to the introduction of regulations, with Facebook first introducing regulations in 2018 (York, 2018). Since then, social media regulations have increased, with governments in multiple countries implementing regulations for different reasons. Some bans and regulations have been politically motivated, as with the 2024 proposed TikTok forced sale or ban in USA, stating national security as the reason (Lutkevich, 2025). Other regulations were introduced due to the potential health concerns associated with social media's addictive nature. In Australia, an age restriction was placed on all social media platforms, limiting use to those over the age of 16 (Ritchie, 2024). TikTok implemented an age restriction, not allowing users under the age of 13 to join the platform, along with a maximum time use of one hour for users under 18 (Thorbeckee, 2023; TikTok, 2023). Current social media regulations in South Africa are not specific to any health concerns. Rather, social media regulations are focused on data protection and privacy, child safety, content moderation and the prohibition of using social media to share illegal activities such as murder and violence (Oylott, 2022).

Mental health concerns associated with social media use have been cited in studies conducted in sub-Saharan Africa (Kituyi and Kyeyune, 2024). This suggests a potential link between social media use and deteriorating mental health outcomes (Boyd, 2015; O'Reilly et al., 2018). A critical review of current literature on the relationship between social media use and depression, particularly affecting those between the ages of 18 and 35, is necessary to understand if there could be an association.

1. 2. Literature Review

The literature review explores the existing literature around Instagram use (IU) and its possible effects on mental health, particularly depression. It goes into detail describing studies that have specifically measured if depression was associated with Instagram. It also presents existing literature on depression prevalence, depression severity and the existing tools that have been used to measure depression. Data was mainly collected from journal articles found on Google Scholar, Science Direct and PubMed. The data was used to justify the research aim and objectives.

1.2.1 Social media use and Instagram use

While little is known about the duration of IU in South African university students, the duration of social media use in South Africa amongst active users has been increasing to an average of 3 hours 37 minutes per day (Statista, 2024a). Instagram in South Africa is used on average for about 35 minutes per day (NapoleonCat, 2020).IU has been estimated to be 12% nationally (Cowling, 2023), The number of South African Instagram users has doubled since 2017 (Statista, 2024b, 2017) but less is known about its popularity among university students in South Africa. A social media study conducted in 2020 by the University of Cape Town found that 4% of participants used Instagram (De Doncker and McLean, 2022). However, this is more likely to have increased significantly since 2020.

1.2.2 Types of Instagram use

A definition from another study defined active social media use as when you use social media to make content or purposely (Vuorre and Przybylski, 2023) and passive social media use is the use of social media without any clear purpose, usually for entertainment or to pass the time. The type of use of Instagram (TOIU), in which we compare passive use of Instagram to active use, is less understood. For instance, some active users spend long hours on Instagram because they are social media influencers or they are commercial social media content creators (Zfat, 2022). This group of people are not just using Instagram, they are making content for companies and themselves, which allows them to monetise their content. This often results in active work making creative content that they can monetise (Kates, 2024). There was a need to separate people based on what they use Instagram for to see if there is an association between the way Instagram is used and self-reported depression.

The type of use, active or passive use of social media, may be an important indicator of an association between IU with the prevalence and severity of depression. A global systematic review explained how active use versus passive use results in different attitudes towards social media and was associated with various severities of depression (Lopes et al., 2022). However, this study spoke of all social media platforms, which we have mentioned operate differently, rather than just one. The global study that defined the differences between active and passive social media use found that users who used social media actively had a lower likelihood of depression or depressive symptoms (Vuorre and Przybylski, 2023). A study conducted with Icelandic adolescents found that passive use of social media was associated with an increased level of depression and anxiety (Thorisdottir et al., 2019). In contrast, they found that active use of social media resulted in a decrease in depression and anxiety.

Duration of time spent on social media has been associated with depression, whereby higher severity levels of depression are associated with increased or consistent social media use (Lopes et al., 2022). One explanation is that most social media users tend to be physically inactive while using social media, in part due to the addictive nature of many platforms (Bergman, 2023). A study in Indonesia on university students found that those who were addicted to social media and spent more time on social media were more likely to suffer mild depression (Sujarwoto et al., 2023). Another study among Serbian students showed a positive correlation between depressive symptoms and social media use (Banjanin et al., 2015). Even social media content creators are not exempt from passive use effects on mental health. Content creators who specialise in live streaming often spend hours online for their users which has been found to affect their mental health (Powell, 2022).

1.2.3 Attitudes towards Instagram

Social media has gained negative news for being a big "time waster" and addictive (Banjanin et al., 2015). New research and articles have been published associating it with negative health outcomes (Sujarwoto et al., 2023). The regulations and bans that are coming from different countries have influenced public perception of social media. Some of the regulations and restrictions have been due to health concerns (Ritchie, 2024). This has created some bias towards all social media platforms, including Instagram, being associated only with negative health outcomes.

Studies have explored the positive effects of social media on health (Lekgothoane, 2023; Lekgothoane and Kaminer, 2024). These studies along with a survey conducted in Bangladesh have shown that social media platforms can be used to maintain relationships with people, keep communities together and provide affordable ways to market businesses (Chowdhury, 2024). Such literature supports a focus on understanding users attitudes towards Instagram (ATI). Exploring attitudes, along with self-reported depression severity, enables a more nuanced exploration of associations between Instagram and depression severity.

1. 2.4 Prevalence and severity of depression

A review of recent literature suggests that depression among university students in South Africa is high and increasing (Makhubela, 2021). Research indicated a trend of increasing prevalence of mental health conditions for university students (Auerbach et al., 2018). When comparing this information with depression levels of the general South African population,

studies have shown that individuals with lower education are 3.7 times more likely to experience a major depressive episode than those with a higher level of education above high school or at the university level (Tomlinson et al., 2009). Depression prevalence has increased in South Africa from 12% to as high as 27% for severe depressive episodes and to a prevalence of over 80% for low depressive symptoms (Onuh et al., 2021; Tomlinson et al., 2009). Similarly, a large scale survey distributed to over 72 000 university students across 18 different countries including South Africa found that 65% of participants screened positive for lifetime mental health disorders and 57% for 12-month mental health disorders that included major depression (Mason et al., 2025). The research found a high prevalence of different mental health disorders for students at university. The findings of these different studies mentioned above may be indicators that times have changed. Stigmatisation of mental health conditions, mental health awareness education, the diagnosis tools for detecting mental health conditions such as depression have improved worldwide and that depression prevalence may not have necessarily increased (Adewuya et al., 2006; Parker, 2007; Sorsdahl et al., 2023).

1. 2.5 Measuring depression

New tools, such as the patient health questionnaire-9 (PHQ-9) have been used and validated in a different study in Nigeria (Adewuya et al., 2006). In the study done in 2006, the PHQ-9 had a representative sample of the university and was found to have internal consistency of 0.85. The study found that the tool had good one-month retest reliability. The test had a similar concurrent validity when the results were compared to those of Beck's Depressive Inventory test, a different tool used to measure depression prevalence and severity. The consistent results of the two tests showed the validity of the PHQ-9 test. The PHQ-9 test is a simple way of measuring self-reported depression and its severity. It is a quantitative tool that can collect data on the severity levels of depression and categorise patients based on their severity levels of self-reported depression. It is also easy to administer (Adewuya et al., 2006; Medical newstoday, 2023; Spitzer et al., 1999). Considering the limited resources for carrying out this study, it is important that the tool used to measure depression be easy to administer.

1.2.6 Social media and depression

Research indicates a lack of agreement in existing data about social media use and its association with mental health, with the results varying depending on the study design, study population and community. Looking at depression and social media, a correlational study

found increased social media use resulted in increase social comparison on social media which is associated with depression (Vogel et al., 2014). This study, conducted with 145 undergraduates from Midwestern University in the United States of America (USA), assessed the impact of social comparison, Facebook use and upward social impact. The study found that those who used Facebook more often had lower self-esteem than those who used it less frequently. It also highlighted that upward social comparison negatively impacted the self-esteem of participants. Individuals with lower self-esteem are more likely to suffer from depression than individuals with high self-esteem (Hilbert et al., 2019). A study conducted in China with 514 married adults found that upward social comparison on social media was associated with a higher likelihood of depression (Wang et al., 2020). About 50% of the participants of this study were under 40 years, and 50% of the participants were from urban areas. This study factored in how social comparison and social media contribute negatively to depression. Although the study was not focused specifically on Instagram its findings are important as they highlight the impact of social comparison and depression. In terms of social media platforms, Instagram is regarded as one of the social media platforms with the highest social comparison (Lewin et al., 2022). Following a study conducted in 2014 (Vogel et al), a survey was conducted at Midwestern University, USA which identified an association with problematic social media use and social comparison (Lewin et al., 2022). Problematic social media use led to impaired daily functioning, preoccupation with social media similar to that of substance disorders and depression (Griffiths et al., 2014). Using 601 participants, this study concluded that comparison of abilities via social media use was positively associated with problematic social media use and that those who used social media more were more likely to develop problematic social media use. Similarly, a study conducted in Cape Town found that problematic social media use was more common in users who used social media more (De Doncker and McLean, 2022). This study, conducted with 205 young participants, found that users who used social media more frequently reported more symptoms of depression and sleep deprivation. A different study conducted with adolescent students showed that social comparison and approval-seeking behaviour on social media were associated with depressive symptoms (Nesi and Prinstein, 2015). However, the same study showed that popularity had a more significant association than social media use, suggesting that social media acted more as a channel or tool than an association.

It is important to note that while some evidence has suggested associations between social media use and depression, other studies contradict these findings. A study in Cape Town

found Instagram to have a positive impact on health (Lekgothoane, 2023). This study, using a mixed-methods approach, helped identify that Instagram was being used to access data on managing mental health, empowering participants with knowledge on mental health. This study showed how social media can be a channel or tool that can be used to benefit to its users. A study found a positive association between Instagram use and improved mental health (Mackson et al., 2019). However, this study then went on to analyse users of Instagram separately to try identify what causes negative mental health outcomes (like depression, low self-esteem or anxiety) on Instagram. It found that social comparison was the main contributing factor to negative mental health associations with IU. The results of a study on social media adoption in 72 countries showed that countries with a higher percentage of adoption of Facebook reported a higher level of life satisfaction (Vuorre and /Przybylski, 2023). The results showed lower depression in users who were more active on social media, while showing that countries with more daily active users and monthly active users had reported higher life satisfaction and positive experiences than countries with fewer daily or monthly active users on Facebook. They did, however, acknowledge the limitation of the study in not being able to factor in variables, such as socioeconomic factors, ethnicity or race (Spruk and Kešeljević, 2016). Considering how most people who are on social media in Africa daily tend to have more money than those who are not (Freeman et al., 2016), it is important to find ways to separate those who are in a lower socioeconomic status from those who are not when studying the impact of social media on depression severity and prevalence.

In addition to contradictory results, some studies have shown no association or relationship between social media use and depression. A longitudinal study conducted over eight years found that there was no statistically significant difference between prolonged social media use and depression (Coyne et al., 2020). This study focused on prolonged social media use and negative mental health outcomes. While the participants of the study were under 20 its still important to note that the findings did not find an association with negative mental health outcomes with prolonged social media use Considering that many factors can contribute towards the depression prevalence or severity it may be the case that there is no association between Instagram use and depression.

Along with the different methodologies and comparisons, the studies described above have not gone to look out to measure Instagram's impact in isolation, rather grouping Instagram with other social media platforms like Facebook. This makes the data obtained difficult to associate with Instagram, making Instagram's effects on mental health unclear. One thing that

is consistent in all the studies done on social media, including Instagram, is that the nature in which the platform is used can have positive or negative effects.

1.3 Problem statement

There has been a significant growth in Instagram use in South Africa, especially amongst young adults (Statista, 2023a, 2017). Research on its usage has become increasingly important, especially considering how unclear the relationship between IU and mental health conditions are (Faelens et al., 2021). Depression among university students is an issue (Ibrahim et al., 2013) and is important to monitor closely, especially when considering the limited data that is available on South African students' depression levels. With the majority of students being between 18 and 35 years old, it is important to research if IU is associated with depression, given that this age group is the biggest active users of Instagram in South Africa (Statista, 2024c, 2017).

1. 4 Study justification

How social platforms operate has changed significantly (Vuorre et al., 2021). The type of Instagram use (TOIU), which compares passive use to active use, has yet to be explored when it comes to IU in South Africa. While resources did not allow for a national study, studying Wits students was done to give more precise insight into IU and depression severity within South Africa, where current data is limited.

The study's focus on Instagram allowed us to interpret the results based on the unique features that Instagram has compared with other social media platforms. This allowed us to see if there was an association between IU and depression severity and allowed us to build on information related to IU. It also simplified the complexity of using multiple social media platforms, which has not been done often in studies related to mental health and social media. An exploration of university students' ATI provided a level of specificity to the platform that had previously not been explored in South Africa. The study focused on one university, the University of the Witwatersrand (Wits), to allow us to conduct a feasible study within a short period. Based on the methods that were used, this could then be recreated at other universities in South Africa to make the findings more generalisable.

Depression prevalence has increased globally since 1990 (Lui et al., 2020). The improvement in detecting depression, less stigmatisation associated with having depression and the education of the community about depressive symptoms may have contributed to this change (Hidaka, 2012). By comparing the results from the study with the levels of depression across the country or in previous studies with a similar design and community, the results obtained would clarify the depression prevalence and severity of depression. The results could help us see if the association between depression severity and IU is more pronounced among different genders or age groups.

The association between IU and depression is unclear. Because of the general growth of the use of Instagram and other social media platforms, it is important to understand the types of use (passive vs active), duration of use, attitudes and any associations with depression within a South African context. Instagram could have a potentially negative or positive effect on its users. Studies have found an association between social media platforms and depression. However, these studies have not been specific to South Africa or Instagram, or to South African University students (Dienlin and Johannes, 2020; Verduyn, 2017; Vuorre et al., 2021; Vuorre and Przybylski, 2023). Many studies have shown the ambiguity in the relationship between IU and mental health conditions, or were conducted using different tools on different study populations (Faelens et al., 2021). A more recent and precise study is needed for the context of South Africa.

1.5 Research question

The key research questions the study set out to answer were: What is the prevalence of Instagram use and self-reported depression among university students in South Africa, and is there an association?

1.6 Aim and objectives

The study aimed to describe IU, TOIU, ATI and self-reported depression prevalence and severity among Wits students and to identify if there is an association between IU and self-reported depression.

The objectives are:

1. To identify the prevalence of Instagram use among registered Wits University students aged 18 to 35 in 2024.

2. Among Wits University student Instagram users aged 18 to 35, describe their use in terms of average time per day, types of use and attitudes about use in 2024.
3. Measure the prevalence of self-reported depression among registered Wits University students aged 18 to 35 in 2024.
4. To explore associations between Instagram use and self-reported depression among registered Wits University students aged 18 to 35 in 2024.

2. METHODS

2.1 Study design

A quantitative cross-sectional study design was used. The study involved primary data collection using an online questionnaire distributed to students at Wits. To increase the chances of successful completion of the questionnaire, most questions were multiple-choice questions. According to research, questionnaires with fewer than 25 questions easy to answer multiple-choice questions had a higher completion rate than longer questionnaires with over 30 questions (Chudoba, 2020; Roszkowski and Bean, 1990). As such, the aim was to make a short tool that would collect information based on the objectives mentioned above.

2.2 Study population and sampling

The study population was registered undergraduate and postgraduate students at Wits. In addition to being registered students, they had to be between the ages of 18 and 35 years old, with anyone outside the age group being excluded. Full- and part-time students were welcome to participate in the study. Exclusion criteria were non-students or students who were no longer active students.

Students were contacted via the university email service, distributed by the university. The emails informed students of participation and eligibility requirements, including the RedCap questionnaire link.

A total of 32000 emails were sent out, which formed our total population. According to the sample size calculator (Calculator.net, 2023; Edge and LLC, 2020) with a 95% confidence interval to achieve a representative sample size, the aim was to get at least 380 complete entries . From 10 December 2024 to the 20th of January 2025, a total of 389 eligible students filled in the questionnaire, of which six were incomplete and discarded, resulting in a final sample of 383.

2.3 Measurement and data collection

Data was collected on RedCap using a questionnaire (see Appendix 2). The questionnaire collected demographic data such as age, gender and level of study (are you a postgrad student or an undergrad student) to characterise the sample. The questionnaire asked about whether

they used Instagram or not, the amount of time that users spent on average on Instagram and what they used Instagram for. The questionnaire also included questions to measure the severity of self-reported depression in all participants (PHQ-9 scale) and participants' Attitude Towards Instagram (ATI). The specific questions used as the basis for analysis are indicated in Table 3, presented as part of the data analysis.

From question 4, participants are categorised on IU to determine the overall prevalence of Instagram users. A skip pattern was used to exclude participants who did not use Instagram from answering any Instagram-related questions.

For those who used Instagram, there were additional questions that sought to measure daily average use in terms of minutes and/or hours and what they mainly used Instagram for (type of use). This was to measure if increased IU and/or TOIU would affect users. For TOIU, responses enabled post-coding and categorising participants into two main groups, which were active and passive users. Those who reported that they used Instagram to view and watch other people's content were classified as passive users, while those who answered that they mainly used Instagram to post their content and share personal content or that they mainly used Instagram to earn an income or act as influencers were classified as active users.

Additionally, those who answered that they had used Instagram had to answer questions on their ATI, uniquely developed for this study. The questions aimed at understanding individual users ' perceived experience with Instagram use and their belief as to whether they felt as if Instagram was contributing negatively towards their mental health. Using a 5-point Likert scale from strongly disagree to strongly agree. Answering questions 16, 17,18 and 20 with strongly agree would score 5, and strongly disagree would have a negative attitude score of 1. The questions contained a mix of both positive and negative statements. Reverse score coding was applied to some of the questions (question 19 and 21), whereby answering strongly agree as having a negative attitude would score a 1, while answering strongly agree to a positive statement would score a 5. Composite scores were added together, and participants were categorised into one of the three groups summarised in Table 1.

Table 2.1 Scoring for attitudes towards Instagram

Score	**Attitude**
6 – 16	Negative: Believes that Instagram contributes negatively to one's mental health.
17– 19	Neutral: Generally Neutral towards Instagram and its association towards depression

20 – 30	Positive: Believes that Instagram contributes positively to one's mental health.

For Objectives 3 and 4, self-reported depression was measured using the 9-item PHQ-9 scale. (Spitzer et al., 1999), using the standard response options of:

- Not at all – 0 (1)
- Several days -1 (2)
- More than half the days – 2 (3)
- Nearly every day – 3 (4)

Before analysis, the responses were recoded into categories using the standard scoring system for the PHQ-9, as follows:

Table 2.2 PHQ-9 Severity categories

Score	**Depression Severity**
9 – 13	None-minimal
14 – 18	Mild
19 – 23	Moderate
24 – 28	Moderately severe
29 – 36	Severe

Participants were categorised based on their severity levels of depression to respond to Objective 3.

2.4 Data management and analysis

All data was managed and analysed on RedCap and Stata 18. Management involved deleting incomplete entries and categorising responses to run the correct tests for the data collected. Data was analysed for possible errors in entry. Should a significant error be identified, resulting in the data of a category being invalid, the variable would be excluded from the results. One such situation occurred in which the data on the duration of the IU variable had many incorrect entries due to how the variable was answered. As such, this variable was dropped. The data was analysed as follows, according to the study objectives in Table 3:

Table 2.3 Data analysis based on objectives

Objective focus	**Variable(s) of interest** ***(Survey ref)***	**Analysis conducted**
0. Description of study sample	Basic demographics: age (continuous), gender (categorical), level of study (categorical) *(Ref: Q 1-3)*	Descriptive table (n,% for categorical and mean, SD for continuous)
1. To identify the prevalence of Instagram use	Whether or not Instagram is used (categorical). *(Ref: Q 4)*	Descriptive table (n,%)
2. To describe their use in terms of average time per day, types of use and attitudes about use in 2024.	**Type of use** (Ref Q6, categorical) **Attitudes** Links with Table 1 data was categorised as positive, neutral or negative. (Ref: Q16-21) Test of association Dependent variable ATI Independent variables that will be tested are: 1. Gender (male/female) 2. LOS (undergrad/postgrad) 3. TOIU (active/passive)	Descriptive Categorical (n,%), see Table 1 Analyse data in the separate tests Categorical and Continuous data tests. Chi square test Chi square test of association for independent categorical variables (gender, LOS, TOIU) a non-parametric Kruskal Wallis H test (age) with the dependent variable being ATI. Excluding those who have never used Instagram (n,%)
3. Measure the prevalence of self-reported depression among registered university students aged 18 to 35 in 2024.	Depression severity (categorical) *(Ref Q 7-15)*	Present as five categories See table 2

4. To explore associations between Instagram use and self-reported depression among registered university students aged 18 to 35 in 2024.	Test of association Dependent variable self-reported depression Independent variables that will be tested are: 1. Gender (male/female) 2. LOS (undergrad/postgrad) 3. IU (yes/no) 4. TOIU (active/passive)	Analyse data in separate tests, such as categorical and continuous data tests. chi-square test (gender, LOS, IU, TOIU, anon-parametric Kruskal Wallis H test with age with the dependent variable PHQ-9 Severity level (n, median,%).

Table 3 presents the variables of interest concerning each objective, their sources and how the data was analysed. The outcomes focused on the aim and objectives. The coding of key variables was discussed under the Measurement and Data Collection sections of the protocol.

For descriptive analysis, proportions were calculated for categorical variables, while the median, lower quartile (Q1) and upper quartile (Q3) were used for age. The test of association for categorical variables was a chi-square test. For objective two, a chi-square test would be done using the variables mentioned in Table 3. The dependent variable was ATI. Only participants who had used Instagram were included for these tests. The non-parametric Kruskal-Wallis H test was done for ATI and age. Each test had a null hypothesis. Which were the following:

1. Gender differences (male/female) would have a statistically significant association with a different ATI.
2. The level of study (now referred to as LOS) would have a statistically significant association with a different ATI.
3. The age of users would have a statistically significant association with a different ATI.
4. TOIU would have a statistically significant association with a different ATI.

The results were measured for an association. The p-value had to be below 0.05 to be considered statistically significant in any of the tests done. If the p-value was statistically significant then we would accept the null hypothesis; if not, we would reject it.

For objective four, the dependent variable in use was PHQ-9 Severity. The categorical variables tested were the ones mentioned in Table 3, and similarly, chi-square tests were conducted. A non-parametric Kruskal-Wallis test was done for PHQ-9 severity and age. Each test had a null hypothesis, which was the following:

1. IU would have a statistically significant association with a different PHQ-9 severity
2. The age of users would have a statistically significant association with a different PHQ-9 severity
3. TOIU would have a statistically significant association with a different PHQ-9 severity

The results were measured for an association. The p-value had to be below 0.05 to be considered statistically significant in any of the tests done. If the p-value was statistically significant, then we would accept the null hypothesis; if not, we would reject it.

2.5 Ethical considerations and protocols

Data was collected after approval from the Wits Registrar, and the Wits Human Research and Ethics Committee (WHREC) was granted. An ethical clearance certificate was granted from WHREC (see Appendix 2). A consent form was given to all participants explaining what the study was about and ensuring participants willingly gave up their information. The consent form explained that participants could withdraw from participating in the study at any time.

Since the study engaged in sensitive and personal topics around depression, a distress protocol was created. The distress protocol informed students who were experiencing distress of what to do, and allowed students to contact the Wits counselling services if any student needed it. Each student would fill in the survey alone and privately. The details of the consent and distress protocol were attached to the online survey link with information to assure participants that no identifying information was collected (see Appendix 3).

3. RESULTS

In the results, we find the breakdown of the participants' answers to the survey. Table 4 describes the participants' demographic data, separating them by their responses and providing a percentage of how many participants answered accordingly. Table 5 shows the results of the test of association done between ATI and the variables mentioned. Table 6 presents the results of the tests of association done between depression severity (measured by the PHQ-9 test) and the variables mentioned.

In total, 389 students participated in the survey after cleaning for incomplete results and errors, there were 383 complete entries. Further cleaning also removed all information related to the duration of use of Instagram (see question 5, Appendix 4) due to the large number of errors identified. The results from Table 4 indicate that most study participants were female (69%) with 29% being male and 2% identifying as other or rather not say. The average age for participants was not normally distributed and was skewed to the left; this meant more participants were of the ages 18- 24 than of the ages 25- 35, and as such a calculation for the median was done. This would affect tests of association done in Tables 5 and 6. The median age was 21, the lower quartile (Q1) was 19, and the upper quartile (Q3) was 24. Most participants were undergrads, making up to 76% of the total participants.

The first study objective was to explore IU among university students. According to the survey, 85% of participants reported using or having used Instagram before. Looking at specific patterns of use and attitudes, aligned to objective 2, 88% of those who used Instagram said they mainly used it to view people's content (passive use), while 12% were active users. Among Instagram users, 49% had a negative ATI and its contribution towards depression, 23% were neutral, and 27% of participants had a positive ATI.

Table 3.1 Results obtained from the questionnaire

Characteristics	**Level**	**n (%) or mean(SD)/Median(Q1,Q3)**
Gender	Male	113 (29)
	Female	262 (69)
	Other	5 (1)
	Prefer not to say	3 (1)
Age in years	Median (IQR)	21 (19, 24)
Current level of study	Undergrad	291(76)
	Postgrad	92 (24)
Instagram Use	No	57 (15)
	Yes	326 (85)
Type of Instagram Use	To view content (passive)	283 (88)
	To post content (active)	35 (11)
	As an influencer (active)	3 (1)
Attitude Towards Instagram	1. Negative Attitude	161(49)
	2. Neutral	76 (23)
	3. Positive Attitude	89 (27)
PHQ-9 Severity levels of depression	1. None- minimal	102 (26)
	2. Mild	123 (32)
	3. Moderate	87 (23)
	4. Moderately severe	37 (10)
	5. Severe	34 (9)

Table 5 addresses objective 2 and seeks to address the null hypothesis associated with objective 2. Only participants who had answered yes to IU were considered. For gender participants who did not answer either male or female were excluded from this test of association. This was to simplify the variables because those who answered “Other” or “Rather not say” were less than 3% and would not be enough in numbers to be statistically significant due to the sample not having a large enough representative population for those who did not identify as male or female. Those who had never used Instagram before 15% were also excluded from the tests regarding ATI as they would not be able to provide an

opinion on IU without having used it. The results showed that gender, age, and level of study had no statistically significant association with ATI. The results comparing the TOIU with ATI were statistically significant (p-value = 0.019), wherein active users had a more positive ATI than passive users.

Table 3.2 Attitude towards Instagram and test of association: Overall, by demographic characteristics and type of Instagram use

Characteristics	**Level**	**Attitude**			**P-value**
		Negative	**Neutral**	**Positive**	
Overall n (%)	N/A	161 (49)	73(23)	89(27)	N/A
Gender n (%)	Male	54 (58)	17(18)	22(24)	0.146
	Female	105(46)	58(26)	64(28)	
Age	Median	161	76	89	0.426
Level Of Study n(%)	Undergrad	119 (49)	58 (24)	66(27)	0.920
	Postgrad	42(51)	18(22)	23(28)	
Type of Instagram use n(%)	Active	11 (29)	11 (29)	16 (42)	0.019
	Passive	148 (52)	65 (23)	70 (25)	

Objective 3 set out to describe depression severity within the university sample. As shown in Table 6, the PHQ-9 test indicated that 9% of students are severely depressed, 10% are moderately to severely depressed, 23% are moderately depressed, 32% are mildly depressed, and 26% have none to minimal depression.

Table 3.3 PHQ-9 Severity Results and test of association: Overall, by demographics characteristics, Instagram use and type of Instagram use

Characteristics	**Level**	**PHQ-9 Results**					**P-value**
		None-Minimal	**Mild**	**Moderate**	**Moderately Severe**	**Severe**	
Overall n (%)	N/A	102 (26)	123(32)	87 (23)	37 (10)	34 (9)	N/ A
Gender n(%)	Male	29(26)	40(35)	24(21)	11(10)	9(8)	0.892
	Female	72(28)	79 (30)	62 (24)	25(10)	24(9)	
Age	Median	102	123	87	37	34	0.103
Level of study n(%)	Undergrad	75(26)	91(31)	73(25)	26 (9)	26(9)	0.371
	Postgrad	27 (29)	32(35)	14(15)	11(12)	8(9)	
Instagram Use n(%)	No	19(33)	15(26)	16(28)	4 (7)	3 (5)	0.387
	Yes	83(26)	108(33)	71(22)	33 (10)	31(10)	
Type of Instagram use n(%)	Active*	9(24)	19(50)	5(13)	2(5)	3(8)	0.176
	Passive*	74 (26)	87(31)	66(23)	30(11)	29(10)	

Aligned with objective 4, Table 6 presents tests of association with depression severity (measured using the PHQ-9 test) with IU, TOIU and demographic characteristics. When testing to see if gender had an association with depression severity, those who identified as other or preferred not to say were excluded. There was no statistically significant association between the independent variables collected and depression severity: gender (p=0.892), age

(p=0.146), LOS (p=0.371), IU (p=0.387) and TOIU (p=0.176)This meant that the study did not find an association between IU TOIU and depression severity.

4 DISCUSSION

In the discussion section, we took the findings of the study and re-engaged with existing literature to understand how the results compared with other existing similar studies. The discussion gives context to what the results of the research mean in understanding IU, ATI, TOIU and depression severity in the context of South African university students. This is important to know how the results contribute towards the existing literature on these topics.

The study found that 85% of students surveyed had used Instagram. Most users were passive, engaging primarily by viewing content rather than posting. The findings also revealed that 42% of participants reported moderate to severe levels of self-reported depression, with 9% classified as severely depressed. However, there was no significant association between IU and depression severity. Additionally, gender, age, and level of study were not associated with differences in depression severity or attitudes toward Instagram. The study highlights the complexity of understanding mental health conditions such as depression and the role of social media platforms like Instagram in shaping perceptions of well-being.

The level of IU at Wits was higher than has been reported in other South African studies. With 85% of participants having used Instagram, data indicates a significant increase in university students who have used Instagram in South Africa when compared to a previous study done at the University in Cape Town, which found that fewer than 70% used Instagram (De Doncker and McLean, 2022). This study's IU was also much higher than current national data usage levels of less than 60% of young adolescents (Statista, 2024a) or another study indicates that over 42% of South Africans use social media (Isaacs and Mulder, 2024). This could be a growing adaptation of IU or it could be that the other studies mentioned measured active users, while the study we conducted only measured if participants had ever used Instagram.

The number of Instagram users is becoming more common. The rapid growth of Instagram is making studies on its usage more important. One reason for high IU might be that students at Wits are likely to have been from urban areas or been affected by the urban culture at Wits. People living in urban areas have a significantly higher social media usage rate than those living in rural areas (DataReportal, 2024; NapoleonCat, 2020; Statista, 2024c). Data in 2024 shows that most Instagram users in South Africa are between 18 and 25 years old (Statista, 2024c). This is a shift from 2017, when most users were between the ages of 25 and 35 years

of age (Statista, 2017). With most participants in our study being under 25 years old, it would make sense that they would have used Instagram before.

Objective 2, which focused on describing IU and TOIU revealed some interesting insights. When comparing a potential association between gender of participants and their ATI, there was no statistically significant difference in ATI between the two genders. Since this was a customised tool created uniquely for this study, there are no studies that can be compared to the information here using this tool; however, when looking at another study conducted in South Africa using different tools, it was found that participants had a positive association with using social media (Lekgothoane and Kaminer, 2024). A different study found that participants believed that Instagram use contributed negatively towards one's mental health by consuming a lot of their time (Lopes et al., 2022). The lack of association of age and level of study towards Instagram with ATI informs us that no basic demographic data had an association with users' ATI. With most participants having a negative ATI score, asking why this could be the case is important. This could help answer whether other research that indicated there was an association between social media use and depression is accurate (Khalaf et al., 2023). This is an area that must be explored in future.

The platform's main use by our study participants was to view and engage with other people's content. This meant most Instagram users were passive users (88%). The results showed that users classified as active users had a statistically significantly more positive ATI than those classified as passive users. While most participants held a negative ATI, active users had a positive ATI. This aligns with the global study that was conducted on active use and passive use in terms of associating active use with positive mental health outcomes (Vuorre and Przybylski, 2023). Although this study focused on Facebook, it does help highlight the importance of how type of use is important regardless of the social media platform used. The association between TOIU (passive vs active) and ATI shows how Instagram can be seen in a positive light depending on how it's used. Instagram has empowered individuals worldwide by creating employment opportunities, building communities and providing a space in which people can share their lived experiences with others (Grandviewresearch, 2023; Lekgothoane and Kaminer, 2024).

Concerning objective 3, the study found that 9% of participants were severely depressed. Other PHQ-9 tests done at universities within South Africa found that 11% of the participants were severely depressed (Makhubela and Khumalo, 2023). The results showed that 42% of participants reported having moderate to severe levels of self-reported depression at the university. Comparing data of self-reported depression of students in other countries such as in Norway, we see a statistical significant increase in psychological distress among students over time (Knapstad et al., 2021) which is consistent with our findings. This global increase in depression over the years could be a result of different factors. Factors such as improved mental health education, the overdiagnosis of depression, the reduced stigmatisation of mental health or the improved accessibility to mental health services could be contributing (Adewuya et al., 2006; Parker, 2007; Sorsdahl et al., 2023) . Therefore, our increase in depression prevalence and severity is justifiable with modern trends.

Socio-demographic characteristics did not appear to have any association with depression prevalence or severity. In terms of gender, this finding is similar to other research that used the PHQ-9 test, which concluded that women and men have no statistically significant differences in levels of depression severity (Tadi et al., 2022). This was indicated when the depression severity levels were similar between males and females for the university students. The non-significant findings on level of study were less supported in the literature. Some research has shown that depression levels are lower in participants with higher education qualifications (De Doncker and McLean, 2022; Onuh et al., 2021). Based on that, the expectation was lower levels of depression severity in those who were at the post-graduate level, but this was not the case. This could have been affected by the sample only being students from one university. Possibly just being a university student alone reduces the likelihood of an individual suffering from severe depression than for those who have not gone to university at all. Age was not a statistically significant contributor to depression severity levels. Other data has indicated that depression severity levels varied with age (Rossom et al., 2017) but this study was conducted on a wider age group finding an association in increased depression severity on participants who were between 50 to 65 years of age.

Based on objective 4, The chi-square tests concluded that there is no association in severity levels of depression and IU or TOIU. This contradicted other studies that had found associations between social media platforms and the severity of depression (Lopes et al., 2022). However, these studies factored in multiple social media platforms like Facebook and Twitter. Another potential contributing factor to differences in outcomes might be the

different tool used to measure depression and the different demographics and audience; the Lopes study did not use the PHQ-9 test (Lopes et al., 2022).

A systematic review conducted highlighted the ambiguity of Instagram use and its relationship with multiple health outcomes including depression (Faelens et al., 2021). Studies that were referenced and cited found contradicting results on Instagram membership and depression severity. One study suggested that Instagram users were less likely to be depressed than non-Instagram members (Mackson et al., 2019) this study used a different research tool measuring multiple psychological wellbeing conditions such as depression, anxiety, social comparison, loneliness and self-esteem. Measuring and comparing results of so many different mental health conditions and using a different population make it difficult to relate these results with the finding from our results.

Another study conducted on young adolescents in Iran found that Instagram users were more likely to be depressed when compared to users who used other social media platforms like WhatsApp (Khodarahimi and and Fathi, 2017). Instagram has changed significantly since 2017, this study used different tools to measure depression (the Beck Depression Inventory II) and factored in multiple social media platforms with a different methodology and study population for these reasons it is difficult to the relate our findings with these results from the study we conducted.

Similarly to our findings an exploratory study done in Germany found no statistically significant association between IU and depression severity (Brailovskaia and Margraf, 2018). This study did measure the impact multiple social media platforms, and modern online spaces such as gaming with multiple mental health conditions and psychological wellbeing. Since our findings indicated no statistically significant association between Instagram use and depression severity, Instagram on its own may not be associated with an increase in severity levels of depression. While our results indicate no association between IU and depression severity between Instagram users and non-Instagram users it is difficult to make a definitive conclusion that in a different set of circumstances these results would remain consistent. Also ,while our aim is not to find an association between IU and depression severity that does not exist, finding more precise ways to understand how Instagram is used and what conditions of its usage have resulted in an association between IU and depression severity as found in other studies would be useful in understanding any negative potential mental health outcomes

associated with the platform. This is also the case with finding any positive mental health outcomes associated with Instagram use.

6.2 Limitations

Being a cross-sectional study, the research conducted had a limited capacity to find causality. The tool used to collect self-reported depression could only collect quantitative data and no qualitative data. This limited the research's ability to capture reasoning as to why participants answered in such a way. Incorporating both quantitative and qualitative tools would have given us more in-depth information. This would have clarified, for instance, why participants had a negative attitude towards Instagram.

The quality of the wording of the tool provided significant limitations. The current tool failed to capture information on the duration of use of Instagram. The poor wording of question 5 of the survey (see Appendix 4), resulted in response errors. The wording of the question was as follows:

1. *How much Time do you use Instagram? To find out how much time you spend please follow the instructions below*
   iPhone
   1. *Open the Settings app, then tap Screen Time. 2. To see your Screen Time report, tap See All App & Website Activity 3. Enter the average time spent on Instagram per day*

   Android

   1. Open your device's Settings app. 2.Tap Digital Wellbeing & parental controls. 3. Enter the average time spent on Instagram per day ____ (HH: MM).

This created two main errors:

1. Misreading of the question
2. Entering of incorrect data

The most common error was misreading of the question, where some participants filled in the time in which they were filling in the survey rather than the average time they spent on Instagram. This error was noticed through RedCap, since RedCap gave time stamps for when each participant completed their questionnaire. This helped in identifying why some

participants' times were unrealistically high times on IU, e.g. 23 hours. We believe this was because some participants misread the question and entered the time they were answering the questionnaire, e.g. assuming a student filled in the questionnaire at 2300, this would explain the high usage times. The time entered on the duration of IU was often a similar time to the time they were filling in the survey. Another type of error was entering time in an incorrect format, such as confusing hours and minutes or minutes and seconds. This was identified with high times of IU that were above 10 hours daily average use but were unlike the time stamp left by RedCap. As such, all data collected from question 5 was excluded, which limited our ability to explore the duration of Instagram use.

The exclusion of duration of use meant we were unable to test if higher duration of IU was associated with a particular ATI or if higher duration of IU was associated with higher prevalence of depression and depression severity. Also, since question 4 on the survey (Appendix 4) asked if users had ever used Instagram before, it only considered those who had used the platform and did not consider users who had used Instagram but were no longer active on the platform. If duration of use had been captured this variable could have been used to categorise those who had used Instagram into different groups based on how consistent they used the platform. Those who reported 0 minutes average daily usage would have been categorised as people who were no longer using the platform but had used it before, while those who had times above 0 minutes would be categorised as consistent Instagram users.

Additionally, it would have been useful to add a question on whether participants are using Instagram consistently or not. This would have helped categorise participants more accurately in terms of IU.

While a strength of the study was its treatment of gender as non-binary, the exclusion of groups who did not identify as either male or female from any of the tests of association due to small sample sizes (less than 3%) in a limitation. Studies have shown an increased depression severity and prevalence in individuals who are not cisgender compared to those who are (Su et al., 2016). More effort to reach out to such communities to participate in such studies is needed.

Due to time concerns, the study did not capture other demographic variables. Additional variables could have been used to categorise students by socioeconomic status, race, ethnicity or nationality. This was a missed opportunity; Wits has a large student population made of

different demographics and presented free access to a wide range of demographics that were not collected. A study with over 20000 participants involving nine countries found that variables such as race and socioeconomic impact depression prevalence and severity (Karyotaki et al., 2020). This study concluded that there are multiple potential demographic factors that could be contributing to depression severance and prevalence that could have been included but were not. Capturing the data would have been useful to further understand how different levels of wealth, racial identities and nationalities could have affected participants' depression severity levels and ATI.

As the study was only conducted on students from one university, this limits the generalisability of the results. The sample was skewed, which was reflected in the distribution of the age of the participants. There is uncertainty about whether users are also active on other social media applications. If users are active on other social media applications like TikTok, Facebook, and YouTube, this may affect depression levels; however, this study was limited to Instagram. If users had been asked if they used any social media, this may have given a more in-depth reflection on whether social media more broadly is associated with users' depression severity. However, it would have been difficult to measure the impact of other social media platforms on depression severity while also focusing on Instagram's impact on depression severity.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

In conclusion, this study found that university student self-reported depression severity was not associated with IU, TOIU, age, gender, nor was it associated with level of study. Most participants in this study have a negative ATI and believe it contributes negatively towards their mental health, even though the study did not find any statistically significant associations. This data can be used to build on existing data on depression prevalence, depression severity and their potential association with Instagram. It is important to take note that the type of Instagram use affects users' ATI, with active users believing that Instagram contributes positively towards one's mental health and is not associated with depression. More data on ATI will give us a better understanding of why Instagram is perceived negatively even though it does not contribute negatively towards depression. It is important to find ways to explore the relationship between depression severity and duration of use, which was not explored in this study. It is also important to find ways to use social media platforms like Instagram to improve health outcomes since Instagram use is on the rise.

5.2 Recommendations and areas of further research

The recommendations are based on improving the current tool, expanding the research on the topic to increase its generalisability and using the data obtained to improve healthcare around mental health and social media use. The addition of different study designs such as experimental studies and longitudinal studies would contribute to research where a causal relationship can be established would improve the understanding of the IU and depression severity. All the recommendations fall into one of these categories. The recommendations will link to each of the objectives the study aimed to address.

5.2.1 Recommendations based on Instagram use

Objectives 1 and 2 focused on finding out what proportion of participants use Instagram and describing their use of Instagram. The study managed to capture what proportion of participants have used Instagram, but could not further separate users who are active on the platform from users who are no longer active. Improved wording for the questionnaire would have allowed for data to be collected on duration of use of Instagram and given us a more detailed breakdown of the different genders of the participants. Adding questions to collect

information on race, nationality, and socioeconomic status would significantly improve the research tool. These variables have been tested before in relation to depression severity in numerous studies (Karyotaki et al., 2020; Tadi et al., 2022). These questions would have provided more clarity on the impact of Instagram while negating external influencing factors that may have otherwise gone unnoticed while affecting the results.

Refining the questionnaire would increase the validity of the data captured. Capturing data on the duration of use of Instagram would have expanded the tests that this study would have been able to do. Improving the wording of the questionnaire to accurately capture the duration of use of Instagram is recommended. Looking more closely into TOIU and ATI we can see an opportunity to expand research by adding a mixed methods approach. Qualitative data may have opened new perspectives on IU, TOIU and ATI. Focus group discussions may have helped us understand why active users and passive users had different ATI.

Since the data obtained helped us identify active Instagram users, an investigation into the relationship between followers and likes on mental health conditions could be done. A study done found that people who use social media passively, led to more social comparison, which was associated with higher prevalence depressive symptoms compared to those who were actively using social media to post content (Lup et al., 2015). Exploring the impact of content consumed by those who are active on Instagram is vital for future research. A study conducted in Spain found that content viewed on Instagram could affect one's psychological well-being and self-criticism (Varaona et al., 2024). Exploring content and its potential association with mental health conditions is recommended. The limitation of the study design did not allow us to explore how content could be affecting Instagram users.

One thing that was noted from the multiple studies reviewed is that there is still limited research on IU that does not include multiple social media platforms. Many of the studies cited used multiple social media platforms (Faelens et al., 2021; Lopes et al., 2022) while also testing for multiple different mental health conditions. This may have contributed to the ambiguity in the relationship between Instagram and depression severity. There needs to be more studies done that are precise and focus on IU and its effects on mental health. Exploring its functionality features and understanding how its usage is affecting users. These should be both qualitative and quantitative and should include experimental study designs. Considering the platform has over one billion users and is constantly making updates we can no longer refer to studies that group all social media platforms together when looking to understand the

impact and influence of Instagram alone on participants. Whether that impact is beneficial to one's health or not, there needs to be more studies done on Instagram alone. Focusing on Instagram would allow for more concrete research to be conducted, and as such, could help communities, governments, and Instagram itself create guidelines for a healthy and productive use of the platform that are evidence-based. It should be noted that social media companies like Instagram would most likely not want any research published that could associate the use of their platform with any negative mental health outcomes like depression as this is a conflict of interest (Dhiman, 2023; Mali, 2023) . The research would need to be conducted by a governing health body that would publish unbiased results and considering how much social media platforms change annually and continue to grow, it would be advised to carried out annually.

Notifying organisations of the growth of Instagram in young adults, particularly those attending university in South Africa, is recommended. While this is less likely to reflect country data trends for young adults, including those who did not go to university, it may reflect data at another university in South Africa. As such, repeating this study at multiple South African university is recommended. The low cost of doing the study makes it a practical study to do at multiple universities in South Africa. This would make the results of the study more generalisable. This data would be useful to organisations seeking to find ways to communicate effectively with university students on multiple concerns, that could include health concerns.

It is important to debunk negative attitudes towards Instagram, especially if data indicates no clear associations with depression levels and depression severity. Instagram could be used to reach, inform and educate these users. Because of the potential lack of association between depression severity and IU, if the results were consistent on a larger scale the data used may help advise the government to make more informed decisions on social media regulation since more countries are beginning to implement regulations on social media. The solution may not necessarily be to limit the amount of time used or the type of use (active vs passive) but may rather be to get new users to understand the positive uses for Instagram and focus more on responsible and safe use of Instagram. Programs may be created that seek to educate the masses on responsible IU. Such as the existing programs that are now in place that parents are using to teach children how to use social media responsibly (Ben-Joseph, 2023). Similar programs can be done on young adults to prevent any negative effects of social media use related to Instagram (Jantz, 2022). Instagram may or may not contribute towards an

increase in depression prevalence or depression severity, but responsible use of the platform will help users maximise its benefit to communities while minimising any potential negative mental health concerns. It would be useful for policymakers to consider. This would be especially important if the number of Instagram users rises significantly countrywide.

5.2.2 Recommendations based on depression and mental health conditions

Similarly to the previous recommendation, refining the wording in the tool is recommended. As most students were under 25, it may have been better to limit participants of the study to 25 years of age, giving us a normal distribution of age to test. A normal distribution test improves accuracy and allows for more tests to be done (Dey, 2023). Narrowing down the age group may help us better explore its potential association with mental health conditions. There may need to be a different approach when targeting young adolescents between the ages of 25 to 35, such as a separate test that excludes participants under 25 and over 35. Separating the age groups (18-24 and 25-35) may yield different and helpful results in understanding depression severity and prevalence.

Improving the tool would allow for more data to be collected on depression prevalence. The PHQ-9 scale did a very good job of categorising the depression severity of participants; expanding into qualitative data would be useful to explore why participants had such different severity levels of depression. Because the study found no association between any of the variables collected and depression severity, a qualitative study may help us identify what is causing depression in the participants. This could then contribute to future studies, findings on depression severity. Additionally conducting experimental studies would help us find a causal relationship if there is one. The limited existing data on depression in South Africa for young adults means that expanding this research to do a similar study across the country at other universities would be beneficial to understanding depression at universities and would make the results more generalisable. The lack of an association between any of the variables and depression severity may reflect a limitation in the study design; a longitudinal study tracking users' depression severity levels over time may have different results. Other changes to the study may help us identify if any of the collected variable data affects depression severity. This can then be extended to look at other mental health conditions to identify a potential association.

Measuring depression severity with other variables, including different social media platforms, would contribute to the ambiguity associated with social media use and mental

health concerns. Besides Instagram, Facebook, YouTube, Tik Tok WhatsApp and Twitter all have over 500 million active users each globally and millions of users in South Africa (DataReportal, 2025; Statista, 2023b). Although they are all social media platforms, they serve different purposes for people as such it is important to conduct more thorough research on each of these platforms separately. It is recommended that more research is done on other mental health conditions besides depression to contribute to the understanding of mental health concerns that are faced by people within the country.

Once more detailed research has been conducted on depression and other mental health conditions, it would be beneficial to create programs that can be implemented by communities, government and organisations on managing mental health. Current programs exist that focus on managing one's daily tasks and activities. Organisations such as the South African Federation for Mental Health have created different programs for helping South Africans identify and manage mental health (SAFMH, 2025). This includes programmes that educate people on different mental health conditions, debunk stereotypes associated with certain mental health conditions and raise awareness on identifying and managing mental health (SAFMH, 2025).

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APPENDICES

Appendix 1 Plagiarism/Turn it In Report



I have reviewed the full report and I'm satisfied that there was no plagiarism. The similarity report is picking up on Tino's protocol and standard wording for reports, e.g. declaration.

Instagram use and depression Exam Submission Final Edition-1.docx

ORIGINALITY REPORT

17%	10%	8%	8%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Witwatersrand Student Paper	5%
2	wiredspace.wits.ac.za Internet Source	1%
3	Submitted to Monash University Student Paper	1%
4	Kgatla, Brightness Lesedi. "How and Why do Young People Use Social Media to Cope with Depression?", University of Johannesburg (South Africa), 2024 Publication	<1%
5	essay.utwente.nl Internet Source	<1%
6	journals.sagepub.com Internet Source	<1%
7	www.coursehero.com Internet Source	<1%
8	Nykiel, Tara S.. "Does Social Media Negatively Impact Mental Health?", California Southern University, 2024 Publication	<1%
9	link.springer.com Internet Source	<1%
10	www.frontiersin.org Internet Source	<1%

Appendix 2 Wits Ethics Clearance

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

REC-250208-004 Mr Tinotenda Nyasha Maveneka

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M240823

NAME: (Principal Investigator)	Mr Tinotenda Nyasha Maveneka
DEGREE:	Master of Public Health (MPH)
DEPARTMENT:	School of Physiology
STUDY SITE(S):	Wits School of Physiology
TITLE:	Instagram use and depression: a cross-sectional study among students at a South African university
DATE CONSIDERED:	30/08/2024
DECISION:	Approved unconditionally
CONDITIONS:	
NOTE:	Original Application Number MED24-07-726. Subsequent Online Application Number M241206-B-0001.
SUPERVISOR:	Dr S Jewett (Nieuwoudt)
APPROVED BY:	Professor P. Ruff, Chairperson, HREC (Medical)

DATE OF APPROVAL: 06/12/2024 **EXPIRY DATE:** 05/12/2029

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATOR(S)

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report** in the month date of convened meeting each year until study is closed. Failure to submit annual report will result in ethics clearance certificate suspension. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. Unreported changes to the application may invalidate the clearance given by the HREC (Medical). Email a signed copy of ethics clearance certificate to HREC-Medical.ResearchOffice@wits.ac.za.

Principal Investigator Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix 3 Ethics Clearance document- Participation Information Sheet

Dear Wits Student

My name is Tinotenda Nyasha Maveneka, a Wits Masters in Public Health student who would like to request a moment of your time to fill in a quick questionnaire on Instagram use and depression.

The purpose of this study is to measure if there is a possible association between Instagram use and depression. This study does not require you to be an Instagram user to be a participant. We require that you are a Wits student between the ages of 18 and 35 years old. The research study is specifically targeted at people within this age group. Only participate if you are within this age group.

I am kindly asking you to fill in a maximum of 21 questions through a secure online survey made on RedCap, which should take you about 10 to 30 minutes of your time . If possible, please answer all the questions honestly as it will help us learn more about IU and depression. Also, you can be assured that your personal information linking you to this data will not be collected or shared with anyone including the principal researcher and supervisor. The data from the questionnaire will be published in a research report and made available to the public in the Wits library. However, no identifying information will be shared or made public.

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

There are some questions within the questionnaire that touch on sensitive mental health concerns focused around depression. Should you feel uncomfortable or unable to continue you can stop participating. If there is further discomfort, please read through the distress protocol for assistance.

Distress Protocol

If at any moment you are in need of any help please contact The Wits Counselling and Careers Development Unit can be contacted via email at info.ccdu@wits.ac.za or by phone at 011-717-9140 . For emergency counselling via telephone please contact the Wits Student Crisis Line 0800 111 331 (toll free 24/7/365).

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.

Contact details:

Researcher NAME: Tinotenda Nyasha Maveneka, Email: tnmaveneka@gmail.com

Supervisor Name: Sara Jewett (Nieuwoudt), Email : Sara.Nieuwoudt@wits.ac.za

Professor P Ruff, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, who may be contacted via any one member of the secretariat. The telephone numbers for the Committee secretariat are 011 717 2700/1234/2656/1252 and the e-mail addresses are Zanele.Ndlovu@wits.ac.za, Rhulani.Mukansi@wits.ac.za, Mapula.Ramaila@wits.ac.za and Iain.Burns@wits.ac.za.

Appendix 4 Research Questionnaire/ Research Tool

Section 1

1. How old are you? (Please Note you must be between the ages of 18 to 35 to participate in this study.
2. Gender
    a. Male
    b. Female
    c. Other
    d. Rather not Say
3. Level of Study
    a. Undergrad
    b. Postgrad

Section 2 Instagram use

4. Do you currently use or have you ever used Instagram?
    a. Yes
    b. No
5. Please submit your average Daily use of Instagram according to the Instagram app. If you do not currently use Instagram, write in 0. [Note that only those who answer yes to Q4 will see this question]

    For instructions on how to do so please open the Instagram app go to settings go to the Time Spent button and submit the average daily time you spent on Instagram.
6. How do you mainly use Instagram for?
    a. I mainly use Instagram to view people's content; I may like it or comment
    b. I mainly use Instagram to post personal content about my life or ideas
    c. I mainly use Instagram to earn income and/or act as an influencer

Section 3 Depression PHQ-9 Test

Over the last two weeks, how often have you been bothered by the following problems?

7. Little interest or pleasure in doing things
    a. Not at all
    b. Several Days

c. More than Half the days
d. Nearly every day

8. Feeling down, depressed, or hopeless
    a. Not at all
    b. Several Days
    c. More than Half the days
    d. Nearly every day

9. Trouble falling or staying asleep, or sleeping too much at all
    a. Not at all
    b. Several Days
    c. More than Half the days
    d. Nearly every day
10. Feeling tired or having little energy
    a. Not at all
    b. Several Days
    c. More than Half the days
    d. Nearly every day
11. Poor appetite or overeating
    a. Not at all
    b. Several Days
    c. More than Half the days
    d. Nearly every day
12. Feeling bad about yourself or that you are a failure or have let yourself or your family down
    a. Not at all
    b. Several Days
    c. More than half the days
    d. Nearly every day
13. Trouble concentrating on things, such as reading the newspaper or watching television
    a. Not at all
    b. Several Days
    c. More than half the days
    d. Nearly every day

14. Moving or speaking so slowly that other people could have noticed. Or the opposite being so fidgety or restless that you have been moving around a lot more than usual
    a. Not at all
    b. Several Days
    c. More than half the days
    d. Nearly every day
15. Thoughts that you would be better off dead, or hurting yourself
    a. Not at all
    b. Several Days
    c. More than half the days
    d. Nearly every day

Section 4 Attitude towards Instagram

16. Instagram is addictive
    a. Strongly Agree
    b. Agree
    c. Neither Agree or Disagree
    d. Disagree
    e. Strongly Disagree
17. I am concerned about how much time I spend on Instagram
    a. Strongly Agree
    b. Agree
    c. Neither Agree or Disagree
    d. Disagree
    e. Strongly Disagree
18. When I use Instagram, I feel depressed
    a. Strongly Agree
    b. Agree
    c. Neither Agree or Disagree
    d. Disagree
    e. Strongly Disagree
19. The more time I spend on Instagram, the happier I feel

a. Strongly Agree
b. Agree
c. Neither Agree or Disagree
d. Disagree
e. Strongly Disagree

20. Instagram takes up too much of my time
    a. Strongly Agree
    b. Agree
    c. Neither Agree or Disagree
    d. Disagree
    e. Strongly Disagree
21. Instagram has had a positive impact on my health and wellbeing
    a. Strongly Agree
    b. Agree
    c. Neither Agree or Disagree
    d. Disagree
    e. Strongly Disagree