# AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND PSYCHOLOGICAL WELL-BEING AMONG COLLEGE STUDENTS

A

DISSERTATION

SUBMITTED TO THE MIER COLLEGE OF EDUCATION (AUTONOMOUS)

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

**BACHELOR OF ARTS (HONOURS WITH RESEARCH)**

IN

PSYCHOLOGY


**SUPERVISOR**

Mrs. Ayushi Grover

Assistant Professor

**INVESTIGATOR**

Ms. Taziaun Fathma

Roll No. 2208005

Sem. VIII



**MIER COLLEGE OF EDUCATION (Autonomous)**

**JAMMU – 180001**

**2026**

MIER COLLEGE OF EDUCATION
Autonomous
Accredited by the NAAC with 'A+' Grade

Recognised by the J&K Government
Permanently Affiliated to the University of Jammu
Recognised by the UGC under Section 2(f) & 12(B)

## *SUPERVISOR'S CERTIFICATE*

This is to certify that **Ms. Taziaun Fathma** student of **Bachelor of Arts (Honours with Research) in Psychology Semester VIII, Session 2022-2026**, bearing **Roll No 2208005,** has worked under my supervision on her dissertation entitled**:**

**"AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND PSYCHOLOGICAL WELL-BEING AMONG COLLEGE STUDENTS "**.

Her dissertation is fit for submission, in partial fulfillment of the requirements for the award of the Degree in **Bachelor of Arts (Honours with Research) in Psychology**

**DATE:**

**(Mrs. Ayushi Grover)**
**SUPERVISOR**

**Head,**
**School of Social Sciences and Humanities**

श्रेष्ठ
B.C. Road Jammu
180 001
Ph.: 0191-2546078,2565098
Fax:0191-2548239
Email:principal@miercollege.in
Website: www.miercollege.in

# DECLARATION BY THE CANDIDATE

I hereby declare that the work presented in the dissertation entitled:

**AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND PSYCHOLOGICAL WELL-BEING AMONG COLLEGE STUDENTS",** submitted in partial fulfillment of the requirements for the award of the Degree of B.A Honours with Research in Psychology], to [Mier College Of Education], is an authentic record of my own research work carried out under the supervision of [Ms. Ayushi Grover]

I further declare that the work embodied in the present dissertation:

a) Is my original work and has not been copied from any research journal, dissertation, thesis, or book; and

b) Has not been submitted by me for the award of any other Degree/Diploma/Certificate of any University or Institution.

c) All sources of information used in this study have been duly acknowledged.

# ACKNOWLEDGEMENT

I have been lucky to get many valuable opportunities and experiences that helped me grow personally and will have a lasting impact on my career.

This project would not have been possible without the guidance and support of several wonderful people.

First of all, 1 would like to sincerely thank God, the Almighty, for His blessings and strength throughout my research, which helped me Complete this project successfully. I am also very thankful to MIER College of Education, especially the Head of the School of Social Science, for their constant support and for sharing their knowledge, which played an important role in my learning and growth.

I am deeply grateful to my supervisor, Mrs. Ayushi Grover, for her continuous guidance, valuable advice, and encouragement. Her support and direction at every stage of the project made this work possible.

Finally, I want to thank my family, friends for always being there for me with their love and motivation. Your belief in me has been a source of strength and helped me face challenges and achieve my goals.

**Taziaun Fathma**

# TABLE OF CONTENTS

**CERTIFICATE** **i**
**DECLARATION BY THE CANDIDATE……ii**
**ACKNOWLEDGEMENT ……....iii**
**TABLE OF CONTENTS** **iv**
**LIST OF TABLES**
**LIST OF FIGURES**
**LIST OF APPENDICES**
**ABBREVIATION** **vi**
**ABSTRACT** **vii**
**CHAPTER I: INTRODUCTION** **1**
1.1 Introduction 1
1.2 Smartphone Addiction 6
1.3 Psychological Well-Being 9
1.4 Theoretical Background 12
1.5 Objectives of the Study 17
1.6 Hypothesis of the Study 17
1.7 Delimitations of the Study 17
**CHAPTER II : REVIEW OF LITERATURE** **19**
**CHAPTER III: RESEARCH METHODOLOGIES** **30**
3.1 Introduction 30
3.2 Design of the Study 30
3.3 Study Population 31
3.4 Sample and Sampling Technique 31
3.5 Research Instrument 32
3.5.1 Smart Phone Addiction Scale 32
3.5.2 Psychological Well-Being Scale 33
3.6 Procedure of Data Collection 33
3.7 Statistical Techniques 34
3.7.1 Descriptive Statistics 34
3.7.2 Pearson Product- Moment Correlation coefficient 34
3.7.3 Independent Samples t-test 35
**CHAPTER IV: RESULTS** **36**
4.1 Introduction 36
4.2 Descriptive Statistics 36
4.3 Correlation Analysis 38
4.4 Gender Differences (t-test) 43
**CHAPTER V: DISCUSSION, CONCLUSION, LIMITATIONS AND IMPLICATIONS 45**
5.1 Introduction 45
5.2 Discussion 45

5.3 Conclusion 46
5.4 Limitations of the Study 47
5.5 Future Implications 48
**SUMMARY** **49**
**REFERENCES** **50**
**APPENDICES** **56**

# LIST OF TABLES

Table No.1 Frequency Distribution of Participants by Gender……. 37

Table No. 2 Descriptive Statistics for Psychological Well-Being and ……38

Smartphone Addiction

Table No. 3 Descriptive Statistics for PWS and SAS-SV Scores by Gender……38

Table No. 4 Independent Samples t-Test Results for Gender Differences in ……39

PWS and SAS-SV

# LIST OF FIGURES

Figure 1 Mean PWS Scores by Gender……40

Figure 2 Mean SAS-SV Scores by Gender……..41

Figure 3 Mean PWS Scores by Age Group……..42

Figure 4 Mean SAS-SV Scores by Age Group……43

# LIST OF APPENDICES

APPENDIX -A Ryff's Psychological Well-Being Scales (PWB)……56

APPENDIX -B SMARTPHONE ADDICTION SCALE – Short Version……59

# ABBREVIATIONS

| | |
|---|---|
| ADHD | Attention-Deficit/Hyperactivity Disorder |
| B.A. | Bachelor of Arts |
| COVID-19 | Coronavirus Disease 2019 |
| DSM | Diagnostic and Statistical Manual of Mental Disorders |
| EDATVA | Escala de Autonomía (Autonomy Scale) |
| FOMO | Fear of Missing Out |
| IBM | International Business Machines (as in IBM SPSS) |
| ICT | Information and Communication Technology |
| IEEE | Institute of Electrical and Electronics Engineers |
| I-PACE | Interaction of Person-Affect-Cognition-Execution (Model) |
| iOS | iPhone Operating System |
| M | Mean |
| OS | Operating System |
| PLOS | ONE Public Library of Science ONE |
| PWB | Psychological Well-Being (Ryff's Scales) |
| PWS | Psychological Well-Being Scale |
| r | Pearson Correlation Coefficient |
| SAGE | SAGE Publications |
| SAS | Smartphone Addiction Scale |
| SAS-SV | Smartphone Addiction Scale – Short Version |
| SD | Standard Deviation |
| SDT | Self-Determination Theory |
| SPAI | Smartphone Addiction Inventory |
| SPAI-SF | Smartphone Addiction Inventory – Short Form |
| SPSS | Statistical Package for the Social Sciences |

| | |
|---|---|
| SWB | Subjective Well-Being |
| TMD | Test of Mobile Phone Dependence |
| UK | United Kingdom |
| UGT | Uses and Gratifications Theory |

# Chapter I

# Introduction

## 1.1 Introduction

In contemporary life, the smartphone has become far more than a mere communication device; it has transformed into an indispensable extension of the human self. Before a person is fully awake in the morning, before they have even reached for their toothbrush, their hand instinctively moves toward their phone. Emails are checked, social media feeds are scrolled through, and notifications are acknowledged all before the day has properly begun. Throughout the remainder of the day, the smartphone remains within arm's reach, demanding attention through a constant stream of alerts, messages, and updates. This pattern of behavior is no longer unique to any individual or culture; it has become the defining daily routine of billions of people across the globe and across all demographic categories. This extraordinary transformation did not happen overnight. People today cannot imagine their lives without smartphones or mobile phones. In the digital age, smartphones have become an inseparable part of human existence, fundamentally reshaping how individuals communicate, work, learn, and entertain themselves. What was once considered a luxury reserved for the affluent has been democratized into a near-universal necessity. The smartphone represents perhaps the most rapidly adopted technology in human history, creating unprecedented levels of global connectivity and altering the very structure of daily life. Yet, this remarkable tool that promised to enhance human lives has simultaneously introduced new and complex challenges psychological, social, and physical that researchers and clinicians are only beginning to fully understand. The central question is no longer whether smartphones have changed society, but rather at what cost this transformation has come. The journey from basic mobile phones to today's sophisticated smartphones represents a remarkable technological evolution. Mobile phones first gained widespread adoption in the 1990s, primarily offering voice communication and basic text messaging capabilities.

However, the introduction of the iPhone in 2007 marked a pivotal turning point, ushering in the modern smartphone era and fundamentally altering the landscape of mobile technology (Oulasvirta et al., 2012). These devices seamlessly integrated computing power, internet connectivity, touchscreen interfaces, and application ecosystems into a single portable

device, creating capabilities far beyond simple person-to-person communication. The subsequent decade witnessed exponential growth in both smartphone capabilities and global adoption rates. Processing power increased dramatically, screen quality improved, camera technology advanced at a rapid pace, and mobile internet speeds accelerated from 3G to 4G and eventually to the current generation of 5G networks. Application stores emerged alongside these hardware advances, offering millions of apps designed for virtually every conceivable purpose from social networking and entertainment to banking, navigation, health monitoring, and academic learning. This technological convergence transformed smartphones from communication devices into comprehensive digital hubs that mediate nearly every aspect of modern life. Smartphones are defined as mobile computing devices built on standardized operating systems that enable users to install, run, and manage applications beyond those pre-installed by manufacturers, thereby allowing extensive customization of device functionality to suit individual needs (Lee & Raghu, 2014). They have further been described as always-on, networked personal computers that fit in a pocket, equipped with diverse sensors that enable context-awareness, and running ecosystems of applications that mediate communication, information access, entertainment, productivity, and increasingly, health monitoring (Ferreira et al., 2014). More precisely, a smartphone is defined as a mobile device running a recognizable mobile operating system such as iOS, Android, Windows Phone, or BlackBerry OS that provides a platform for third-party application development and distribution through centralized application stores (Holzer & Ondrus, 2011). Smartphones are further characterized as mobile devices that offer advanced capabilities beyond a typical feature phone, including high-speed internet access, email functionality, multimedia capabilities, easily accessible social media platforms, and the ability to run third-party applications (Lane et al., 2011). These definitions collectively underscore the versatile and multifunctional nature of smartphones, which extends across communication, connectivity, business productivity, education, entertainment, and health domains. This multifunctionality explains both their widespread adoption and their considerable potential for problematic use, as they serve as a single portal for numerous essential and recreational activities simultaneously. The scale of global smartphone adoption has been staggering. Approximately 2 billion smartphone users were recorded globally in 2012 (Miller, 2012); this figure has since more than tripled, with current estimates indicating over 6.9 billion smartphone users worldwide as of 2024, representing approximately 86% of the global population (Statista, 2024). This makes smartphones the most widely distributed computing technology in human history, with

penetration rates that far exceed those of personal computers, televisions, and even basic landline telephony in its time. The intensity of smartphone use is equally remarkable. Research indicates that the average person spends between four and six hours daily on their smartphone, with certain demographic groups particularly younger users substantially exceeding this average (Andrews et al., 2015).

Moreover, users check their phones an average of 58 to 96 times per day, often unconsciously and without any specific purpose, suggesting that smartphone interaction has become deeply habitual and, for many, compulsive (Alter, 2017). These statistics reveal not merely the frequency of smartphone use but the degree to which these devices have become structurally integrated into the rhythms and routines of daily life. The habit of constantly and frequently checking one's phone spending hours on it without any clear or productive purpose can, over time, evolve into what researchers and clinicians now recognize as smartphone addiction. The excessive and compulsive usage of smartphones, characterized by an inability to regulate one's own use despite the recognition of negative consequences, is broadly referred to as smartphone addiction. Smartphone addiction is defined as an inability to regulate one's use of the smartphone, ultimately leading to negative consequences across multiple domains of daily life (Kwon et al., 2013). This definition emphasizes the loss of self-regulatory control and functional impairment as its central features, positioning smartphone addiction within the broader conceptual framework of behavioral addictions. Smartphone addiction shares the same fundamental elements as other recognized addictions: dependence, tolerance, lack of control, withdrawal symptoms, and interference with everyday life activities (Chóliz, 2012). It has been further described as a pattern of problematic smartphone use characterized by compulsive checking, loss of control over usage time, neglect of alternative activities, and continued use despite awareness of negative physical, psychological, or social consequences (Horwood & Anglim, 2019). Functionally, smartphone addiction manifests as overuse to the extent that it interferes with daily life including diminished social interaction, relationship problems, impaired workplace or academic functioning, and potentially dangerous behaviors such as using a phone while driving (Lin et al., 2014). Billieux (2012) emphasizes that true addiction requires not merely excessive use, but specifically the failure of self-regulation mechanisms that would ordinarily moderate behavior. Kwon et al. (2013) provide a comprehensive synthesis, defining smartphone addiction as a behavioral addiction characterized by compulsive and excessive smartphone use that interferes with

daily functioning, accompanied by psychological dependence, withdrawal symptoms when the device is unavailable, and continued use despite awareness of negative consequences. The negative consequences of smartphone addiction are wide-ranging and serious. People who are addicted to their smartphones begin to neglect the most important things in their lives: their families, personal relationships, academic responsibilities, professional duties, sleep, and physical health. Due to excessive use of this device, individuals frequently ignore the people around them, redirecting their full attention to their screens rather than to the human beings in their immediate environment. Students, in particular, are at risk: spending unnecessary and unproductive time on smartphones directly impairs academic concentration, reduces study time, and undermines academic performance. Research has also established that excessive smartphone use is strongly linked to disturbed sleep patterns and lower sleep quality, further compounding mental health difficulties (Columbia Psychiatry, n.d.).

Young people and students appear especially vulnerable to these effects. The use of smartphones at night staying up late scrolling through social media feeds, consuming distressing news, or engaging in what has been termed 'doom scrolling' disrupts circadian rhythms and degrades sleep quality. This, in turn, makes individuals feel tired, emotionally drained, stressed, anxious, and sad during the day. Smartphone addiction is increasingly classified as a behavioral disorder comparable in certain respects to gambling addiction. The act of mindlessly scrolling through apps or social media with little conscious awareness sometimes termed 'zombie scrolling' leads to mental fatigue, reduced cognitive engagement, and a state of semi-automatic behavior wherein the user is on virtual autopilot (Montag & Walla, 2016). Zombie scrolling refers to engaging with one's phone without intention, direction, or meaningful mental engagement, driven purely by habit and the reinforcement structures embedded in the design of digital platforms. Excessive smartphone use is strongly linked with anxiety, depression, and reduced psychological well-being. Continuous exposure to stimuli from mobile devices overloads the brain, fragments attention, impairs memory consolidation, and leads to broader psychological disruption. It also diminishes the cognitive functioning of the individual over time. Social comparison facilitated by social media platforms can create profound self-doubt and drastically reduce self-esteem, particularly among children and adolescents whose sense of self is still in the process of formation. Neuroimaging studies have demonstrated that addiction affects brain regions responsible for focus and impulse control, including the

prefrontal cortex and anterior cingulate cortex (Lin et al., 2015; Kim et al., 2016). Excessive smartphone use in childhood can negatively affect cognitive development, with long-term implications for learning capacity and emotional regulation. The rise of smartphones has fundamentally changed how people interact, stay informed, and manage everyday responsibilities, making these devices nearly indispensable in modern society while simultaneously raising urgent concerns about their influence on mental well-being, especially when use becomes excessive or compulsive (Elhai et al., 2017; Demirci et al., 2015).

For many users, constant access to social media and messaging applications fuels a cycle of comparison, social pressure, and what researchers have termed FOMO the fear of missing out. FOMO is defined as the anxiety or apprehension that other people are having rewarding experiences or important social interactions in one's absence, generating a strong and persistent desire to stay constantly connected in order to avoid being excluded (Przybylski et al., 2013). This phenomenon heightens emotional stress and lowers self-esteem, particularly among adolescents and young adults who are developmentally more susceptible to the opinions and perceived experiences of their peers. The constant engagement with social media content eventually creates a chronic cycle of comparison and self-doubt that progressively erodes psychological well-being. A related and increasingly recognized phenomenon is nomophobia, a term first coined in 2008 during a research study commissioned by the UK Post Office, a major telecommunications and postal service provider in the United Kingdom (King et al., 2013). This study was conducted at a pivotal moment in mobile technology history just one year after the launch of the first iPhone in 2007 when basic mobile phones had already become ubiquitous in British society but smartphones were only beginning to emerge (Oulasvirta et al., 2012). Researchers needed a specific term to describe the anxiety people experienced when separated from their phones, as no existing psychological terminology adequately captured this emerging phenomenon. The word 'nomophobia' is a portmanteau combining 'no-mo' (shortened from 'no mobile') with 'phobia' (derived from the Greek 'phobos,' meaning fear or anxiety), thereby creating the term 'no-mobile-phone phobia' (King et al., 2013). This linguistic construction follows established patterns for naming phobias, analogous to claustrophobia (fear of enclosed spaces), agoraphobia (fear of open spaces), or arachnophobia (fear of spiders), thereby giving clinical legitimacy to an experience that many people were living but could not articulate. SecurEnvoy (2012) defined nomophobia specifically as the fear of being out of mobile phone

contact, a definition that encompasses multiple layers of anxiety beyond simply not possessing the physical device. This fear includes anxiety about physical separation from the phone itself, such as forgetting it at home, losing it, or leaving it in another room (Yildirim & Correia, 2015). It also encompasses technical disconnection scenarios wherein the battery dies, there is no signal or network coverage, the phone malfunctions, or the device sustains physical damage (Bragazzi & Del Puente, 2014). Additionally, nomophobia extends to situations of functional unavailability, where the phone cannot be used due to external restrictions such as being on an airplane, in a hospital, during an examination, or in designated phone-free zones (Dasgupta et al., 2017). The emphasis on 'contact' rather than merely the phone itself is conceptually significant it recognizes that what individuals truly fear is not the loss of a physical object but the loss of access to the social networks, information streams, essential services, and digital identity that the smartphone provides (Yildirim & Correia, 2015). The phone has become a portal to modern life, and losing that portal generates genuine anxiety about disconnection from the relationships, functions, and meanings that structure contemporary existence (Cheever et al., 2014). Given the breadth and severity of these consequences psychological, social, cognitive, and physical, this study seeks to systematically investigate the relationship between smartphone addiction and psychological well-being among college students in the Jammu district of Jammu and Kashmir. College students represent a particularly vulnerable and understudied population in the Indian context, and their well-being deserves focused empirical attention.

## 1.2 Smartphone Addiction

Smartphone addiction has emerged as one of the most significant behavioral health concerns of the twenty-first century. As smartphones have become deeply embedded in everyday life, concerns regarding their addictive potential have grown correspondingly. The scientific and clinical communities have proposed various definitions of smartphone addiction, each highlighting different dimensions of the phenomenon while converging on its core features: loss of behavioral control, psychological dependence, and meaningful impairment of daily functioning. Chóliz (2012) was among the first to systematically conceptualize smartphone or mobile phone addiction as a behavioral addiction that shares the same fundamental elements as other recognized addiction disorders: dependence, tolerance, lack of control, withdrawal symptoms, and interference with everyday life activities. This definition is significant because it situates smartphone addiction within the well-established framework of addiction science, asserting that it exhibits the same core characteristics as substance-based

addictions, thereby validating its clinical significance and calling for comparable levels of research attention and intervention. Horwood and Anglim (2019) offer a more comprehensive and nuanced definition, describing smartphone addiction as a pattern of problematic smartphone use characterized by compulsive checking, loss of control over usage time, neglect of alternative activities, and continued use despite awareness of negative physical, psychological, or social consequences. This definition is particularly notable because it highlights the paradoxical and persistent nature of addictive behavior: individuals continue to engage in harmful patterns even with full conscious recognition of the damage being done. This paradox is one of the most clinically significant and practically challenging features of behavioral addiction: individuals who are addicted to their smartphones are, in most cases, fully aware of the problem and its consequences, yet find themselves unable to alter their behavior through will alone. Lin et al. (2014) offer a functional definition of smartphone addiction, characterizing it as the overuse of smartphones to the extent that it interferes with daily life. This interference includes diminished quality of social interaction, problems in personal and professional relationships, impaired workplace or academic functioning, and the creation of potentially dangerous situations most notably the use of a mobile phone while operating a motor vehicle. This definition emphasizes the real-world, observable consequences that distinguish addictive use from mere heavy or frequent use, underscoring that it is the domain of life disruption that defines the clinical threshold, not simply the number of hours spent on the device. Billieux (2012) approaches the concept from a regulatory perspective, conceptualizing problematic mobile phone use as fundamentally characterized by an inability to regulate one's use of the device, which eventually gives rise to negative consequences across various life domains. Critically, Billieux emphasizes that true addiction requires not just excessive use but specifically the failure of the self-regulation mechanisms that would ordinarily moderate behavior. This distinction is vital: the quantity of use alone does not constitute addiction.

Rather, it is the loss of volitional control, the inability to stop despite wanting to, that defines the addictive pattern and differentiates it from voluntary heavy use. Kwon et al. (2013) provide perhaps the most comprehensive synthesis available, defining smartphone addiction as a behavioral addiction characterized by compulsive and excessive smartphone use that interferes with daily functioning, accompanied by psychological dependence, withdrawal symptoms when the device is unavailable, and continued use despite negative consequences. This definition integrates behavioral, psychological, and

functional dimensions into a unified framework, providing a holistic conceptual foundation for research and clinical work in this area. Understanding smartphone addiction requires understanding the broader concept of addiction itself. Addiction occurs when an individual develops a strong physical or mental urge or need to engage in a substance use or behavior, even when it causes harm. More formally, addiction is a neurological disorder characterized by a persistent and intense urge to use a substance or engage in a behavior that produces natural rewards, despite substantial harm and other negative consequences (Wikipedia, n.d.). The neurobiological underpinnings of addiction are significant: repetitive drug use and rewarding behavioral engagement can alter brain function in synapses in ways similar to natural rewards such as food or social bonding creating pathways that perpetuate cravings and progressively weaken self-control (Wikipedia, n.d.). These neurological alterations are particularly pronounced for individuals with pre-existing vulnerabilities such as anxiety disorders, ADHD, bipolar disorder, or other neurological impairments, suggesting that certain populations may be at heightened risk for developing addictive patterns of smartphone use. Traditional conceptions of addiction were focused exclusively on substance-based disorders, alcoholism, cannabis dependence, cocaine addiction, nicotine addiction, and similar conditions involving chemical substances that directly alter brain chemistry. However, addiction science has progressively expanded beyond substance- based disorders to encompass behavioral patterns. The term behavioral addiction refers to a compulsion to engage in a naturally rewarding behavior, one that is inherently desirable or appealing despite adverse consequences (Wikipedia, n.d.). This conceptual expansion is crucial for understanding smartphone addiction: it explains how activities that are ordinarily pleasurable, useful, or socially valued can become problematic and ultimately uncontrollable when engagement becomes compulsive. The classification of smartphone addiction as a behavioral addiction has important implications for understanding its etiology, maintenance, and treatment. Unlike substance addictions, in which external chemicals create physiological dependence and withdrawal through direct neurochemical mechanisms, behavioral addictions involve the dysregulation of natural reward systems in the brain. The symptomatology of smartphone addiction closely mirrors that of other recognized addictions. A person who is addicted to their smartphone will feel restless, irritable, and anxious when the phone is not accessible, symptoms that correspond directly to the withdrawal experiences associated with substance addiction. The emergence of these withdrawal symptoms specifically in response to device unavailability reflects the depth of psychological dependence that has developed, indicating that the addiction involves not only the behavior

itself but also the emotional regulation, comfort, and identity maintenance that the device has come to provide. Smartphone addiction becomes clinically significant when it begins to impact an individual's life and psychological well-being across multiple domains. Poor sleep, chronic anxiety, social withdrawal, and academic or occupational difficulties are among the most frequently documented consequences. Sleep disturbances are particularly concerning: smartphones emit blue light that disrupts the production of melatonin and interferes with circadian rhythms, and the stimulating and emotionally engaging nature of social media content makes psychological winding-down for sleep difficult.

Moreover, individuals may sacrifice sleep time to continue device use, or experience anxiety about missing notifications during sleeping hours, leading to a pattern of interrupted and insufficient restorative sleep. The relationship between smartphone addiction and anxiety appears bidirectional: pre-existing anxiety may predispose individuals to problematic smartphone use as a coping mechanism or a means of achieving social connection without the risks of face-to-face interaction, while conversely, problematic smartphone use generates its own forms of anxiety through FOMO, social comparison, information overload, and separation anxiety. Socially, while smartphones are explicitly designed to facilitate connection, addiction can paradoxically generate profound social problems. This may manifest as a preference for digital over in-person interactions, distraction during face-to-face conversations, a phenomenon widely referred to as 'phubbing' neglect of important relationships due to device preoccupation, and recurring conflicts within families or intimate relationships about smartphone use patterns. The recognition that living a healthy and fulfilling life is facilitated by periodically disconnecting from these devices is an important principle for both the prevention and treatment of smartphone addiction. Periodic disconnection serves multiple restorative functions: it allows the nervous system to recover from constant stimulation, creates opportunities for unmediated experience and genuine human connection, enables engagement in activities that require sustained and undivided attention, and helps individuals maintain a sense of agency over their technology use rather than feeling controlled by it. Maintaining control over how technology is used rather than being controlled by it is the defining marker of a healthy relationship with smartphones and the opposite of addiction.

## 1.3 Psychological Well-Being

Psychological well-being represents one of the most foundational and complex constructs in the field of positive psychology and mental health research. It extends far beyond the

relatively simple notion of feeling happy or the absence of mental illness, encompassing instead a rich, multidimensional understanding of what it truly means to live a fulfilling, meaningful, and fully functioning human life. At its core, psychological well-being is a state of mental and emotional health characterized by positive functioning across a range of life domains, rather than merely the absence of psychopathology. Ryff and Keyes (1995) established this foundational understanding, emphasizing that an individual who experiences genuine psychological well-being not only feels good in a subjective sense but also functions effectively across various areas of life and possesses the psychological capacity to navigate life's inevitable challenges with resilience, adaptability, and a sense of coherent purpose. This state of well-being involves the experience of happiness and positive affect, the cultivation of meaningful and supportive social relationships, the maintenance of a clear and sustaining sense of life purpose, and the holding of a constructive and compassionate orientation toward oneself and one's circumstances. What fundamentally distinguishes psychological well-being from more traditional mental health perspectives is its emphasis on positive psychological capacities and optimal functioning rather than the diagnosis and remediation of disorder. Rather than defining mental health simply as the absence of depression, anxiety, or other psychiatric conditions, the psychological well-being framework encompasses affirmative qualities that contribute to a life experienced as genuinely worthwhile and meaningful. These affirmative qualities, as elaborated by Ryff (1989) in her influential six-dimensional model, include: self- acceptance the capacity to hold a positive yet realistic attitude toward oneself, acknowledging both strengths and limitations without excessive self-criticism; personal growth the ongoing sense of continued development and the expansion of one's potential over the course of a lifetime; purpose in life the possession of goals, intentions, and a sense of direction that gives life coherence and meaning; environmental mastery the ability to effectively manage the complexities of everyday life and to shape one's environment to meet personal needs and values; autonomy the capacity for self-determination and independence in thought and action, guided by one's own internalized standards rather than by social pressure or external validation; and positive relations with others the capacity to form warm, trusting, empathic, and mutually caring relationships with other people. Ryff's (1989) conceptualization of psychological well-being draws deeply and deliberately from eudaimonic philosophy the ancient Greek intellectual tradition, most fully articulated by Aristotle, that distinguishes between hedonia (the pursuit of pleasure and happiness in a narrow, subjective sense) and eudaimonia (the realization of one's true nature, the actualization of one's inherent capacities,

and the living of a life in accordance with one's deepest values). From this eudaimonic perspective, psychological well-being does not represent a static state of contentment but rather an ongoing striving toward the fullest possible expression of one's humanity. This is not perfection in the sense of flawlessness, but rather the continuous process of becoming the most authentic, capable, and purposeful version of oneself. A person may experience temporary discomfort, struggle, or even distress while pursuing meaningful goals and yet still maintain high psychological well-being because they are living in accordance with their values and developing their human potential, which is the essence of eudaimonic flourishing. A crucial conceptual distinction in the psychological well-being literature lies in recognizing that it represents far more than simply the absence of mental illness. Traditional biomedical models of mental health have historically focused on identifying, diagnosing, and treating psychopathology asking, essentially, what is wrong with this person and how can it be fixed. While this approach remains absolutely essential for addressing genuine suffering and clinical disorder, it provides an inherently incomplete picture of human psychological functioning. The psychological well-being framework offers a vital complementary perspective by shifting the inquiry from 'What is wrong?' to 'What constitutes optimal psychological functioning?' This reframing reveals an important and often overlooked reality: individuals can be entirely free from diagnosable mental disorders and yet still experience profoundly low well-being if they lack purpose, meaningful relationships, personal growth, or a sense of environmental mastery.

Conversely, individuals who are actively managing chronic mental health conditions can still cultivate meaningful dimensions of psychological well-being through building genuine social connections, finding personal meaning, and developing their capacities within the realistic constraints of their circumstances. Seligman (2011) reinforces and extends this understanding by describing the psychologically well individual as someone who performs effectively across multiple life domains, demonstrates genuine resilience when encountering difficulties and setbacks, and experiences an authentic sense of meaning and engaged participation in daily activities. This characterization emphasizes that psychological well-being is fundamentally an active, dynamic state, one that requires ongoing engagement with life rather than passive contentment or the mere avoidance of distress. It demands the psychological capacity to recover from adversity, to locate purpose in everyday experience, and to maintain commitment to personally meaningful pursuits even when challenges arise. Ryff and Keyes (1995) elaborate further that psychological well-being

fundamentally involves the degree to which a person functions fully as a human being. This full functioning encompasses engaged participation in what they term the 'existential challenges of life , the fundamental questions and developmental tasks that give human existence its depth, texture, and significance. These challenges include discovering and continuously creating meaning in one's life, establishing and sustaining quality connections with other people, confronting the certainty of mortality with equanimity, and experiencing continued personal growth and self-development throughout the entire lifespan, not only in childhood or adolescence. Ryff and Singer (2008) further define psychological well-being as a multidimensional construct fundamentally rooted in individual perceptions of engagement with existential challenges. This definition carries profound implications for understanding what it means to thrive as a human being. It suggests that well-being emerges not from the avoidance of life's difficulties and uncertainties, but from actively confronting and working through them with the psychological resources one has developed. The existential challenges they reference include fundamental human concerns: the search for meaning in an often indifferent universe, the negotiation of freedom and personal responsibility, the tension between isolation and genuine intimacy, and the construction of a coherent and purposeful identity in the face of continuous change and uncertainty. When individuals successfully engage with these challenges, they develop greater self-understanding, deeper and more authentic relationships, clearer personal values, and an enhanced capacity to meet future challenges with greater equanimity and resilience. Psychological well-being, therefore, represents a rich and genuinely multifaceted understanding of human flourishing one that transcends simplistic notions of happiness, positivity, or the mere absence of mental illness. It involves the full, ongoing realization of human potential; optimal functioning across the various domains of life; meaningful and active engagement with the existential challenges inherent to the human condition; and the continuous, lifelong pursuit of personal growth and authentic self-actualization. An individual demonstrates psychological well-being not merely by avoiding problems or maintaining a cheerful disposition, but by actively constructing a life that is experienced as meaningful, cultivating relationships characterized by genuine care and mutual respect, developing personal capacities and skills, and maintaining a resilient and purposeful engagement with life in all its complexity. Understanding this rich construct is essential for appreciating why smartphone addiction, which undermines purpose, fragments attention, disrupts relationships, and erodes self-regulation poses such a serious threat to genuine human flourishing.

## 1.4 Theoretical Background

The present study is grounded in several well-established theoretical frameworks drawn from behavioral psychology, addiction science, motivational theory, communication studies, and positive psychology. These frameworks collectively provide a comprehensive explanatory structure for understanding how smartphone addiction develops, why it is psychologically harmful, and how it relates to psychological well-being. Each theory contributes a distinct and complementary lens through which the phenomena under investigation can be understood. Operant Conditioning (Skinner, 1938) Operant conditioning, one of the most foundational and empirically supported theories in behavioral psychology, was developed by B.F. Skinner (1938). The theory posits that behaviors are shaped, maintained, and extinguished through their consequences: behaviors followed by rewarding outcomes are reinforced and become more likely to recur, while behaviors followed by negative consequences decrease in frequency over time. Smartphone addiction can be powerfully and compellingly understood through the lens of operant conditioning, with the smartphone's notification system serving as one of the most effective and pervasive reinforcement mechanisms ever engineered. Each time a user checks their phone and discovers a rewarding notification whether a text message from a friend, a 'like' on a social media post, an entertaining video, or a piece of novel information they receive a reward that reinforces the checking behavior. These rewards satisfy fundamental and deeply rooted psychological needs for social connection, novelty, information, and social validation. What makes smartphone notifications particularly powerful as addiction-inducing stimuli is their use of what behavioral scientists call variable ratio reinforcement schedules. On a variable ratio schedule, the reward appears after an unpredictable number of responses users cannot know in advance when they will receive a rewarding notification. Sometimes they pick up their phone and find highly engaging, emotionally satisfying content; at other times, nothing of interest appears. This intermittency and unpredictability creates a particularly persistent and compulsive pattern of checking behavior, analogous to the behavioral dynamics underlying gambling. The immediate and reliable gratification provided by notifications within seconds of the checking behavior further strengthens the conditioned response. Through thousands of repetitions across weeks, months, and years of smartphone use, this operant conditioning process creates deeply ingrained, largely automatic checking habits that operate substantially outside of conscious awareness and deliberate intention. This neurological and behavioral automaticity explains both why smartphone addiction develops

so readily in ordinary users and why it proves so resistant to change even when the individual intellectually understands the problem and genuinely wishes to change their behavior. The I-PACE Model (Brand et al., 2016, 2019) The Interaction of Person-Affect-Cognition-Execution (I-PACE) model, developed by Brand and colleagues (2016, 2019), provides a more comprehensive and dynamic framework for understanding how smartphone addiction develops through the complex, ongoing interactions among multiple individual and situational factors. Rather than offering a simple linear account of addiction development, the I-PACE model conceptualizes addiction as an emergent property of a cyclical system involving four core interacting components. The first component, person-related predispositions, encompasses neurobiological characteristics and psychological traits such as high impulsivity, social anxiety, low self- esteem, and the presence of pre-existing mental health conditions all of which create differential vulnerability to the development of addictive behavior patterns. The second component, affective and cognitive responses, involves the emotional reactions and outcome expectancies that individuals bring to their interactions with technology. Individuals who anticipate that smartphone use will alleviate negative emotional states, reduce boredom, or provide reliable social rewards are more likely to turn to their devices in response to emotional discomfort. The third component, executive functions and particularly inhibitory control, determines the degree to which an individual can resist the urge to use their phone even when they recognize that doing so would be harmful. The fourth component, behavioral execution, represents the actual decision to engage with technology and the reinforcement that follows. The I-PACE model emphasizes that smartphone addiction develops not through a single episode but through repeated cycles of use, gratification, and reinforcement. Each cycle strengthens automatic associations between emotional or situational triggers such as boredom, loneliness, academic stress, or social anxiety and the immediate turning to the smartphone as a coping response. Over repeated cycles, individuals develop increasingly strong attentional biases toward phone-related cues and progressively more distorted decision-making processes that systematically prioritize immediate, readily available rewards over more distant but more significant long-term consequences. Simultaneously, executive control functions may weaken through disuse, creating a progressive downward spiral in which the ability to resist urges becomes increasingly difficult and the threshold for triggering phone use becomes progressively lower. This cyclical and self-reinforcing process explains how ordinary, controlled smartphone use can transform often gradually and without deliberate intention into compulsive, addictive

behavior patterns that are highly resistant to change. Subjective Well- Being Theory (Diener, 1984) Ed Diener's theory of Subjective Well-Being (SWB), first systematically articulated in 1984, offers a complementary framework for understanding the psychological impact of smartphone addiction. Diener's theory focuses on how individuals evaluate and experience their own lives, emphasizing three core components: cognitive life satisfaction judgments, the frequency and intensity of positive emotional experiences, and the relative absence of negative emotional states. Together, these components constitute a person's subjective sense of how well their life is going, their felt sense of happiness, contentment, and fulfillment. Smartphone use interacts with all three components of subjective well-being in both positive and negative ways, depending critically on the nature, purpose, and quantity of use. Moderate and purposeful smartphone use for maintaining meaningful social connections, accessing useful information, or engaging in creative pursuits can genuinely improve social interaction, increase access to positive experiences, and contribute to positive emotional states. However, excessive and compulsive use, particularly use centered on passive social media consumption, is associated with systematic decrements in all three components of subjective well-being. Continuous exposure to idealized and carefully curated portrayals of others' lives on social media platforms fuels unfavorable social comparisons that erode satisfaction with one's own life, increase negative effects such as envy and inadequacy, and reduce overall life satisfaction. This theory thus provides a clear theoretical basis for the expectation that higher levels of smartphone addiction will be associated with lower levels of subjective and overall psychological well-being. Self-Determination Theory (Deci & Ryan, 1985)Self-Determination Theory (SDT), developed by Deci and Ryan (1985), is a comprehensive psychological framework that explains human motivation and well-being by reference to three innate and universal psychological needs: the need for autonomy (the experience of volition and self- directedness in one's actions), the need for competence (the experience of mastery, effectiveness, and capability), and the need for relatedness (the experience of meaningful connection and belonging with others). According to SDT, when these three fundamental needs are genuinely and fully met, individuals experience intrinsic motivation, personal growth, and sustained psychological well-being. Conversely, when these needs are chronically thwarted or met only in superficial, transient, or substitute ways, well-being suffers and motivation becomes externalized and fragile. Smartphones are compelling in part because they offer immediate, readily accessible means of satisfying all three psychological needs at least superficially and temporarily. Social media and messaging apps provide a sense of relatedness and connection; gaming and skill-based

apps provide a sense of competence; and the freedom to use one's phone whenever and however one chooses provides a superficial sense of autonomy. However, when smartphone use becomes the primary or exclusive means through which individuals attempt to satisfy these fundamental psychological needs, genuine and lasting need satisfaction is undermined. The connection provided by social media is often shallow, performative, and anxiety-inducing rather than deeply nourishing. The sense of competence provided by mobile gaming does not transfer to real-world mastery and capability. And the apparent autonomy of unconstrained phone use is frequently experienced as compulsive and out of voluntary control the very antithesis of genuine autonomy. SDT therefore suggests that smartphone addiction represents a maladaptive and ultimately self- defeating attempt to satisfy fundamental psychological needs through a medium that provides only illusory and temporary gratification, thereby harming rather than supporting genuine and enduring psychological well-being. Uses and Gratifications Theory (UGT), developed by Katz, Blumler, and Gurevitch between 1973 and 1974, represented a significant conceptual shift in media studies by repositioning the audience from passive recipient to active agent. Unlike earlier communication theories that viewed media audiences as essentially passive recipients of media messages and effects, UGT positions users as active, goal-directed individuals who deliberately select media in order to satisfy specific psychological and social needs. This theoretical shift from asking ‘What does the media do to people?’ to ask ‘What do people do with the media?’ has proven highly productive for understanding patterns of media use and their psychological consequences. Applied to smartphone and social media use, UGT identifies several core motivations that drive engagement. Information seeking leads users to access smartphones to gather news, learn about events, and acquire knowledge on topics of interest. Social interaction and relationship maintenance motivates people to use social platforms to connect with friends and family, sustain existing relationships, and form new connections, thereby satisfying fundamental needs for belonging and social engagement. Entertainment and escapism motivates use for amusement, relaxation, and temporary relief from daily stressors through engaging content, videos, music, and casual games. Self-expression and identity construction motivates users to share opinions, photographs, and personal experiences as a means of presenting desired self-images and constructing valued identities. Finally, surveillance and social comparison motivates individuals to monitor others' activities and compare themselves to peers, satisfying curiosity about social norms, status, and relative standing. UGT suggests that when social media and smartphone use successfully gratify these legitimate needs, usage naturally

increases and over time becomes habitual. However, when gratification-seeking becomes compulsive and the smartphone becomes the sole or dominant means through which these needs are pursued, this pattern can contribute to and ultimately constitute addictive behavior particularly when users come to depend on their devices as their primary source of need satisfaction, to the exclusion of other, more balanced, and ultimately more fulfilling means of meeting the same needs. Griffiths' Components Model of Addiction (2005) Mark Griffiths (2005) proposed an influential and widely applied components model of addiction, arguing that all addictions whether substance-based or behavioral in nature share six core components that define the addiction syndrome and differentiate it from ordinary heavy use. These six components are: salience, wherein the addictive activity becomes the single most important thing in the individual's life and dominates their thoughts, feelings, and behavior; mood modification, wherein engagement in the behavior produces a subjective change in emotional state typically a sense of relief, excitement, or numbing that serves as both a coping strategy and a reinforcer; tolerance, wherein increasing amounts of the activity are required over time to produce the same subjective effect that smaller amounts produced earlier; withdrawal, wherein the cessation or reduction of the activity produces a characteristic syndrome of negative affective states including irritability, restlessness, anxiety, and craving; conflict, wherein the addictive behavior creates serious interpersonal conflicts with significant others, as well as intrapersonal conflict with the individual's own values and goals; and relapse, wherein following periods of abstinence or reduced use, the individual returns to previous addictive patterns, often rapidly and despite firm prior intentions to maintain control. This component model provides a powerful and clinically useful framework for understanding smartphone addiction as a genuine addiction syndrome with recognizable and measurable features that are directly comparable to those of other well-established addictive disorders. When applied to smartphone use, each component is identifiable: smartphones become the most salient objects in the user's daily environment; their use modifies mood in ways that are repeatedly sought; increasing use is required over time; separation from the device produces genuine affective withdrawal; the addiction creates relationship conflicts and intrapersonal distress; and attempts to reduce use are frequently followed by relapse to previous levels. Together, these frameworks provide a robust theoretical foundation for the empirical investigation undertaken in the present study.

## 1.5 Objectives of the Study

1. To assess the relation between smartphone addiction and psychological well-being among college students.

2. To assess the gender differences in the levels of smartphone addiction between male and female college students.

3. To assess the gender differences exist in the levels of psychological well-being between male and female college students.

## 1.6 Hypotheses of the Study

1. There is no significant relationship between smartphone addiction and psychological well-being among college students.

2. There is no significant gender difference in the levels of smartphone addiction between male and female college students.

3. There is no significant gender difference in the levels of psychological well-being between male and female college students.

## 1.7 Delimitations of the Study

In order to maintain the clarity, focus, and methodological precision of the investigation, the following delimitations were established at the outset of the study. The investigation was restricted to college students between the ages of 18 and 22 years who are regular smartphone users. Both male and female students were included to allow for gender comparative analysis. Only students who voluntarily consented to participate were included. Students with a previously diagnosed mental health disorder were excluded from participation, as the presence of such conditions may confound the assessment of baseline psychological well-being and make it difficult to attribute well-being scores to smartphone addiction rather than to the diagnosed condition. Students who do not use smartphones were excluded, as active smartphone engagement is a fundamental prerequisite for meaningful assessment of smartphone addiction. Students below college level of education were also excluded, as the study is specifically designed to address the college student population.

# Chapter II

# Review of Literature

A substantial and rapidly growing body of empirical research has investigated the psychological dimensions of smartphone addiction, its relationship with a broad range of mental health outcomes, and its impact on the academic, social, physical, and psychological functioning of students and young adults. The following review synthesizes key contributions from this literature, organized thematically to highlight the major patterns of findings and their implications for the present study.

Pera (2020) conducted a seminal examination of addictive smartphone behavior among young adults, demonstrating that problematic smartphone use, social anxiety, and depressive stress are significantly interconnected psychological variables. This study established a triangular relationship among these factors, showing that each variable both contributes to and is exacerbated by the others, collectively reinforcing a cycle of psychological distress and compulsive technology use. The findings laid important groundwork for understanding how smartphone addiction functions within a broader matrix of psychological vulnerability, providing empirical support for the view that smartphone addiction is not an isolated behavioral problem but one that is embedded in and interacts with pre-existing psychological characteristics.

Concurrently, Kaya et al. (2020) analyzed the triadic relationship between smartphone usage, sleep quality, and depression among Turkish university students. Their research illuminated a self-reinforcing cycle that is common among student populations: students who spend excessive time on their phones in the evening and nighttime hours scrolling through social media, watching videos, or messaging friends disrupt their sleep patterns and accumulate a sleep deficit. Poor sleep quality then leaves individuals more tired, emotionally drained, and cognitively impaired during the day, creating conditions that heighten emotional reactivity and contribute to depressive symptoms. In turn, when students feel depressed, they frequently turn to their smartphones for distraction, entertainment, or emotional comfort, thereby continuing and deepening the cycle. The study's findings revealed significant positive correlations between smartphone addiction scores and both poor sleep quality and depression scores, and the researchers recommended systematic follow-up interventions for students exhibiting elevated depression levels and compromised sleep quality, underscoring the clinical significance and practical urgency of their findings.

In a parallel investigation focused specifically on the high-pressure environment of medical education (2023), researchers documented significant associations between smartphone addiction and a range of psychosocial factors, including poor sleep quality, elevated perceived stress, clinically significant anxiety, and depression. This study made a particularly important contribution by identifying depression not merely as a consequence of smartphone addiction but as an independent predictor of it suggesting that individuals with higher baseline levels of depression are more susceptible to developing compulsive smartphone use patterns, potentially as a maladaptive strategy for managing their emotional distress. The bidirectional nature of the relationship between depression and smartphone addiction is a recurring theme in this literature and has important implications for both assessment and intervention.

Feng and Dou (2024) made a significant contribution to the understanding of the specific emotional mechanisms underlying smartphone addiction by demonstrating that depression functions as a triggering factor for addictive smartphone use, with emotional exhaustion serving as a key mediating variable in this relationship. Their findings suggest that when individuals experience depression, they become emotionally exhausted and depleted of the psychological resources necessary to engage productively with their environment and in this depleted state, they increasingly turn to smartphones as readily accessible entertainment devices to alleviate psychological pressure, distract from emotional pain, and improve their immediate emotional state. This coping use of smartphones, repeated across time, becomes habitual and ultimately addictive. The practical implication of these findings is that interventions targeting smartphone addiction may benefit substantially from addressing the underlying emotional states particularly depression and emotional exhaustion that drive addictive use.

Zhang et al. (2024) expanded the understanding of smartphone addiction in demanding educational contexts by investigating its prevalence alongside psychological distress and internet gaming disorder among medical college students. Their results revealed significant correlations among all three variables, highlighting the complex interplay of academic stress, psychological distress, and escapist technology use in high-pressure educational environments. Academically stressed medical students may simultaneously turn to both smartphones and gaming as forms of escape from overwhelming demands, creating dual technology-related vulnerabilities that compound and reinforce each other while further impairing academic functioning and mental health. This research emphasizes the

importance of understanding smartphone addiction not in isolation but in the context of the broader constellation of technology use behaviors and psychological stressors that students navigate.

A dedicated investigation into the role of social anxiety in smartphone addiction among college students (2024) identified loneliness as a critical mediating variable in this relationship. The proposed pathway is theoretically coherent and clinically meaningful: students who experience significant social anxiety feel uncomfortable, self-conscious, and fearful in direct social situations, leading them to avoid face-to-face interactions as a means of managing their anxiety. This social avoidance, however, increases feelings of loneliness and social isolation. To cope with this painful loneliness, socially anxious students turn to their smartphones as a relatively safe and controllable means of achieving social connection and stimulation without the perceived risks of direct interpersonal contact. Over time, this compensatory reliance on the smartphone deepens and becomes addictive, creating a pattern in which the very tool used to manage social anxiety ultimately reinforces and perpetuates it. This research positioned smartphone addiction as a significant threat to students' academic performance and overall well-being, calling for urgent attention from educational administrators and student welfare policymakers.

Cheng et al. (2024) made a sophisticated contribution to the literature by employing a moderated parallel mediation model to examine the role of daily emotional experiences in the development and maintenance of smartphone addiction. Their research demonstrated that comprehensive mental health difficulties including clinically significant anxiety, stress, and depression mediate the relationship between daily negative emotional experiences and smartphone addiction. When individuals regularly encounter negative emotions in their daily lives, these experiences do not directly and immediately produce addiction but rather contribute to the development of anxiety, stress, and depression, which in turn drive individuals to seek emotional regulation and relief through their smartphones. Conversely, and importantly, positive emotional experiences exhibited a negative relationship with smartphone addiction individuals whose daily lives are characterized by positive emotional experiences have less need to escape into their devices. These findings have important prevention implications, suggesting that enhancing positive emotional experience in students' daily lives may serve as a protective factor against the development of addictive smartphone use.

Wang and Ma (2024) provided important contextual insights by examining how the social isolation measures implemented during the COVID-19 pandemic influenced smartphone addiction among college students during an unprecedented period of enforced social restriction. The study identified social isolation as a significant and robust predictor of smartphone addiction, revealing that students experiencing greater degrees of social isolation were substantially more likely to develop addictive patterns of smartphone use. The psychological mechanisms underlying this relationship were carefully examined: loneliness and COVID-19-related health anxiety served as the key mediating variables through which social isolation translated into addictive smartphone use. During periods of strict quarantine and social distancing, students experienced intensified feelings of loneliness arising from enforced separation from peers, classmates, and family members, alongside heightened health- related anxiety and uncertainty about the future. These powerful negative emotional states drove students toward their smartphones as substitute means of social connection and as coping tools for emotional distress. The findings underscore a crucial point: smartphone addiction does not develop in a vacuum but is highly responsive to environmental conditions and the psychological needs that those conditions create or exacerbate.

The relationship between smartphone addiction and academic performance has been the subject of multiple important empirical investigations, consistently revealing that excessive smartphone use impairs the academic functioning of college and university students across diverse cultural and institutional contexts. Al-Abyadh et al. (2024) advanced this body of research by examining how smartphone addiction and self-regulation failure together influence students' academic life satisfaction, incorporating mind wandering and cognitive failures as important intermediary variables. Their findings documented significant associations between excessive smartphone use and a constellation of negative academic outcomes: diminished attention control, increased mind wandering during lectures and study periods, greater frequency of cognitive errors and failures in academic tasks, and reduced overall satisfaction with one's academic experience. These findings suggest that the harm done by smartphone addiction to academic functioning operates through multiple cognitive and motivational pathways simultaneously.

Zhang et al. (2024) provided an important and nuanced elaboration of how smartphone addiction affects academic grades and success, identifying academic anxiety as a key mediating mechanism and students' sense of academic control as a significant moderating variable. Their research revealed that smartphone addiction does not harm

academic performance through a single, simple causal pathway; rather, it operates through a more complex process. Smartphone addiction increases students' academic anxiety, the worry, apprehension, and sense of overwhelm that they feel about their academic responsibilities and performance which in turn leads to avoidance, procrastination, and ultimately poorer academic outcomes. Crucially, this harmful process is moderated by the degree to which students feel a sense of control over their academic environment: students with a stronger sense of academic self-efficacy and control are somewhat buffered against the detrimental effects of smartphone addiction on their performance, while those lacking this sense of control experience more severe and direct consequences. These findings have meaningful practical implications, suggesting that effective interventions should address not only smartphone use itself but also the anxiety and diminished sense of academic control that mediate and amplify its educational impact.

Oluwafemi et al. (2021) conducted a comprehensive meta-analytic review examining the relationship between smartphone addiction and academic learning outcomes across a remarkably large and diverse international sample. Drawing from 44 independent studies conducted across 16 countries, with a combined sample of 147,943 students, this research provided the most statistically powerful and generalizable evidence available on this question. Their systematic synthesis yielded a statistically significant negative correlation between smartphone addiction and academic performance ($r = -0.12$), providing robust empirical evidence that validates the concerns raised in the individual study literature. One of the most practically significant findings of this meta-analysis was the identification of a dose-response relationship: greater smartphone use during studying was associated with increasingly severe and linear negative impacts on learning outcomes. This gradient relationship suggests that the association between smartphone use and academic harm is not merely a threshold effect where use above a certain level suddenly becomes harmful but rather a continuous function in which each additional unit of problematic use during study produces additional decrement in learning outcomes.

The relationship between smartphone addiction and sleep quality has been extensively documented across multiple large-scale investigations, consistently revealing that problematic smartphone use impairs both the quantity and quality of students' sleep, with cascading negative effects on daytime functioning and mental health. Tao et al. (2024) conducted one of the most comprehensive investigations in this domain, involving over 23,000 college students a sample of exceptional size and examining the impact of smartphone

dependence on sleep quality through a chain-mediated process. Their findings established that smartphone dependence impairs sleep quality both directly and through two important indirect pathways: by reducing students' engagement in health-promoting behaviors such as physical exercise, adequate nutrition, and social participation, and by increasing negative emotional states including anxiety and depression. These findings underscore that the relationship between smartphone use and sleep impairment is not simply a matter of screen time displacing sleep time but involves complex psychological and behavioral mediating processes.

Zhu et al. (2024) contributed an important and practically hopeful finding to this literature by examining whether physical exercise moderates the harmful relationship between smartphone addiction and sleep quality. Using data from over 4,000 college students drawn from the Chinese College Health Tracking Survey, the researchers confirmed that smartphone addiction significantly impairs sleep quality consistent with prior research but crucially demonstrated that students who engaged in regular physical activity experienced substantially less severe sleep disruption compared to sedentary peers with comparable levels of smartphone addiction. This finding identifies physical exercise as an accessible, low-cost, and practically implementable protective factor that can mitigate the harmful effects of smartphone addiction on sleep. Rather than focusing exclusively on reducing smartphone use, an intervention approach that often proves difficult to implement and sustain encouraging and facilitating physical exercise among college students may offer an alternative or complementary strategy for protecting sleep quality and student well-being.

A large-scale investigation from 2024 examining smartphone dependence and sleep quality among college students attributed the high rates of excessive smartphone use observed in this population to the distinctive developmental and environmental characteristics of the college period: the transition from the relatively structured and supervised environment of secondary school to the greater independence and reduced external oversight of college life creates conditions in which smartphone use is unconstrained by institutional restrictions or parental monitoring. This research revealed the striking finding that 56% of college students spend over eight hours daily on their smartphones, a figure that is alarming in its magnitude and underscores the severity of smartphone dependence as a population-level behavioral health concern. Smartphone dependence was described as an increasingly recognized behavioral addiction characterized by cravings for the device, avoidance behaviors when

separated from it, and a progressive reduction in engagement with health-promoting activities.

A subsequent study from 2025 explored the bidirectional relationship between smartphone addiction and sleep disorders among college students, incorporating negative emotions as a mediating variable and gender as a moderating factor. This investigation advanced the understanding of the temporal dynamics of the relationship between smartphone use and sleep disturbance, revealing that the association is not unidirectional but operates in both directions simultaneously: smartphone addiction leads to poorer sleep, while poorer sleep quality and sleep-related distress increase smartphone use as a means of managing resulting fatigue, boredom, and emotional dysregulation.

Tian and Wang (2023) extended the investigation of smartphone addiction and sleep quality to an older demographic elderly individuals finding a significant positive correlation between mobile phone addiction and diminished sleep quality in this population as well. Depression and loneliness were identified as partial mediators of this relationship, indicating that the emotional and psychological dimensions of smartphone use are as important as behavioral factors in understanding its impact on sleep across the lifespan. Yang et al. (2023) similarly found, in a study of 585 university students, that higher levels of mobile phone addiction were associated with poorer mental health outcomes, and that sleep quality partially mediated this relationship. Importantly, perceived social support was identified as a protective moderating factor students who felt strongly supported by their social networks experienced less severe mental health consequences from their smartphone addiction, both directly and through the pathway of sleep quality.

Hernandez et al. (2018) conducted an influential review examining the connections between positive psychological traits including dispositional happiness, optimism, finding meaning in life, and overall life satisfaction and physical health outcomes and longevity. The authors synthesized recent scientific evidence demonstrating that these positive mental states are associated with lower rates of chronic diseases, reduced cardiovascular risk, stronger immune functioning, and reduced all-cause mortality. The paper discusses potential biological and behavioral pathways through which positive psychological states may confer these health benefits for example, through healthier health behaviors, better stress regulation, and more adaptive immune and neuroendocrine responses. This work

represents an important contribution to the broader shift in health science from an exclusive focus on pathology and disease toward an understanding of how positive psychological traits actively promote health and extend life, providing a compelling rationale for investing in the promotion of psychological well-being as a genuine public health priority.

Moghe et al. (2024) examined psychological well-being across gender and residential status among 120 university students using Ryff's established Psychological Well-Being Scale. Employing an equal gender distribution of 60 males and 60 females, and comparing hostel residents with day scholars, the study found no significant differences in overall psychological well-being between male and female students, nor between those living in hostels and those commuting from home. While null results of this nature contribute importantly to the scientific literature by suggesting that gender and residential status may not be the primary determinants of psychological well-being in this population, the authors acknowledge that future research could explore other potentially more influential factors such as academic year, socioeconomic background, perceived social support, and the quality of the living environment.

De-Juanas et al. (2020) investigated the connection between psychological well-being and autonomy in a sample of 1,148 young people aged 16 to 21 from Madrid and Bogotá, using both Ryff's Psychological Well-Being Scale and the EDATVA autonomy scale. The study found significant positive correlations between most dimensions of both scales, with particularly notable moderate correlations between self-organization and purpose in life, as well as between self-organization and environmental mastery. A particularly important finding was that older participants aged 18 to 21 consistently scored higher on both autonomy and psychological well-being dimensions than younger participants aged 16 to 17, providing developmental evidence that autonomy and well-being develop together and in parallel during the critical transition from adolescence to young adulthood. These findings have direct relevance for the present study's focus on college students aged 18 to 22.

Hanawi et al. (2020) examined the relationship between lifestyle habits and psychological well-being in a cross-sectional study of 173 university students. Using validated instruments for both lifestyle quality and psychological distress, the researchers found that nearly three-quarters of the student sample maintained objectively unhealthy lifestyles, with significant proportions reporting clinically meaningful levels of stress (50.7%) and anxiety (46.8%). The

study demonstrated a clear and consistent association between poor lifestyle choices — including inadequate sleep, physical inactivity, poor nutrition, and excessive technology use — and elevated levels of anxiety, depression, and perceived stress. Interestingly, the residential environment emerged as a significant factor influencing lifestyle quality, with students' living arrangements shaping the behavioral patterns and social norms that influence their health behaviors and mental health outcomes.

Chaudhary et al. (2024) produced an important conceptual synthesis examining how smartphone addiction leads to decreased self-esteem and deteriorating mental wellness, drawing on established psychological frameworks to identify the core mechanisms involved. Their analysis identified four principal pathways through which smartphone addiction undermines psychological well-being: behavioral reinforcement processes that entrench compulsive use patterns; difficulties in managing and regulating emotional states that increase dependence on smartphones as emotional regulation tools; patterns of escapism wherein the smartphone serves as a refuge from real-world stressors and responsibilities; and the pervasive tendency to engage in upward social comparison with the carefully curated and idealized self- presentations encountered on social media platforms. The paper successfully demonstrates how these mechanisms collectively and cumulatively produce decrements in self-esteem, increases in psychological distress, and overall deterioration in mental wellness, while emphasizing the importance of balanced technology habits and further empirical investigation of these processes.

Hayati et al. (2024), in a study conducted at the University of Riau, directly examined the relationship between smartphone addiction and psychological well-being among college students, finding that technology-dependent students consistently demonstrated elevated stress levels, significantly diminished self-control, and heightened feelings of social isolation all of which contributed to meaningful decrements in psychological well-being. The authors highlighted how excessive mobile phone use has evolved from being a tool for useful communication into a potential behavioral disorder characterized by dependency, compulsive engagement, and withdrawal symptoms such as worry and anxiety. Their findings revealed that smartphone addiction extends beyond disrupting academic performance and social interactions to directly and substantially impacting mental health through increased anxiety, depression, and reduced life satisfaction. The authors make a valuable clinical and

policy contribution by calling for targeted interventions to promote healthy smartphone usage patterns among student populations.

Pant et al. (2024) explored the multidimensional impact of social media use as accessed primarily through smartphones on college students' social behavior, academic performance, and mental health. Published in the International Journal of Engineering Research & Technology, this study adopted a balanced perspective, acknowledging the genuine benefits of social media as a tool for communication, information sharing, self-expression, and academic collaboration, while simultaneously documenting in detail the significant psychological and academic costs associated with excessive use. The study found that excessive social media use contributes to addiction, chronic procrastination, reduced attention span, privacy-related anxieties, and clinically significant levels of anxiety and depression. The authors emphasize the importance of digital literacy education, guided moderation of social media use, and institutional support structures as complementary strategies for maximizing the benefits of social media while minimizing its documented harms.

Demir et al. (2025) broadened the scope of smartphone addiction research by investigating its relationship with physical activity, activities of daily living, and functional balance among elderly individuals in a descriptive cross-sectional study. Employing validated standardized instruments with 94 elderly participants, the study found significant differences between elderly individuals with and without smartphone addiction in terms of physical activity levels and engagement in daily living activities with higher addiction levels associated with meaningfully reduced functional activity. While smartphone addiction did not significantly affect balance levels in this population, the study's findings highlight the physical as well as psychological consequences of smartphone addiction and underscore the importance of promoting balanced and purposeful technology use across the lifespan to maintain physical activity and functional independence in aging populations.

A critical examination of the existing literature reveals several important gaps that the present study directly addresses. First, while numerous studies have examined smartphone addiction among general adult populations and secondary school adolescents, there remains a notable scarcity of research that focuses specifically on college students as a distinct and uniquely characterized demographic group. College students occupy a particularly significant developmental position navigating the critical transition from adolescence to young adulthood while simultaneously managing substantial academic pressures, expanded

social freedoms, reduced parental oversight, and exceptionally high rates of smartphone ownership and use for both academic and social purposes. This combination of developmental, social, and technological factors creates a distinctive vulnerability profile that warrants dedicated and systematic empirical investigation.

Second, while some existing studies have explored either smartphone addiction or psychological well-being as independent constructs, insufficient research has systematically and rigorously examined the direct relationship between these two variables in the same population particularly among college students. Third and perhaps most importantly for the present study, the overwhelming majority of research on smartphone addiction and its psychological consequences has been conducted in Western contexts particularly in Europe, North America, and East Asia with very limited empirical exploration in Indian settings, and virtually no existing research specifically examining college students in the Jammu district of Jammu and Kashmir. This geographical and cultural gap means that the existing literature may not adequately capture the specific patterns, determinants, and consequences of smartphone addiction relevant to students in this regional context. The present investigation directly addresses all three of these gaps by examining the relationship between smartphone addiction and psychological well-being specifically among college students in Jammu district, thereby providing locally relevant, population-focused empirical evidence that meaningfully advances the existing scholarship in this domain.

# Chapter III

# Research Methodology

## 3.1 Introduction

This chapter presents the comprehensive methodological framework that guides the present investigation into the relationship between smartphone addiction and psychological well-being among college students. It encompasses the research design, study objectives, hypotheses, study population, sampling procedures, research instruments and their psychometric properties, data collection methods, statistical analytical techniques, and the ethical safeguards observed throughout the conduct of the study. A systematic and rigorous research methodology is essential to ensure the validity, reliability, and replicability of findings, and to support the drawing of meaningful and defensible inferences from the data collected. The study adopts a quantitative, correlational research design, which is the most appropriate methodological approach for examining the strength and direction of naturally occurring relationships between variables without experimental manipulation, while also allowing for comparative analyses between defined subgroups of the sample.

## 3.2 Design of the study

The present study employs a quantitative, correlational research design. Quantitative research involves the systematic empirical collection and statistical analysis of numerical data for the purposes of describing, explaining, or predicting phenomena of interest (Creswell, 2014). This design is particularly well-suited to the objectives of the present study because it enables the objective and standardized measurement of both smartphone addiction and psychological well- being through psychometrically validated instruments, and it facilitates the use of inferential statistical procedures to draw meaningful conclusions about the nature of the relationships and differences observed. The correlational approach is employed to examine the nature, magnitude, and direction of associations between the key study variables smartphone addiction and psychological well-being as they naturally occur within the everyday lives of college students, without any experimental manipulation of either variable (Field, 2018). This non- manipulative approach is both methodologically appropriate and ethically necessary given the nature of the constructs under investigation. Importantly, the study also incorporates a comparative dimension through the use of independent samples t-tests to evaluate whether statistically significant gender-based

differences exist in levels of smartphone addiction and psychological well-being. This combined correlational-comparative design ensures that all three research objectives are addressed rigorously and that the findings generated are statistically meaningful and appropriately generalizable within the scope of the defined target population.

## 3.3 Study Population

The target population of this study comprises college students currently enrolled in various undergraduate programs across institutions in the Jammu district of Jammu and Kashmir, India. College students represent a particularly relevant and theoretically motivated population for examining the intersection of smartphone addiction and psychological well-being, given their distinctive developmental characteristics, the academic and social pressures they navigate, and their exceptionally high rates of smartphone ownership and intensive daily use for purposes spanning academic study, social interaction, entertainment, information access, and identity construction. The accessible population for this study was defined as male and female college students between the ages of 18 and 22 years who are regular smartphone users and willing to voluntarily participate in the research. This age range was deliberately selected because it corresponds to the late adolescence and early adulthood developmental period a time of heightened psychological sensitivity to environmental influences, including those arising from digital technology use (Twenge et al., 2018), and a period during which foundational patterns of technology use and psychological well-being are being established that may have lasting consequences for adult functioning.

## 3.4 Sample and Sampling Technique

The sample for the present study consists of 150 college students drawn from different colleges located within the Jammu district of Jammu and Kashmir. The sample includes both male and female students within the defined age range of 18 to 22 years. A sample size of 150 participants is considered statistically adequate for the purposes of correlational research, providing sufficient statistical power under standard assumptions regarding effect size and alpha level to detect moderate associations between variables and meaningful differences between groups (Cohen, 1988). A convenience sampling technique was employed to identify and recruit participants who met the study's inclusion criteria. Convenience sampling involves the selection of individuals who are readily accessible to the researcher and who meet the eligibility requirements of the study (Kumar, 2019). This approach was adopted on the basis of practical considerations related to the

time constraints of the research, the geographic accessibility of college students within the Jammu district, and the institutional permissions that were granted for data collection. It is acknowledged that convenience sampling carries inherent limitations with respect to the representativeness of the sample and the generalizability of findings beyond the immediate study population; these limitations are addressed in the appropriate section of the final chapter. Prior to the commencement of data collection, formal written permission was obtained from the relevant institutional authorities at each participating college. Informed consent was subsequently secured from each individual participant before questionnaire administration commenced.

## 3.5 Research Instruments

Two standardized, psychometrically validated instruments were used to measure the two key variables in this study. In addition, a brief demographic information form was included to collect relevant background data from participants, including age, gender, year of study, and basic information about smartphone usage patterns.

### 3.5.1 Smartphone Addiction Scale (SAS)

This Scale was Developed by Kwon, M., Lee, J. Y., Won, W. Y., Park, J. W., Min, J. A., Hahn, C., Gu, X., Choi, J. H., & Kim, D. J. (2013). The Smartphone Addiction Scale is a brief yet psychometrically sound adaptation of the original 33-item Smartphone Addiction Scale (SAS). The SAS-SV comprises 10 items rated on a 6-point likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), with total scores ranging from 10 to 60. Higher scores indicate greater levels of problematic smartphone use. The scale was designed to assess the risk of smartphone addiction in adolescents and adults, addressing key dimensions of problematic use including daily-life disturbance, withdrawal, cyberspace-oriented relationships, overuse, and tolerance. The shortened version was developed through content validity procedures, with items selected by experts from the original scale to ensure representativeness while reducing respondent burden. The SAS-SV has demonstrated good internal consistency (Cronbach's $\alpha = 0.911$) and satisfactory concurrent validity, as evidenced by significant correlations with the original SAS and other established measures of problematic smartphone and internet use. A cut-off score of 31 for females and 33 for males has been suggested to identify individuals at risk of smartphone addiction, though a general cut-off of 33 has also been applied in research contexts. Due to its brevity, ease of

administration, and robust psychometric properties, the SAS-SV has been widely adopted in community and clinical research across numerous countries and cultural contexts.

### 3.5.2 Psychological Well-Being Scale (PWS)

This Scale was Developed by: Ryff, C. D. (1989). consistently high internal consistency across numerous studies and The Psychological Well-Being Scale commonly referred to as Ryff's Scales of Psychological Well-Being is one of the most widely used and well-validated self- report measures of psychological health available in the research literature. It was developed specifically to operationalize the multidimensional eudaimonic model of psychological well- being described in Section 1.2 of the present study. For the purposes of the present investigation, the 42-item version of the scale is employed. This version provides a balanced and comprehensive assessment of all six dimensions of psychological well-being identified in Ryff's theoretical framework: self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relations with others. Each item is rated on a six-point Likert scale, and scores are summed across subscales to yield both subscale scores and an overall composite score reflecting total psychological well-being. Higher total scores on the instrument reflect greater and more comprehensive psychological well-being. The Psychological Well- Being Scale has demonstrated populations, with Cronbach's alpha coefficients typically in the range of 0.86 to 0.93. For the present study, an internal consistency coefficient of 0.93 was reported, indicating excellent reliability. The scale has also demonstrated satisfactory test-retest reliability over time intervals ranging from six weeks to several months. It has been extensively validated across different age groups including college students, young adults, middle-aged adults, and elderly populations, consistently demonstrating robust construct validity, convergent validity, and discriminant validity.

## 3.6 Procedure for Data Collection

Data collection was carried out in a systematic and ethically manner following the receipt of formal written institutional permissions from the authorities of the respective participating colleges. Prior to the administration of the questionnaire packet to any participant, all prospective participants were provided with a comprehensive briefing regarding the nature, purpose, and scope of the study, the types of questions included in the instruments, the approximate time required for completion, and the procedures by which their data would be handled and protected. Participants were explicitly assured that all data collected would be

kept strictly confidential, that their responses would be used solely for academic research purposes, and that their participation was entirely voluntary with the unqualified right to withdraw from the study at any point without any adverse consequences of any kind. Following this briefing and the provision of written informed consent, the questionnaire packet consisting of the demographic information form, the Smartphone Addiction Scale, and the Psychological Well- Being Scale was administered to groups of participants in a suitable and quiet setting during college hours. Participants completed all instruments independently, without collaboration or discussion with other participants, ensuring the independence of their responses. The researcher remained present and available throughout the data collection sessions to clarify any ambiguities or answer any procedural questions that arose. Completed questionnaire packets were collected immediately upon completion and stored securely. The average time taken by participants to complete the full questionnaire packet was approximately 10 to 12 minutes.

## 3.7 Statistical Techniques

The data collected through the administration of the two standardized instruments were subjected to both descriptive and inferential statistical analysis. The following specific statistical procedures were employed in the analysis of the data.

### 3.7.1 Descriptive Statistics

Descriptive statistics including measures of central tendency (mean), measures of variability (standard deviation), and frequency distributions were computed for all relevant variables. These statistics serve to summarize the demographic characteristics of the sample and to describe the overall distribution of smartphone addiction scores and psychological well-being scores in the study population. Descriptive statistics provide an essential foundational understanding of the data and the sample prior to the conduct of inferential analyses.

### 3.7.2 Pearson Product-Moment Correlation Coefficient

To examine the nature, direction, and magnitude of the relationship between smartphone addiction and psychological well-being addressing Research Objective 1 and testing hypotheses, the Pearson product-moment correlation coefficient (r) was computed. The Pearson r provides a standardized index of the strength and direction of the linear relationship between two continuous variables, ranging from -1.0 (perfect negative correlation) through 0 (no linear relationship) to +1.0 (perfect positive correlation). Based on the theoretical framework and existing empirical literature reviewed in the

preceding chapters, a statistically significant negative correlation was anticipated: higher levels of smartphone addiction would be expected to be associated with lower levels of psychological well-being.

### 3.7.3 Independent Samples t -Test

To evaluate whether statistically significant gender differences exist in levels of smartphone addiction addressing Research Objective 2 and testing $H_2$ and in levels of psychological well-being addressing Research Objective 3 and testing $H_3$ independent samples t-tests were conducted for each dependent variable separately. The independent samples t-test is the appropriate inferential statistical procedure for comparing the mean scores of two independent, mutually exclusive groups in this case, male and female students on a continuously measured dependent variable, in order to determine whether any observed differences between the groups are likely to reflect genuine population differences or merely sampling variation. All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS), Version 25. A significance level of $p < .05$ was established as the threshold for determining statistical significance across all inferential tests conducted in the study.

# Chapter IV

# Results

## 4.1 Introduction

This chapter presents the findings obtained from the quantitative analysis of data collected from 150 college students in the Jammu district of Jammu and Kashmir, alongside a systematic interpretation and discussion of those findings in light of the study's objectives, theoretical framework, and existing empirical literature. The data were analyzed using descriptive statistics, Pearson product-moment correlation, and independent samples t-tests, applied to scores derived from the Smartphone Addiction Scale–Short Version (SAS-SV) and Ryff's 42- item Psychological Well-Being Scale (PWS). The results are organized to address each of the three research objectives in sequence: first, examining the nature and strength of the relationship between smartphone addiction and psychological well-being among college students; second, assessing gender differences in levels of smartphone addiction; and third, evaluating gender differences in levels of psychological well-being. The discussion contextualizes each finding within the broader body of literature reviewed in the preceding chapter, drawing on theoretical perspectives including operant conditioning, the I-PACE model, Self-Determination Theory, and Ryff's eudaimonic framework to interpret the observed patterns. Taken together, the results contribute locally grounded empirical evidence to an area of scholarship that has, until now, remained largely unexamined within the specific sociocultural context of students in Jammu and Kashmir.

## 4.2 Descriptive Statistics

A total of 150 participants were included in the study, comprising 115 males (76.7%) and 35 females (23.3%). Descriptive statistics for the two primary measures are presented in Table 1. The mean score on the Psychological Well-Being Scale (PWS) was 140.21 (SD = 20.80), with a median of 138.00, indicating a moderate-to-high level of psychological well-being across the sample. The mean score on the Smartphone Addiction Scale–Short Version (SAS-SV) was 33.37 (SD = 9.16), with a median of 34.00, suggesting that smartphone usage patterns among respondents were broadly distributed around a moderate level of addictive tendency.

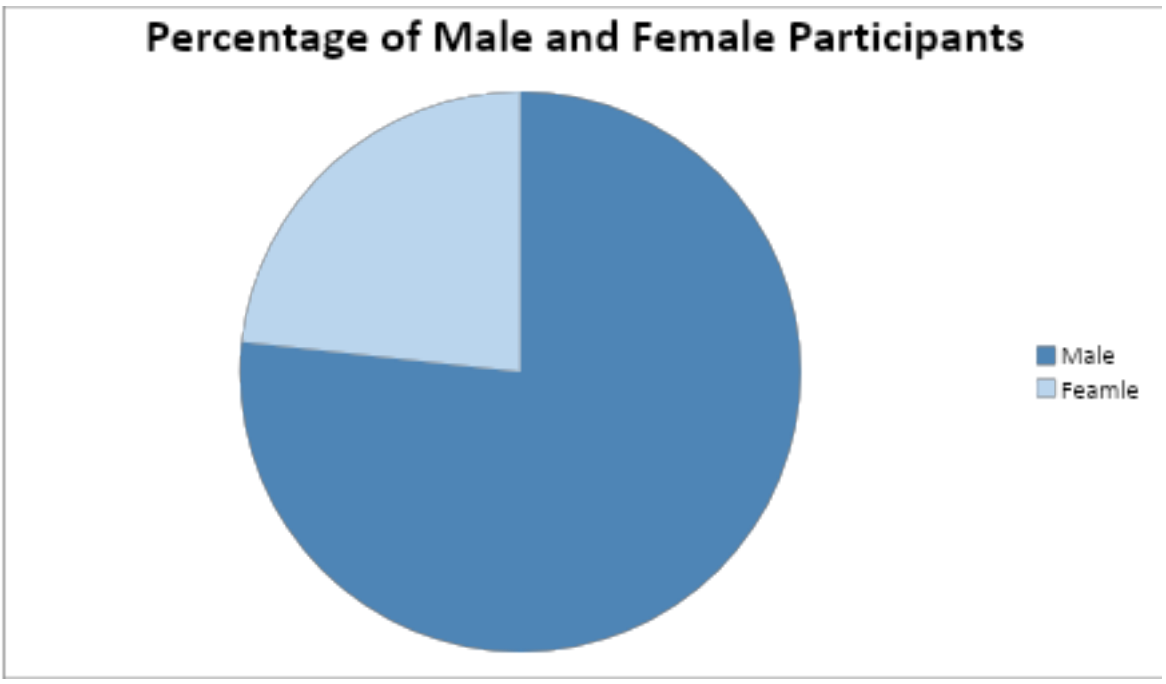



Table 1 presents the frequency distribution of participants by gender. The sample was predominantly male (n = 115, 76.7%), with females comprising approximately one quarter of the sample (n = 35, 23.3%). This imbalance reflects the accessible sampling frame used and is a limitation acknowledged in Chapter 5.

**Table 1**

*Frequency Distribution of Participants by Gender*

| **Gender** | **Frequency** | **Percent** |
|---|---|---|
| Male | 115 | 76.7% |
| Female | 35 | 23.3% |
| **Total** | **150** | **100.0%** |

*Note.* N = 150.

**Table 2**

*Descriptive Statistics for Psychological Well-Being and Smartphone Addiction*

| Variable | N | Mean | SD |
|---|---|---|---|
| Psychological Well-Being (PWS) | 150 | 140.21 | 20.80 |
| Smartphone Addiction (SAS-SV) | 150 | 33.37 | 9.16 |

Note. PWS = Psychological Well-Being Scale (Ryff, 42 items); SAS-SV = Smartphone Addiction Scale–Short Version. N = 150.

## 4.3 Correlation Analysis

A Pearson product-moment correlation was conducted to examine the association between psychological well-being (PWS) and smartphone addiction (SAS-SV). The results, presented in Table 5, revealed a statistically significant positive correlation between the two variables, $r(148) = .386$, $p < .001$. This indicates that higher levels of psychological well-being were associated with higher levels of smartphone addiction within this sample. The effect size is considered moderate according to conventional benchmarks (Cohen, 1988). This finding is discussed further in Chapter 5 in relation to the I-PACE model and Self-Determination Theory.

**Table 5**

*Pearson Product-Moment Correlations Between PWS and SAS-SV (N = 150)*

| Variable | 1 | 2 |
|---|---|---|
| 1. Psychological Well-Being (PWS) | — | .386** |
| 2. Smartphone Addiction (SAS-SV) | .386** | — |

*Note.* **p < .001 (two-tailed). PWS = Psychological Well-Being Scale; SAS-SV = Smartphone Addiction Scale–Short Version. Dashes represent self-correlations.

## 4.4 Gender Differences in Psychological Well-Being and Smartphone Addiction

To examine gender differences in both psychological well-being and smartphone addiction, an independent sample t-test was conducted. Descriptive statistics disaggregated by gender are presented in Table 3. Female participants reported notably higher mean scores on both PWS (M = 157.91, SD = 19.39) and SAS-SV (M = 38.37, SD = 11.43) compared with their male counterparts (PWS: M = 134.83, SD = 18.12; SAS-SV: M = 31.85, SD = 7.79).

**Table 3**

*Descriptive Statistics for PWS and SAS-SV Scores by Gender*

| Variable | Gender | N | *M* | SD |
|---|---|---|---|---|
| Psychological Well-Being (PWS) | Male | 115 | 134.83 | 18.12 |
| | Female | 35 | 157.91 | 19.39 |
| Smartphone Addiction (SAS-SV) | Male | 115 | 31.85 | 7.79 |
| | Female | 35 | 38.37 | 11.43 |

*Note.* PWS = Psychological Well-Being Scale; SAS-SV = Smartphone Addiction Scale–Short Version.

Table 3 presents the results of the independent samples t-tests. Results for the PWS revealed a statistically significant difference between males (M = 134.83, SD = 18.12) and females (M = 157.91, SD = 19.39), t(148) = −6.50, p < .001, indicating that females scored significantly higher on psychological well-being than males. Levene's test for equality of variances was not significant (F = 0.513, p = .475), confirming that equal variances could be assumed. Similarly, females (M = 38.37, SD = 11.43) scored significantly higher on the SAS-SV than males (M = 31.85, SD = 7.79), t(148) = −3.85, p < .001, indicating greater smartphone addiction tendency among female participants.

**Table 4**

*Independent Samples t-Test Results for Gender Differences in PWS and SAS-SV*

| Variable | *t* | *Df* | *P* |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Psychological Well-Being (PWS) | | −6.50 | 148 | < .001 |
| Smartphone Addiction (SAS-SV) | | −3.85 | 148 | < .001 |

*Note.* Negative t values reflect that female scores exceeded male scores. df = degrees of freedom.

**Figure 1**

Mean PWS Scores by Gender

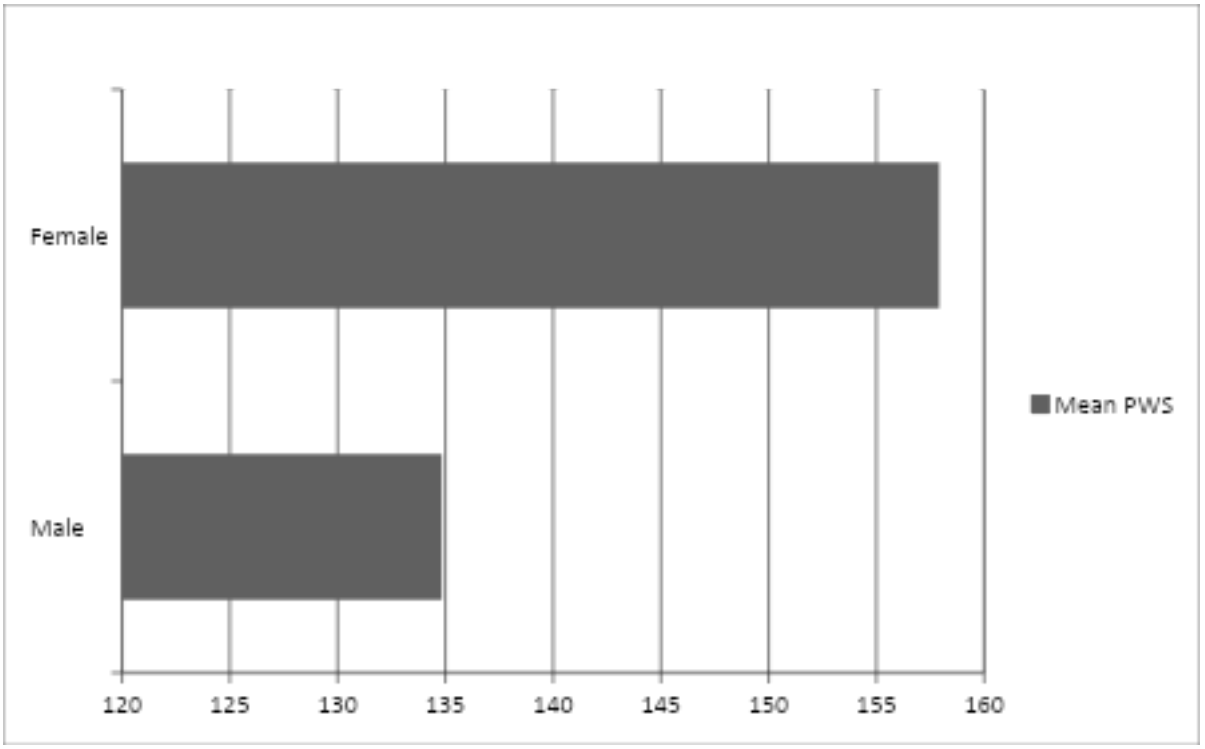



Figure 1 displays the mean Psychological Well-Being Scale scores for male and female participants. Female participants reported substantially higher mean PWS scores (M = 157.91, SD = 19.39) than male participants (M = 134.83, SD = 18.12), a difference that was statistically significant ($p < .001$). Error bars represent ±1 standard deviation.

**Figure 2**

Mean SAS-SV Scores by Gender

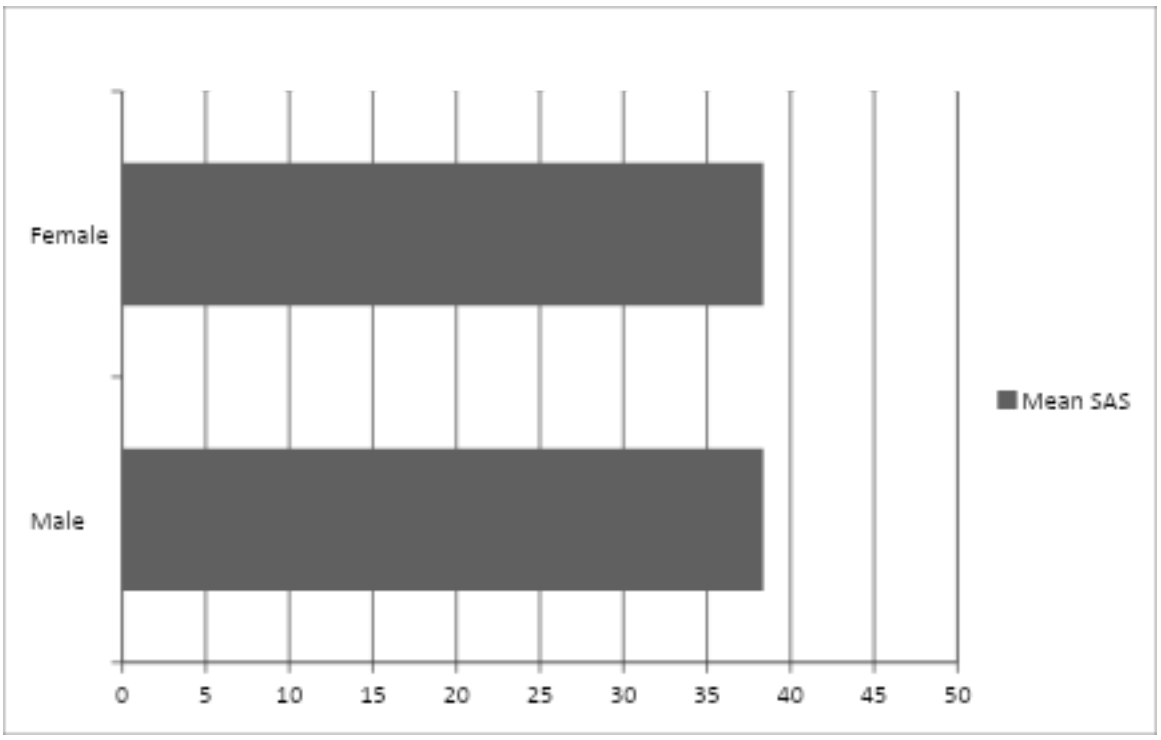



Figure 2 illustrates the mean Smartphone Addiction Scale–Short Version scores for male and female participants. Females demonstrated higher mean SAS-SV scores ($M = 38.37$, $SD = 11.43$) compared with males ($M = 31.85$, $SD = 7.79$), and this difference was statistically significant ($p < .001$). Error bars represent ±1 standard deviation.

# Chapter V

# Discussion, Conclusion, Limitations, Implications

## 5.1 Introduction

This chapter presents a comprehensive summary of the findings derived from the study which is “An Investigation into the Relationship between Smartphone Addiction and Psychological Well-being among college students”. The results and data analyzed in the previous chapter are carefully interpreted here, with particular attention to their broader meaning and relevance. Beyond interpretation, this chapter also presents the summary of the study, conclusion, implications, limitations, and suggestions for future research.

## 5.2 Discussions

This research was designed with three clear objectives in mind. The first was to find out whether there is a relationship between smartphone addiction and psychological well-being among college students. The second was to examine whether male and female students differ in their levels of smartphone addiction. The third was to examine whether male and female students differ in their levels of psychological well-being. To achieve these objectives, data were collected from 150 college students males and females using two well established psychological tools. Smartphone addiction was measured using the Smartphone Addiction Scale Short Version (SAS-SV), and psychological well-being was measured using Ryff's 42- item Psychological Well-Being Scale (PWS). The data were then analyzed using descriptive statistics, Pearson correlation, and independent samples t-tests. The study was rooted in important psychological theories including Self-Determination Theory, the I-PACE Model, Operant Conditioning, and Ryff's Eudaimonic Framework, all of which helped in understanding and explaining the patterns found in the data.The study produced three major findings, each corresponding directly to one of the research objectives and hypotheses. Smartphone Addiction and Psychological Well-Being are Positively Related. A significant positive correlation was found between smartphone addiction scores and psychological well- being scores, $r = .386$, $p < .001$. This means that students who scored higher on smartphone addiction also tended to score higher on psychological well-being. All three null hypotheses were rejected. This was a surprising but

meaningful finding, suggesting that in the context of students in Jammu and Kashmir, using smartphones heavily does not necessarily mean lower mental health. Rather, smartphones may be serving important social, academic, and emotional needs that actually support well-being. This means students are not just doomscrolling their devices there is somewhat meaningful usage of smartphones by young adults who are using smartphones mindfully, as they leverage these devices for connectivity, information access and personal growth. Females Scored higher on Smartphone Addiction than males, female students ($M = 38.37$) scored significantly higher on smartphone addiction compared to male students ($M = 31.85$), $t(148) = -3.854$, $p < .001$. This finding suggests that female college students in this region engage more intensively with their smartphones, likely because they use them more for social communication, relationship maintenance, and emotional connection patterns that are closely associated with higher addiction scores on the SAS . Females score higher on Psychological Well-Being than male female students ($M = 157.91$) also scored significantly higher on psychological well-being compared to male students ($M = 134.83$), $t(148) = -6.495$, $p < .001$. This was the strongest finding in the entire study. It suggests that female college students in Jammu and Kashmir, despite or perhaps alongside their higher smartphone use, report greater levels of psychological flourishing including higher purpose in life, personal growth, positive relations with others, and self-acceptance than their male counterparts.

## 5.3 Conclusions

Smartphone addiction and psychological well-being are not opposites in this population. The two variables move together in a positive direction, meaning that this study does not support the idea that using smartphones more, leads to poor mental health among college students. The context in which smartphones are used matters greatly, and for many students, smartphones appear to serve as a meaningful tool for connection and growth rather than a source of harm. Gender is a significant factor in understanding smartphone addiction among college students. Female students show higher levels of smartphone addiction, which is most likely linked to the socially and relationally oriented way in which they use their devices. This does not mean female students are more psychologically vulnerable in fact , the opposite appears to be true when well-being is considered separately. In psychological well-being gender also plays a significant role in understanding the factor of psychological well-being. Female college students in this sample reported substantially higher levels of psychological well-being than male students. This could be explained by the strong sense of purpose, resilience, and social connectedness that female students who represent a

particularly motivated group in this educational context tend to carry with them. Male students, on the other hand, may be experiencing greater stress related to career expectations, academic pressure, and social role demands, which may be pulling their well-being scores down. Age plays a role as well. Younger students, particularly those aged 18, showed the highest scores on both smartphone addiction and psychological well-being. This suggests that the transition into college life is a critical period marked by both high digital engagement and heightened psychological activity, a phase that deserves particular attention from educators and counselors.

## 5.4 Limitations of the Study

While the present study makes a meaningful contribution to the existing body of knowledge, it is important to acknowledge certain limitations that may affect the generalizability and interpretation of the findings. The study was limited to college students between the ages of 18 and 22 years. This means that the findings cannot be extended to younger adolescents or older adults who also use smartphones extensively. The relationship between smartphone addiction and psychological well-being may look quite different in other age groups, and future research should examine these patterns across a wider age range. Since only regular smartphone users were included in the study, the sample does not represent students who use smartphones occasionally or minimally. This restriction may have introduced a bias toward higher addiction scores, as the sample was already composed of people with established smartphone habits. Including occasional users might have produced a different pattern of results. Participation in the study was entirely voluntary, meaning that only students who were willing to take part were included. This introduces the possibility of self-selection bias, students who agreed to participate may differ in important psychological ways from those who chose not to. For example, students who are more open, socially engaged, or comfortable discussing their smartphone habits may have been more likely to volunteer, which could have influenced the scores on both measures. Students who had been diagnosed with a mental health disorder were excluded from the study. While this was a deliberate methodological decision made to ensure a cleaner and more comparable sample, it also means that the findings do not apply to a segment of the college population that may be particularly vulnerable to the negative effects of smart phone addiction. The relationship between smart phone use and well-being among students with existing mental health conditions remains an important and unexplored question. The study focused exclusively on students enrolled at the college level, leaving out individuals from lower levels of education

such as school students. The study was conducted solely within the Jammu district of Jammu and Kashmir, which restricts the applicability of the findings to this specific area.

## 5.5 Future Implications

- Future studies should aim for larger and more gender-balanced samples to produce more generalizable results across both male and female college student populations.
- Longitudinal research designs should be adopted to track how smartphone use and psychological well-being change over the course of a student's college years. Studies should explore the specific dimensions of Ryff's PWS such as autonomy, purpose in life, or positive relations that are most strongly connected to smartphone use patterns, rather than relying only on total scores.
- Future research should extend to other districts and universities across Jammu and Kashmir, and ideally across different states of India, to build a more comprehensive picture of digital health among Indian college students.
- Researchers should also investigate the role of specific social media platforms such as Instagram, WhatsApp, and YouTube as individual drivers of smartphone addiction, rather than treating all smartphone use as equivalent.

# SUMMARY

This study investigated the relationship between smartphone addiction and psychological well- being among college students in the Jammu district of Jammu and Kashmir, India. A quantitative, correlational research design was employed, with data collected from 150 undergraduate students aged 18 to 22 years using two standardized instruments: the Smartphone Addiction Scale–Short Version (SAS-SV) and Ryff's 42-item Psychological Well- Being Scale (PWS).

Contrary to prevailing assumptions in the literature, findings revealed a significant positive correlation between smartphone addiction and psychological well-being ($r = .386$, $p < .001$), suggesting that smartphone use among this population may serve meaningful social, academic, and emotional functions rather than undermining mental health. Gender differences were also significant on both variables. Female students scored higher on both smartphone addiction ($M = 38.37$) and psychological well-being ($M = 157.91$) compared to their male counterparts. Age- based patterns further indicated that 18-year-old students reported the highest scores on both measures.

These findings highlight the importance of contextual factors in understanding smartphone use and call for culturally sensitive, region-specific approaches to digital health research and intervention among Indian college students.

# REFERENCES

Al-Abyadh, M. H. A., Abdel Halim, M. A., & Abdel Fatah, A. (2024). Smartphone addiction, self-regulation failure, and academic life satisfaction: The mediating roles of mind wandering and cognitive failure. Behavioral Sciences, 14(2), 128.

Alter, A. (2017). Irresistible: The rise of addictive technology and the business of keeping us hooked. Penguin Press.

Andrews, S., Ellis, D. A., Shaw, H., & Piwek, L. (2015). Beyond self-report: Tools to compare

estimated and real-world smartphone use. PLOS ONE, 10(10), e0139004.

Billieux, J. (2012). Problematic use of the mobile phone: A literature review and a pathways model. Current Psychiatry Reviews, 8(4), 299–307.

Bragazzi, N. L., & Del Puente, G. (2014). A proposal for including nomophobia in the new DSM-V. Psychology Research and Behavior Management, 7, 155–160.

Brand, M., Young, K. S., Laier, C., Wölfling, K., & Potenza, M. N. (2016). Integrating psychological and neurobiological considerations regarding the development and maintenance of specific Internet-use disorders. Neuroscience & Biobehavioral Reviews, 71, 252–266.

Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2019). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. Neuroscience & Biobehavioral Reviews, 104, 1–10.

Chaudhary, M., Asthana, H. S., & Kiran, U. V. (2024). Smartphone addiction and mental wellness: Examining decrements in self-esteem.

Cheever, N. A., Rosen, L. D., Carrier, L. M., & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. Computers in Human Behavior, 37, 290–297.

Cheng, Y., Li, X., Zhou, Z., Hao, Z., & Zou, W. (2024). Daily emotional experience and smartphone addiction: A moderated parallel mediation model. Frontiers in Psychology, 15, 1373019.

Chóliz, M. (2012). Mobile-phone addiction in adolescence: The test of mobile phone dependence (TMD). Progress in Health Sciences, 2(1), 33–44.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

Columbia Psychiatry. (n.d.). Problematic smartphone use and mental health. Columbia University Department of Psychiatry. https://www.columbiapsychiatry.org

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.

Dasgupta, P., Bhattacherjee, S., Mukherjee, A., Roy, J. K., Mukherjee, A., & Biswas, R. (2017). Nomophobic behaviors among smartphone users among medical and engineering students in two colleges of West Bengal. Indian Journal of Public Health, 61(3), 199.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. Plenum Press.

De-Juanas, Á., Bernal-Bravo, C., & Pérez-Serrano, G. (2020). Autonomy and psychological well-being: Dimensions of well-being that most influence young people. Social Sciences, 9(9), 146.

Demir, S., Yıldırım, Y., & Çolakoğlu, F. F. (2025). Smartphone addiction, physical activity, and functional balance among elderly individuals.

Demirci, K., Akgönül, M., & Akpinar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. Journal of Behavioral Addictions, 4(2), 85–92.

Diener, E. (1984). Subjective well-being. Psychological Bulletin, 95(3), 542–575.

Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. Journal of Affective Disorders, 207, 251–259.

Feng, Y., & Dou, D. (2024). Depression and smartphone addiction: Mediating role of emotional exhaustion.

Ferreira, D., Kostakos, V., & Dey, A. K. (2014). AWARE: Mobile context instrumentation

framework. Frontiers in ICT, 2, 6.

Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). SAGE Publications.

Griffiths, M. D. (2005). A 'components' model of addiction within a biopsychosocial framework. Journal of Substance Use, 10(4), 191–197.

Hanawi, S. A., Saat, N. Z. M., Zulkafly, M., Hazlenah, H., Taibukahn, N. H., Yoganathan, D., & Low, F. J. (2020). Impact of a healthy lifestyle on the psychological well-being of university students. International Journal of Pharmaceutical Research, 12(2), 4973–4980.

Hayati, R., Adlina, S., Azhar Shah, S., & Nor Zuraida, Z. (2024). Smartphone addiction and psychological well-being among college students at University of Riau.

Hernandez, R., Bassett, S. M., Boughton, S. W., Schuette, S. A., Shiu, E. W., & Moskowitz, J. T. (2018). Psychological well-being and physical health: Associations, mechanisms, and future directions. Emotion Review, 10(1), 18–29.

Holzer, A., & Ondrus, J. (2011). Mobile application market: A developer's perspective. Telematics and Informatics, 28(1), 22–31.

Horwood, S., & Anglim, J. (2019). Problematic smartphone usage and subjective and psychological well-being. Computers in Human Behavior, 97, 44–50.

Katz, E., Blumler, J. G., & Gurevitch, M. (1973–1974). Uses and gratifications research. Public Opinion Quarterly, 37(4), 509–523.

Kaya, F., Bostanci Dastan, N., & Kavakci, O. (2020). Smartphone use habits, sleep quality and depression in university students. Psychiatria Danubina, 32(3–4), 354–362.

Kim, Y. J., Jang, H. M., Lee, Y., Lee, D., & Kim, D. J. (2016). Effects of internet and smartphone addictions on depression and anxiety based on propensity score matching analysis. International Journal of Environmental Research and Public Health, 13(6), 628.

King, A. L. S., Valença, A. M., Silva, A. C. O., Baczynski, T., Carvalho, M. R., & Nardi, A. E. (2013). Nomophobia: Dependency on virtual environments or social phobia? Computers in Human Behavior, 29(1), 140–144.

Kumar, R. (2019). Research methodology: A step-by-step guide for beginners (5th ed.). SAGE Publications.

Kwon, M., Lee, J. Y., Won, W. Y., Park, J. W., Min, J. A., Hahn, C., Gu, X., Choi, J. H., &

Kim, D. J. (2013). Development and validation of a Smartphone Addiction Scale (SAS). PLOS ONE, 8(2), e56936.

Lane, N. D., Miluzzo, E., Lu, H., Peebles, D., Choudhury, T., & Campbell, A. T. (2011). A survey of mobile phone sensing. IEEE Communications Magazine, 49(9), 140–150.

Lee, G., & Raghu, T. S. (2014). Determinants of mobile apps' success: Evidence from the App Store market. Journal of Management Information Systems, 31(2), 133–170.

Lin, Y. H., Chang, L. R., Lee, Y. H., Tseng, H. W., Kuo, T. B., & Chen, S. H. (2014). Development and validation of the Smartphone Addiction Inventory (SPAI). PLOS ONE, 9(6), e98312.

Lin, Y. H., Pan, Y. C., Lin, S. H., & Chen, S. H. (2015). Development of short-form and screening cutoff points of the Smartphone Addiction Inventory (SPAI-SF). International Journal of Environmental Research and Public Health, 12(12), 15694–15704.

Miller, M. (2012). Moghe, P., Singh, A., & Malviya, M. (2024). Psychological well-being and its relation to gender and residential status among university students.

Montag, C., & Walla, P. (2016). Carpe diem instead of losing your social mind: Beyond digital addiction and why we all suffer from digital overuse. Cogent Psychology, 3(1), 1157281.

Oluwafemi, O. E., Sholeye, O. O., & Salami, K. K. (2021). Smartphone addiction and academic performance: A meta-analytic review.

Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. Personal and Ubiquitous Computing, 16(1), 105–114.

Pant, S., Sharma, A., & Negi, R. (2024). The impact of social media on college students' social behavior, academic performance, and mental health. International Journal of Engineering Research & Technology, 13, 1–6.

Pera, A. (2020). Problematic smartphone use, social anxiety, and depressive stress: The development of compulsive information and communication technology usage behavior. Frontiers in Psychology, 11, 573473.

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. Computers in Human Behavior, 29(4), 1841–1848.

Ryff, C. D. (1989). Happiness is not everything, or is it? Explorations on the meaning of psychological well-being. Journal of Personality and Social Psychology, 57(6), 1069–1081.

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. Journal of Personality and Social Psychology, 69(4), 719–727.

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. Journal of Happiness Studies, 9(1), 13–39.

SecurEnvoy. (2012). 66% of the population suffer from Nomophobia the fear of being without their phone. SecurEnvoy. https://www.securenvoy.com

Seligman, M. E. P. (2011). Flourish: A visionary new understanding of happiness and well-being. Free Press.

Skinner, B. F. (1938). The behavior of organisms: An experimental analysis. Appleton-Century-Crofts.

Statista. (2024). Number of smartphone users worldwide from 2016 to 2024. Statista Research Department. https://www.statista.com

Tao, X., Chen, W., Li, X., & Zhang, X. (2024). Smartphone dependence and sleep quality in college students: A chain mediation model.

Tian, Q., & Wang, X. (2023). Associations between mobile phone addiction and sleep quality in elderly: The roles of depression and loneliness. Current Psychology, 42, 7302–7310.

Twenge, J. M., Martin, G. N., & Campbell, W. K. (2018). Decreases in psychological well-being among American adolescents after 2012 and links to screen time during the rise of smartphone technology. Emotion, 18(6), 765–780.

Wang, Y., & Ma, L. (2024). Social isolation, loneliness, COVID-19 anxiety and smartphone addiction during the pandemic.Yang, X., Zhou, Z., Liu, Q., & Fan, C. (2023). Mobile phone addiction and adolescents' mental health: The mediating role of sleep quality and the moderating role of perceived social support. Children, 10(3), 578.

Yildirim, C., & Correia, A. P. (2015). Exploring the dimensions of nomophobia: Development and validation of a self-reported questionnaire. Computers in Human Behavior, 49, 130– 137.

Zhang, J., Li, W., & Sun, H. (2024). Smartphone addiction, psychological distress, and internet gaming disorder among medical college students.

Zhang, T., Liu, H., & Chen, S. (2024). Smartphone addiction and academic performance: The mediating role of academic anxiety and moderating role of academic control.

Zhu, J., Zhang, W., Yu, C., & Bao, Z. (2024). Physical exercise moderates the relationship between smartphone addiction and sleep quality.

# APPENDICES

## APPENDIX -A

**Ryff's Psychological Well-Being Scales (PWB), 42 Item version Scoring Instruction:**

1) Recode negative phrased items: # 3, 5, 10, 13,14,15,16,17,18,19, 23, 26, 27, 30,31,32, 34, 36, 39, 41. (i.e., if the score is 6 in one of these items, the adjusted score is 1; if 5, the adjusted score is 2 and so on…)

2) Add together the final degree of agreement in the 6 dimensions:

**a. Autonomy: items** 1,7,13,19,25, 31, 37

**b. Environmental mastery: items** 2,8,14,20,26,32,38

**c. Personal Growth: items** 3,9,15,21,27,33,39

**d. Positive Relations: items:** 4,10,16,22,28,34,40

**e. Purpose in life: items**: 5,11,17,23,29,35,41

**f. Self-acceptance: items** 6,12,18,24,30,36,42

Please indicate your degree of agreement (using a score ranging from 1-6) to the following sentences.

1= strongly disagree,

6= strongly agree

1. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people. 1 2 3 4 5 6

2. In general, I feel I am in charge of the situation in which I live. 1 2 3 4 5 6

3. I am not interested in activities that will expand my horizons. 1 2 3 4 5 6

4. Most people see me as loving and affectionate. 1 2 3 4 5 6

5. I live life one day at a time and don't really think about the future. 1 2 3 4 5 6

6. When I look at the story of my life, I am pleased with how things have turned out. 1 2 3 4 5

7. My decisions are not usually influenced by what everyone else is doing. 1 2 3 4 5 6

8. The demands of everyday life often get me down. 1 2 3 4 5 6

9. I think it is important to have new experiences that challenge how you think about yourself and the world. 1 2 3 4 5 6

10. Maintaining close relationships has been difficult and frustrating for me. 1 2 3 4 5 6

11. I have a sense of direction and purpose in life. 1 2 3 4 5 6

12. In general, I feel confident and positive about myself. 1 2 3 4 5 6

13. I tend to worry about what other people think of me. 1 2 3 4 5 6

14. I do not fit very well with the people and the community around me. 1 2 3 4 5 6

15. When I think about it, I haven't really improved much as a person over the years. 1 2 3 4 5

16. I often feel lonely because I have few close friends with whom to share my concerns. 1 2 3 4 5 6

17. My daily activities often seem trivial and unimportant to me. 1 2 3 4 5 6

18. I feel like many of the people I know have gotten more out of life than I have. 1 2 3 4 5 6

19. I tend to be influenced by people with strong opinions. 1 2 3 4 5 6

20. I am quite good at managing the many responsibilities of my daily life. 1 2 3 4 5 6

21. I have the sense that I have developed a lot as a person over time. 1 2 3 4 5 6

22. I enjoy personal and mutual conversations with family members or friends. 1 2 3 4 5 6

23. I don't have a good sense of what it is I'm trying to accomplish in life. 1 2 3 4 5 6

24. I like most aspects of my personality. 1 2 3 4 5 6

25. I have confidence in my opinions, even if they are contrary to the general consensus. 1 2 3 4 5 6

26. I often feel overwhelmed by my responsibilities 1 2 3 4 5 6

27. I do not enjoy being in new situations that require me to change my old familiar ways of doing things. 1 2 3 4 5 6

28. People would describe me as a giving person, willing to share my time with others. 1 2 3 4 5 6

29. I enjoy making plans for the future and working to make them a reality. 1 2 3 4 5 6

30. In many ways, I feel disappointed about my achievements in life. 1 2 3 4 5 6

31. It's difficult for me to voice my own opinions on controversial matters. 1 2 3 4 5 6

32. I have difficulty arranging my life in a way that is satisfying to me. 1 2 3 4 5 6

33. For me, life has been a continuous process of learning, changing, and growth. 1 2 3 4 5 6

34. I have not experienced many warm and trusting relationships with others. 1 2 3 4 5 6

35. Some people wander aimlessly through life, but I am not one of them. 1 2 3 4 5 6

36. My attitude about myself is probably not as positive as most people feel about themselves.1 2 3 4 5 6

37. I judge myself by what I think is important, not by the values of what others think is important. 1 2 3 4 5 6

38. I have been able to build a home and a lifestyle for myself that is much to my liking. 1 2 3 4 5 6

39. I gave up trying to make big improvements or changes in my life a long time ago. 1 2 3 4 5 6

40. I know that I can trust my friends, and they know they can trust me. 1 2 3 4 5 6

41. I sometimes feel as if I've done all there is to do in life. 1 2 3 4 5 6

42. When I compare myself to friends and acquaintances, it makes me feel good about who I am. 1 2 3 4 5 6

## APPENDIX -B

## SMARTPHONE ADDICTION SCALE – Short Version

**Scoring of SAS Scale- The Smartphone Addiction Scale (SAS) and its Short Version (SAS-SV) are self-report tools assessing addictive smartphone behavior using a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree). SAS-SV (10 items) is widely used for adolescents/adults, with scores ranging from 10–60.**

**Do you own a smartphone? Yes_____ NO _____**

**If yes, please continue, If no, skip the test of this questionnaire.**

**Please rate each answer according to how true you feel it is for you.**

1. I miss work that I planned , due to smartphone use. 1 2 3 4 5 6

2. I have a hard time concentrating in class, while doing assignments, or while working, due to smartphone use. 1 2 3 4 5 6

3. I feel pain in my wrist or at the back of my neck while using a smartphone. 1 2 3 4 5 6

4. I would not be able to stand not having a smartphone. 1 2 3 4 5 6

5. I feel impatient and fretful when I am not holding my smartphone. 1 2 3 4 5 6

6. I have my smartphone on my mind even when I am not using it. 1 2 3 4 5 6

7. I would never give up using my smartphone even if my daily life were greatly affected by it. 1 2 3 4 5 6

8. I constantly check my smartphone so as not to miss conversations between other people on Twitter, facebook, snapchat, instagram, tiktok, or other social media. 1 2 3 4 5 6

9. I Use my smartphone longer than I intended. 1 2 3 4 5 6

10. People around me tell me that I use my smartphone too much. 1 2 3 4 5 6

# CHAPTER-I

# INTRODUCTION

# CHAPTER-II

# REVIEW OF

# RELATED LITERATURE

# CHAPTER-III

# RESEARCH METHODOLOGY

# CHAPTER-IV

# ANALYSIS AND INTERPRETATION OF DATA

# CHAPTER-V

# FINDINGS, CONCLUSION, DISCUSSION, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

# SUMMARY

# REFERENCES

# APPENDICES