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Khaled A. Alshare
Qatar University

Murad Moqbel
The University of Texas Rio Grande Valley, murad.moqbel@utrgv.edu

Mohammad I. Merhi
Indiana University South Bend

Valerie Bertelt
University of Tampa

Maliha Alam
The University of Texas Rio Grande Valley

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The Impact of Cultural Dimensions and Quality of Life on Smartphone Addiction and Employee Performance: The Moderating Role of Quality of Life

Khaled Alshare[1] · Murad Moqbel[2] · Mohammad I. Merhi[3] · Valerie Bartelt[4] · Maliha Alam[5]

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Abstract
Smartphones, while ubiquitous and beneficial, can lead to problematic use. This study investigates the intricate interplay between cultural dimensions, smartphone addiction, and employee performance. Through the lens of distraction theory, attachment Theory, coping theory combined with Hofstede's cultural dimensions, and self-regulation theory and quality of life, we examine how collectivism, individualism, uncertainty avoidance, and masculinity cultural dimensions influence smartphone addiction and its subsequent effect on employee performance. The findings, based on data collected from 233 employees at a major medical center in the Midwest region of the USA and employing structural equation modeling, reveal a significant cultural influence on smartphone addiction, ultimately leading to a decline in performance. However, quality of life emerges as a crucial moderator, mitigating the negative impact of smartphone addiction. This research offers valuable insights for information systems scholars, highlighting the importance of cultural context in understanding smartphone addiction. Furthermore, the study equips managers with practical knowledge to address smartphone addiction within a culturally diverse workforce. By implementing strategies that enhance employee quality of life, organizations can foster a more productive and engaged work environment.

Keywords Smartphone addiction · Performance · Cultural dimensions · Quality of life · Moderation

1 Introduction

The proliferation of smartphones, much like the Internet before them, has marked a significant shift in communication and business practices, positioning them as disruptive technologies. Their continuous advancement has transformed them into indispensable tools for various purposes, including computing, watching TV, and Internet browsing. According to Pew Research Center (2021), around 85% of adults in the United States use smartphones, with 97% using cellphones. This widespread usage spans various demographics, highlighting the potential influence of cultural factors on smartphone use.

✉ Mohammad I. Merhi
mmerhi@iu.edu

Khaled Alshare
Kalshare@qu.edu.qa

Murad Moqbel
muradmoqbel@gmail.com

Valerie Bartelt
vbartelt@ut.edu

Maliha Alam
maliha.alam01@utrgv.edu

[1] Accounting and Information Systems Department, College of Business and Economics, Qatar University, Doha, Qatar

[2] Department of Information Systems, Robert C. Vackar College of Business and Entrepreneurship, University of Texas Rio Grande Valley, Edinburg, TX, USA

[3] Department of Decision Sciences, Judd Leighton School of Business & Economics, Indiana University South Bend, South Bend, IN, USA

[4] Information and Technology Management Department, Sykes College of Business, University of Tampa, Tampa, FL, USA

[5] Department of Information Systems, Robert C. Vackar College of Business & Entrepreneurship, University of Texas Rio Grande Valley, Edinburg, TX, USA

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Smartphones have profoundly altered individual habits, communication patterns, and productivity levels. The dependency on these devices is so entrenched that most people feel unable to leave home without them, leading to issues such as sleep disturbances, stress, and reduced performance (Samaha & Hawi, 2016). Excessive smartphone use is driven by factors including individual characteristics, age, gender, social lives, and work environments (Csibi et al., 2021; Moqbel, 2020; Volungis et al., 2020; Wahla & Awan, 2014).

The impact of excessive smartphone use on employee performance is a critical area of concern. Behavioral addiction, introduced by Peele and Brodsky (1975), suggests that people are generally addicted to stimulating experiences. Given that smartphones offer constant stimuli through their applications (e.g., social media), addiction can become prevalent, leading to health and productivity issues. Employees today face increased workplace distractions due to smartphone use, a phenomenon described by FitzSimons et al. (2023) as "nomophobia"—the fear of not having one's mobile phone. Fitzsimmons (2021) reported that 99% of participants in a study exhibited some form of nomophobia. Furthermore, younger individuals are more prone to such addiction than older adults (De-Sola Gutiérrez et al., 2016).

Employee performance, defined as task-related behaviors aligned with organizational goals (Campbell, 1990), is significantly impacted by smartphone use. Gaudin (2009) reported that 77% of employees use social media, often through their smartphones, during work hours, leading to a 1.5% decrease in productivity in companies that permit social media use. This productivity loss can be critical, especially for companies with narrow profit margins. Hathi (2008) found that social media use at work cost UK companies approximately £6.5 billion in lost productivity.

Research on the effects of smartphone use at work presents mixed outcomes. While many studies highlight positive aspects (Masiu & Chukwuere, 2018), others underscore negative impacts on social lives and productivity (Duke & Montag, 2017; Moqbel, 2020). For instance, Wahla and Awan (2014) found that smartphone use improved performance in the service sector but hindered productivity in manufacturing. Panwar and Agrawal (2021) reported that smartphone use at work positively influenced employee performance, citing more benefits than drawbacks. However, Alan et al. (2022) found a negative relationship between smartphone addiction and employee performance in a university hospital, while Ahmead et al. (2022) reported mixed effects depending on the context.

Given these divergent findings, it is crucial to investigate further to understand the factors influencing smartphone use and its impact on employee performance. Research indicates a connection between quality of life and technology addictions, such as Internet use (Whang et al., 2003). Enhancing quality of life can potentially reduce addiction (Cardak, 2013). Cultural dimensions also play a role in social media usage, as shown by Dadgar et al. (2017), who found that cultural factors like power distance, uncertainty avoidance, and individualism-collectivism influence social media engagement levels.

The challenge for employers is to balance the benefits of smartphone use with potential performance detriments. Managers need to understand personal factors contributing to smartphone addiction to address its impact on employee performance effectively. This study proposes a model to provide insights into the cultural factors affecting smartphone addiction in the workplace and the moderating role of quality of life on the relationship between smartphone addiction and performance.

The paper is structured as follows: the next section reviews relevant literature, followed by theory and hypotheses development. The methodology is then discussed, followed by data analysis. The results section is followed by a discussion of research contributions, practical implications, and limitations. The final section concludes the paper.

2 Literature Review

2.1 Employee's Performance

Employee performance is a critical area of study across various disciplines, including psychology, management, and organizational behavior (Asbari et al., 2021; Kalogiannidis, 2020). Researchers from diverse backgrounds are united in their pursuit of understanding factors that influence employee performance, given its undeniable impact on organizational success (Bono & Judge, 2003; Piccolo & Colquitt, 2006). High levels of employee performance demonstrably lead to positive outcomes, improved metrics, and overall organizational growth. Recognizing this impact, practitioners continually seek ways to invest in employees' physical, cognitive, and emotional well-being, ultimately aiming to enhance their performance (Habbershon et al., 2003; Pham-Thai et al., 2018). As a result, a substantial body of research has explored the direct, moderating, and mediating roles of various factors on employee performance. These factors include organizational citizenship behaviors (e.g., Bolino & Turnley, 2005; Hakim & Fernandes, 2017), individual and team learning, and work role involvement (e.g., Harms, 2015; Sun et al., 2017).

2.2 Addiction

Addiction has been a longstanding aspect of societal dynamics, with a notable surge in both substance and behavioral addictions in recent times (Alter, 2017; Kim, 2023). Characterized as a persistent ailment, addiction entails a recurring compulsion to engage in gratifying behaviors that

inadvertently result in harm (West & Brown, 2013). Alternatively, some define addiction as a pattern that disrupts a wholesome lifestyle, placing strain on health, family, or societal well-being (Thombs & Osborn, 2019). Various studies have aimed to uncover the root causes and motivational factors behind addiction, seeking a comprehensive understanding of its effects on individuals. Impulsive conduct is frequently linked to addiction (Michael & Seymour, 2023; Torres et al., 2013). Beyond substance addiction, emerging diagnostic categories for behavioral addiction encompass gambling (Fulton, 2022), food (Meule & Gearhardt, 2014), Internet gaming, and Internet sex addiction (Griffiths, 2001). While investigating alcohol addiction in the United States, Baltagi and Griffin (2002) identified connections between alcohol and other non-substance addictions, suggesting that individuals may be addicted to specific behaviors rather than substances (Zou et al., 2017). The concept of addiction extending beyond drugs, known as behavioral addiction, was popularized by Peele and Brodsky (1975), who contended that individuals are generally addicted to stimulating experiences, akin to substance addiction. Meule and Gearhardt's (2014) research drew parallels between gambling disorder and food disorder, revealing that individuals were cognizant of their addictive behaviors but opted for them, willingly disregarding the subsequent costs. Recent studies have delved into technology addiction, exemplified by this paper's examination of smartphone addiction through the lens of cultural dimensions.

2.3 Technology Addiction

In the contemporary age, individuals are increasingly developing dependencies on modern technologies, including smartphones, the Internet, social media platforms, and various forms of entertainment media (Kuem & Ray, 2022). The advent of the first cell phone in the early 2000s marked a significant shift as people quickly embraced the convenience it offered. Presently, smartphone addiction is acknowledged to be comparable to substance abuse and other forms of addiction. In 2011, a mere 35 percent of Americans used smartphones, but this figure has surged to 85 percent in more recent times (Pew Research Center, 2021).

The exploration of issues stemming from technology use and addiction has garnered significant attention from psychological researchers (Davis et al., 2002; Panova & Carbonell, 2018). Various types of technology addictions have been subjects of study, including video games (Hew et al., 2023; Skoric et al., 2009), mobile phones (Hong et al., 2012; Kuss et al., 2018), the Internet (Shaw & Black, 2008; Yellowlees & Marks, 2007), and social media addiction (Alshare et al., 2023; Hawi & Samaha, 2017; Hou et al., 2019). These addictions manifest as a result of psychological dependency, with individuals persisting in technology use despite its negative consequences (LaRose et al., 2003). For example, Lo et al. (2005) discovered that college students spending excessive time on online gaming encountered difficulties in maintaining interpersonal relationships. Recent studies indicate that individuals addicted to information technology may not always recognize their overuse, failing to perceive it as problematic (Vaghefi & Qahri-Saremi, 2017).

Smartphones, distinguished by their constant Internet access, have become a focal point for addiction across all age groups. The increasing capabilities of smartphones, serving as alarms, timers, cameras, GPS, and music devices, offer users more opportunities to deeply engage with their devices (De-Sola Gutiérrez et al., 2016). Peslak et al. (2011) noted that smartphone addicts exhibit a particular attraction to applications like gaming, social networking, and online shopping, while non-addicted individuals typically use smartphones for texting and email.

The concept of "Nomophobia" (no-mobile phobia) has been introduced to categorize the fear of being without a smartphone. In a study involving 2800 participants, 99 percent reported experiencing some form of nomophobia (Fitzsimmons, 2021). De-Sola Gutiérrez et al. (2016) identified smartphone addiction as a distinctive profile within Internet addiction, primarily observed in the younger generation. This study aims to explore whether cultural profiles could also influence smartphone addiction.

2.4 Hofstede's Cultural Dimensions

In this study, we explore the influence of four of Hofstede's cultural dimensions on smartphone addiction. As defined by Hofstede (1980), culture is the shared programming of the human brain that distinguishes one type of people from another. Hofstede's cultural dimensions were chosen due to their widespread acceptance as the most common definition of culture (Gupta & Gupta, 2019; Khan et al., 2020; Merhi, 2018; Srite & Karahanna, 2006; Straub et al., 2002) and their enduring prominence in the Social Science Citation Index (Alshare et al., 2011). The dimensions under scrutiny are collectivism/individualism, masculinity/femininity, power distance, and uncertainty avoidance (Hofstede et al., 2003; Hofstede-insights.com). These cultural dimensions have been employed in various social science contexts, including technology adoptions, as either direct factors or moderators (Jan et al., 2022). For instance, Dadgar et al. (2017) explored how the cultural dimensions of employees influenced their engagement with social media platforms. Their examination centered on the effects of power distance, uncertainty avoidance, and individualism-collectivism on social media usage. The study revealed that specific cultural dimensions were indicative of varying levels of utilization across different social media sites. In a similar vein, Srite and Karahanna

(2006) conducted two studies to validate a model that examined how individuals' identification with various cultural dimensions influenced their acceptance of technology. Their research departed from conventional studies that predominantly focused on the impact of national culture on individual behavior (Straub et al., 1997). Our study aims to explore whether cultural dimensions at the individual level influence an individual's behavior regarding technology addiction.

Prior research has delved into the examination of cultural dimensions in various contexts, such as technology acceptance (Srite & Karahanna, 2006), adoption of household technology (Zhang & Maruping, 2008), diverse patterns of social media usage at home or in the workplace (Dadgar et al., 2017; Gupta, 2022), and acceptance of e-commerce (Yoon, 2009). Zhang and Maruping (2008) applied Venkatesh and Brown's (2001) technology adoption model to integrate cultural dimensions with buyers' behaviors, discovering that technology adoption varies among buyers based on their cultural values. Consequently, technology adopters exhibit diversity in their cultural dimensions, with consumers scoring high on the masculinity dimension showing a greater propensity for technology adoption. Yoon (2009) employed Hofstede's cultural dimensions as moderators in an investigation of the e-commerce acceptance model, evaluating the influence of culture on ease of use, efficacy, intention to use, and trust. The study disclosed that cultural dimensions indeed impact e-commerce acceptance. Specifically, uncertainty avoidance demonstrated a moderate effect on the relationship between intention to use and trust. Moreover, masculinity was found to influence the connection between intention to use and trust, whereas power distance and individualism showed no significant influence. The correlation between cultural dimensions and smartphone addiction, the focal point of this paper, remains unexplored. The following paragraphs briefly describe the cultural dimensions as explained by (Hofstede, 1980; Hofstede-insights.com https://www.hofstede-insights.com/models/national-culture/.).

Individualism/collectivism – Individualism is the degree to which individuals are expected to take care of only themselves and their immediate families. On the other hand, collectivism refers to how individuals may expect their relatives or members of a particular in-group to take care of them. In other words, it is a reflection of the person's priority in life achievement in terms of "I" or "we." It has been reported that individuals from society with collectivistic values are more involved in using social media to share their feelings and ideas (Dadgar et al., 2017) causing them to be addicted to smartphones (Moqbel et al., 2023; Tu et al., 2011).

Masculinity/Femininity – While the masculinity dimension reflects the degree to which an individual is looking for achievement, steadfastness, and substantial rewards for success, the femininity dimension reflects cooperation, modesty, and caring traits in the individual. Individuals with high masculinity values are obsessed with competition and success; thus, they perceive technology, such as smartphones, as something they constantly need to leverage for competing purposes (Ma & Turel, 2019). Individuals from societies with high masculinity espouse competition and achievement values and would use smartphones to gain superiority over colleagues to advance their careers (Moqbel et al., 2023). As reported by Zhang and Maruping (2008) individuals who espouse masculine cultural values may tend to use personal assistance technologies more since they support their need for success and accomplishment. We assert that individuals from society with high masculinity values would be more likely to use smartphones and become addicted.

Power Distance – This dimension reflects the degree to which the less powerful members of a society accept and expect that power is distributed unequally (George et al., 2018; Gupta et al., 2019). The fundamental issue here is how a society handles inequalities among people. For example, people from society with low power distance openly challenge authority and they usually engage in active roles in the country. On the other hand, individuals from society with high power distance look at their supervisors and country officials with high respect (Hofstede, 2011). Thus, smartphones through, for example, social media platforms, will give individuals with high power distance the opportunity to express their opinions and as such they might spend more time using smartphones and become addicted (Dadgar et al., 2017).

Uncertainty Avoidance – This dimension reflects the degree to which the individuals in a society feel uncomfortable with uncertainty and ambiguity (Hofstede 1980 https://www.hofstede-insights.com/models/national-culture/). Societies with high uncertainty avoidance tend to be more risk-avoiders and intolerant of new ideas. On the other hand, societies with low uncertainty avoidance values tend to be more open to new ideas and risk-takers and praise practice over principles (Hofstede 1980 https://www.hofstede-insights.com/models/national-culture/). Prior studies found that individuals from societies with low uncertainty avoidance index, compared to those from societies with high uncertainty avoidance index, tend to adopt technology more (Ahluwalia & Merhi, 2020; Belkhamza & Wafa, 2014; Merhi & Ahluwalia, 2017). We assert that uncertainty avoidance is negatively associated with smartphone addiction.

2.5 Quality of Life

The concept of quality of life encompasses an individual's perception of the overall well-being of their life including physical, emotional, functional, and social (Cella, 1992; WHO, 2020). Contradictory and mixed results have been found in the relationship between quality of life and technology addictions (Karakose et al., 2022; Shahrestanaki et al., 2020). Researchers (e.g., Whang et al., 2003) found Internet

use to have the potential to alleviate depression and loneliness. Similarly, those who use smartphones to track their health information experience a better quality of life (Ghahramani & Wang, 2020). Other studies (e.g., Cardak, 2013) suggest that an increase in quality of life may contribute to a reduction in Internet addiction. Kumcagiz (2019) found that smartphone addiction can adversely affect the quality of life. In contrast to previous research, our investigation delves into the role of quality of life in moderating the impact of smartphone addiction on performance rather than studying the direct impact.

3 Theory and Hypotheses Development

3.1 Distraction Theory, Smartphone Addiction, and Performance

The Distraction Theory suggests that under pressure, an environment conducive to distraction is created, diverting the attention of an individual away from the execution of their duties (Carver & Scheier, 1981; Wine, 1971). Distraction arises from attention deficiency, disinterest in the subject matter, and the compelling intensity, novelty, or allure of something unrelated to the focal point of interest (Craik, 2014). The distraction could come from the environment around the individuals, known as external, or from inside the individual known as internal (Nicholson et al., 2005). Examples of external distractions include text messages, music, noise, etc. The diversion of attention along with the mental distractions compete for and diminish the crucial working capacity needed for optimal performance. To engage in multiple tasks simultaneously, an individual requires heightened cognitive activity within their working memory, referred to as cognitive burden/load (Grieve et al., 2014). Elevated cognitive burden/load can adversely impact an individual by diminishing their attention, accuracy, working memory, and overall effectiveness (Coursaris et al., 2012). Studies have demonstrated that psychological pressure disproportionately affects highly skilled individuals, depleting the essential working memory capacity that contributes to their outstanding performance.

Addiction is often characterized by the desire to escape reality or alleviate negative emotions. As a result, individuals with addiction may use their chosen behavior as a means of avoiding difficult thoughts, emotions, or responsibilities. This pattern of escapism can lead to increased distraction as they prioritize seeking relief from their addiction over other obligations (Laor, 2020). According to the IS literature, addicted social media users are likely to suffer from an urge-driven disorder (Karaiskos et al., 2010) and deficient self-regulation (Vishwanath, 2015), which keeps them constantly focused on social media and diminishes their control over addictive actions. This constant focus on social media makes it difficult for them to pay attention to other tasks and they become easily distracted. Based on the Distraction Theory, one can argue that engaging with smartphones and other digital devices, particularly for activities unrelated to work, can introduce distractions that adversely affect an individual's concentration and attentiveness to the crucial tasks that they are supposed to complete (Salehan & Negahban, 2013). In other words, leading them to be less productive with low performance. Smartphones are equipped with various features such as social media apps, messaging services, and notifications, which can be sources of constant interruptions (Wu et al., 2018). The theory suggests that the accessibility of these external distractions may divert an individual's attention away from their primary work responsibilities. Thus, one can expect that the greater the level of engagement with these devices, the lower the performance. Addicted individuals to smartphones are those who keep using them anywhere and at any time without being able to control themselves. Thus, excessive usage of smartphones negatively impacts the performance of these individuals because they get distracted and focus less on important responsibilities (Ziegler et al., 2018). The wasted time on smartphone usage will decrease productivity since addicted individuals are using the time on their smartphones rather than on job-related tasks. Another issue of continuous exposure to smartphone distractions is the compromise on the quality of work produced (Coursaris et al., 2012). Errors, oversights, and incomplete tasks may occur when individuals are not fully focused on their work due to smartphone-related interruptions. Lastly, distractions from smartphones can also increase cognitive load (Grieve et al., 2014). According to the distraction theory, a higher cognitive load may result in decreased performance on complex tasks and increased stress. Based, on this reasoning, we postulate that:

> ***Hypothesis 1:*** *Smartphone addiction is negatively associated with performance.*

3.2 Attachment Theory

Attachment theory (Bowlby, 1973) has emerged as a crucial framework in the examination of interpersonal relationships, shedding light on how these relationships evolve and influence individuals' lives. The core concept of attachment revolves around the universal need to form close and affectionate connections, serving as a mechanism to regulate distress throughout one's life (Berry et al., 2008). According to the theory, early personal experiences play a pivotal role in shaping future attachment behaviors.

Attachment styles are categorized into three distinct types: 1) anxious, 2) avoidant, and 3) secure. Both anxious and avoidant attachment styles have adverse effects

on the individual as they promote a denial of attachment, while the secure style remains neutral, indicating contentment with the state of attachment (Seol, 2016). Our study concentrates on insecure (opposite of secure) and anxious attachment styles due to prior findings suggesting that individuals with these styles seek social support when facing attachment challenges (Frías et al., 2014). Those with secure attachments are more likely to possess effective stress-coping skills, while insecure individuals resort to emotion-focused strategies (Mikulincer & Florian, 1995; Mikulincer et al., 1993). Individuals with anxious attachment styles tend to seek social support, often through smartphones, whereas those with avoidant attachment interpret social support negatively (Frías et al., 2014). The subsequent section will delve into the integration of attachment theory with cultural dimensions, specifically collectivistic/individualistic and masculinity/femininity cultures.

3.2.1 Collectivistic/Individualistic Cultural Dimension and Smartphone Addiction

There is evidence suggesting that attachment styles vary between collectivistic and individualistic cultures. For instance, Schmitt et al. (2004) discovered that North America and Western Europe exhibit higher levels of attachment avoidance compared to East Asia, attributed to their individualistic orientation. According to Markus and Kitayama (1991), collectivistic cultures may lean towards seeking social support and sharing stressful events due to their perception of profound interconnectedness with others. In the case of the collectivistic Mexican culture, a higher coping score was observed, associated with reassessment and positive reactions when receiving social support (Frías et al., 2014). However, Jiang et al. (2018) found that individuals with more collectivistic values experienced extreme loneliness and smartphone addiction, suggesting the potential for social support to transform into addiction in collectivistic individuals.

Attachment theory directly correlates with the excessive use of technology, particularly smartphone addiction. This connection arises from the central tenet of the theory, asserting that attachment leads individuals to develop possessiveness towards their smartphones (Holte & Ferraro, 2021). The theory's implications include the tendency for possessiveness, which is directly linked to how collectivists engage with their smartphones. Collectivistic individuals, driven by a propensity for seeking social help or attachment, are more susceptible to addiction or possessive attachment to their smartphones. Based on this understanding, our study proposes the following hypothesis:

Hypothesis 2: *Collectivistic culture is positively associated with smartphone addiction*

3.2.2 Masculine/Feminine Culture Dimension and Smartphone Addiction

We posit a positive correlation between the cultural dimension of masculinity and smartphone addiction. Masculinity, in this context, refers to the degree to which cultures and individuals emphasize material accomplishments (Hofstede 1986). According to Wautier and Balter Blume (2004), gender role orientation (i.e., masculinity and femininity), rather than genetic sex, is strongly associated with outcome variables such as adult attachment styles, care-based reasoning of morals, and romantic relationships.

Individuals with elevated masculinity values tend to be driven by a focus on competition and success, perceiving technology, including smartphones, as tools they consistently need for competitive purposes (Ma & Turel, 2019). As per Hofstede (1986), individuals with masculine cultural tendencies prioritize assertiveness, goal achievement, and material success, while those with feminine cultural values prioritize their quality of life, self-awareness, and nurturing characteristics. If a new technology significantly influences social outcomes, individuals with masculine cultural values and attachment issues may be inclined to use the technology more, as it aligns with their pursuit of success and accomplishment (Gupta et al., 2022; Zhang & Maruping, 2008). Those with high masculinity values and attachment anxieties (Frías et al., 2014; Sümer & Yetkili, 2018) may use smartphones to gain a competitive edge over colleagues and competitors, thereby advancing their careers. These individuals may also be influenced by societal expectations and gender norms. For people with avoidant attachment tendencies, especially men, the perceived pressure to conform to traditional masculine ideals of independence and self-sufficiency may lead to a dependence on smartphones to escape or distract themselves from emotional intimacy or vulnerability in relationships (Bucans, 2019). This avoidance of closeness can result in excessive use of smartphones to establish a sense of autonomy and control, serving as a buffer against the discomfort of emotional intimacy (Parent & Shapka, 2020). On the other hand, men with anxious attachment tendencies may seek validation and connection through smartphones or online interactions to ease fears of rejection or abandonment. The constant connectivity and immediate gratification provided by smartphones may offer a temporary sense of security for individuals struggling with anxious attachment patterns, although it could potentially worsen dependency and reinforce unhealthy coping mechanisms. Consequently, it is reasonable to propose that individuals with high masculinity values are more

susceptible to smartphone use and addiction, as they channel their attachment anxiety into self-empowerment and success through increased technology usage.

Hypothesis 3: *Masculine culture is positively associated with smartphone addiction.*

3.3 Coping Theory

Coping is viewed as a response to stress or adverse situations, and any stressful event can impact well-being, prompting various coping mechanisms (Folkman & Lazarus, 1986). Stress is conceptualized as the interaction between an individual and an environment appraised as harmful. The theory presented by Folkman et al. (1986) introduces two processes: cognitive appraisal and coping. Cognitive appraisal is described as "a process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what ways" (Folkman et al., 1986). This includes primary appraisal, where individuals assess if an encounter is stressful, and secondary appraisal, where individuals evaluate their ability to cope with the situation, leading to the development of a coping response. From the cognitive appraisal theory, individuals gauge the level of stress in response to an environmental stimulus (Lazarus & Folkman, 1984). The theory also acknowledges that individual characteristics, such as values, influence a range of behaviors, shaped by the significance of an event and forming the basis for outcome evaluation (Lazarus & Folkman, 1984).

Various authors have proposed hierarchies for the coping process (Haan, 1969; Menninger, 1963; Vaillant, 1995). Menninger's (1963) hierarchy comprises five steps ranked by internal disorganization, with stress reduction strategies at the top, known as coping devices, including self-control, humor, weeping, and working off energy. The second-order devices involve withdrawal by disassociation, displacement, substitution of symbols, and self-imposed restriction. Aggressive outbursts represent the third-order device, followed by extreme disorganization at the fourth level and total ego disintegration at the fifth. In this study, the focus is on the first and second-order coping hierarchy in relation to Hofstede's cultural dimension of uncertainty avoidance. Coping styles refer to broad ways of interacting with specific types of people or situations, such as powerful or powerless, controlling or permissive, hostile or friendly, ambiguous or clear, temporary or permanent, evaluative or non-evaluative (Lazarus & Folkman, 1991).

3.3.1 Power Distance and Smartphone Addiction

Power distance can influence how individuals adopt coping styles for stress relief. The choice of coping mechanisms for stress is heavily dependent on societal values, personal traits, and cultural exposures (Etzion & Pines, 1986; Merhi, 2021). In contexts with high power distance, employees may experience a sense of powerlessness if they have limited involvement in decision-making or appeal processes, potentially perceiving their organizations as unfair (Greenhalgh & Rosenblatt, 1984).

Individuals interpret situations based on their characteristics and societal values, shaping their perception of stress, a process known as cognitive appraisal. When individuals appraise their environment as stressful, coping mechanisms come into play. This process is influenced by the significance of an event, shaping understanding, and forming the basis for outcome evaluation (Lazarus & Folkman, 1984). Power distance orientation, which reflects the extent to which an individual accepts the unequal distribution of power, predominantly influences primary appraisal because it is closely tied to an employee's interpretation of the supervisor-subordinate relationship and their assessment of whether the situation is stressful (Lazarus & Folkman, 1984).

Employees from high power distance cultures may exhibit increased responsiveness to calls, messages, and emails from supervisors during off-hours compared to those from low power distance cultures (Lee et al., 2018). Since smartphones provide various social functions, individuals in high power distance cultures may find them convenient for maintaining social status, which holds greater importance in these cultures (Winterich & Zhang, 2014). Consequently, individuals in high power distance cultures are likely to use smartphones extensively as a primary tool for reducing social anxiety and, consequently, stress (Lee et al., 2018).

The impact of the power distance dimension is particularly significant in predicting smartphone overuse. Smartphone addiction and stress exhibit a direct relationship (Duke & Montag, 2017). For example, extensive smartphone use for checking emails can lead to heightened stress and negative emotions (Kushlev & Dunn, 2015). In high power distance cultures, where supervisor-subordinate relationships are emphasized, increased supervision can contribute to stress-related effects on subordinates (Peltokorpi, 2019). The servant-master dynamic promoted in high power distance cultures may hinder employees from challenging and expressing potential stressors, exacerbating their stress levels (Oruh & Dibia, 2020). Individuals in high power distance cultures may exhibit less confidence and a heightened sense of caution within hierarchical structures, accepting power imbalances. Lacking a self-confident coping style, individuals with high power distance tendencies may resort to using smartphones as a means of releasing pent-up emotions and stress. Consequently, those in high power distance cultures are more likely to develop smartphone addiction than others

(Alan & Senay Guzel, 2020). In alignment with coping theory, we posit a positive correlation between high power distance culture and smartphone addiction.

Hypothesis 4: *Power distance culture is positively associated with smartphone addiction.*

3.3.2 Uncertainty Avoidance and Smartphone Addiction

This study posits a negative correlation between uncertainty avoidance and smartphone addiction. Uncertainty avoidance refers to individuals' stress levels in the face of an unknown future (Hofstede, 2011). Research indicates that individuals in uncertainty-avoidance cultures exhibit lower tolerance and self-motivation, whereas those from uncertainty-accepting countries are more open to new opinions and adopting innovations (Hofstede, 2011). Previous studies support the notion that individuals from cultures with low uncertainty avoidance are more inclined to embrace technology compared to their counterparts from high uncertainty avoidance cultures (Ahluwalia & Merhi, 2020; Belkhamza & Wafa, 2014).

Coping is a process individuals employ to navigate challenging situations and prevent harm (Pearlin & Schooler, 1978). Traditionally viewed as a response to stress, coping, within the ego psychology model, encompasses cognitive processes like repression, retraction suppression, intellectualization, and problem-solving behaviors aimed at managing and alleviating emotional distress (Menninger, 1963; Vaillant, 1995). Menninger's (1963) five hierarchical coping steps include withdrawal, a mechanism often utilized by individuals with higher uncertainty avoidance, especially concerning smartphones. Previous research suggests that individuals with high uncertainty avoidance cope by choosing not to use smartphones due to uncertainties. They are reported to show less interest in online shopping and adopting new technologies (Yoon, 2009). Additionally, individuals with higher uncertainty avoidance tend to avoid changes and harbor trust issues regarding new technology use, leading them to prefer alternative activities over smartphone engagement (Belkhamza & Wafa, 2014). Therefore, in this study, we anticipate high uncertainty avoidance values to be negatively associated with smartphone addiction.

Hypothesis 5: *Uncertainty avoidance culture is negatively associated with smartphone addiction.*

3.4 Self-Regulation Theory and Quality of Life

The Self-Regulation Theory (SRT), which stems from the Social Cognitive Theory (Bandura, 1991), suggests that people are active agents who engage in a self-motivated process of evaluating threats and then use problem-solving tactics to address them (Leventhal & Cleary, 1980). In other words, SRT deals with individuals' ability to regulate their behaviors, feelings, and thoughts. Those who are categorized as having high self-regulation control are those who think about long-term goals and prioritize them over short-term rewards by making rigorous decisions. When someone can't have any more control, self-regulation gets weakened thus leading them to make ill decisions. The theory of self-regulation posits that individuals play an active role in their own development and learning (Hadwin & Oshige, 2011). It proposes that people are not mere recipients of information or external influences; instead, they proactively control their thoughts, emotions, and behaviors to attain desired results. Essential to effective self-regulation is the capacity to establish and pursue goals, track progress, and adapt strategies in response to feedback.

3.4.1 Quality of Life Moderation Effect

As previously mentioned, smartphone addiction is often linked to adverse outcomes, including diminished attention, productivity, and overall performance (Coursaris et al., 2012). Excessive engagement in non-essential smartphone activities can result in distractions, lowering efficiency in critical tasks (Ziegler et al., 2018). Individuals with a high quality of life are more likely to enjoy positive mental health, satisfaction, and fulfillment across various life domains (Schalock & Felce, 2004). Consequently, and based on SRT, it can be anticipated that those with a superior quality of life are better equipped to manage the adverse effects of smartphone addiction. This may be evident in various ways, such as possessing robust coping mechanisms, effective stress management skills, or an enhanced ability to sustain focus and productivity despite the challenges posed by smartphone usage. Furthermore, the positive facets of a strong quality of life may act as a counterbalance, mitigating the negative impact of addictive smartphone use and enabling individuals to uphold or even improve their levels of performance. Hence, we argue that individuals with a better quality of life may be more resilient or better equipped to manage potential negative influences from addictive smartphone use on performance. This might be due to stronger coping mechanisms, effective stress management, or a greater ability to balance healthy technology use and workplace performance. Based on this, we hypothesize:

Hypothesis 6: *Quality of life positively moderates the relationship between smartphone addiction and performance.*

Figure 1 illustrates the above discussed hypotheses.

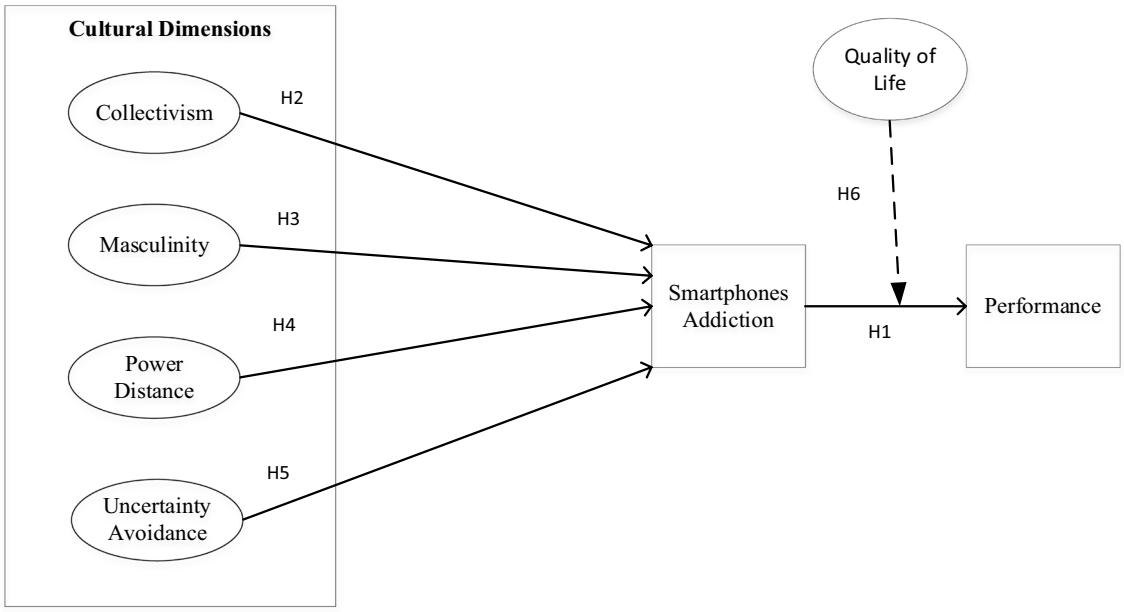

Fig. 1 Proposed research model

4 Method

4.1 Measures

The constructs used in this research are adapted from validated and established prior studies. Smartphone addiction measures were adopted from Moqbel and Kock (2018) and Charlton (2002). Cultural dimension scales were adopted from Srite and Karahanna (2006). The quality of life (well-being) measure was adopted from Moriarty et al. (2003). Performance measures were adopted from Janssen and Van Yperen (2004). We used a five-point Likert scale for all measurement items (1 = strongly disagree, 5 = strongly agree) except the quality of life, which used a 7-point scale where 1 = Poor and 7 = Excellent. Furthermore, demographic variables, such as age, gender, education level, and job title were included as control variables. Appendix section presents the details of measurement items.

4.2 Sample and Data Collection

Data for this study were gathered through a questionnaire administered to employees at a prominent medical center in the Midwest region of the United States. The research procedures received approval from the institutional review board at a major university in the same region. To qualify for participation, individuals needed to be 18 years or older, possess a smartphone, and provide consent. We emphasized to participants that their involvement in the survey was entirely voluntary, and measures were implemented to ensure the anonymity of data, minimizing response bias.

A total of 246 employees partook in the study, yielding 233 valid responses. The age range of participants spanned from 19 to 78 years, with an average age of 37.06 years and a standard deviation of 12.80. The gender distribution consisted of 172 females, 59 males, and some participants choosing not to disclose their gender identity. On average, participants had been in their current job for 6.20 years.

Regarding job levels, 38.20% were classified as Junior Staff, 27.46% as Senior Staff, 4.29% as Junior Managers, 22.32% as Middle-level Managers, and 7.73% as Senior Management. The majority, or 80%, of the participants identified as white. Education levels varied, with 15.45% having completed high school, 16.32% holding an associate degree, 46.78% possessing a bachelor's degree, 18.45% attaining a master's degree, and 3% holding doctoral degrees.

5 Data Analysis

5.1 Statistical Method

We employed partial least squares (PLS) structure equation modeling (SEM) to test our model since it is appropriate for relatively small sample size cases and does not require normal distribution (Chin, 1998). We used the WarpPLS 8.0 software (Kock, 2022) to assess the measurement model (reliability, convergent validity, and discriminant validity) and the structural model.

5.2 Reliability and Validity of Measurement Model

The constructs' reliability was assessed using composite reliability. As shown in Table 1, the values exceeded the minimum threshold of 0.7 (Gefen et al., 2000). We used the loadings of the items and cross-loading for the measurement validity to assess the discriminant and convergent validity. As shown in Table 1, all loadings exceeded the recommended value (0.70), and all cross-loadings are below 0.30. Additionally, the square root values of AVE, as reported in Table 2, are greater than the corresponding off-diagonal values, which indicates that the measurement instrument has met the discriminant validity.

6 Results

As shown in Fig. 2, the results indicate that there is a negative relationship between smartphone addiction and performance (H1: $\beta = -0.20$, $p < 0.01$). While the relationships between collectivism, masculinity, and power distance with smartphone addiction were positive (H2: $\beta = 0.19$, $p < 0.01$; H3: $\beta = 0.09$, $p < 0.05$, H4: $\beta = 0.08$, $p < 0.1$, respectively), the relationship between uncertainty avoidance and smartphone was negative (H5: $\beta = -0.24$, $p < 0.01$). Concerning the quality of life moderating effect, it positively moderates the relationship between smartphone addiction and

Table 1 Constructs reliability and validity

Construct	Items	ADDC	MASC	COLV	POWR	UNAV	LIFE	PERF	FCVIF	AVE	CR	Normal
	ADDC1	**0.899**	-0.047	0.094	-0.151	0.107	-0.072	-0.026				
	ADDC2	**0.889**	0.036	0.159	-0.096	-0.068	-0.034	-0.010				
Addiction	ADDC3	**0.879**	-0.060	-0.114	0.130	-0.061	0.145	-0.104	1.261	0.51	0.838	Yes
	ADDC4	**0.892**	-0.056	-0.132	0.266	-0.164	0.117	0.033				
	ADDC5	**0.902**	0.117	-0.014	-0.128	0.171	-0.146	0.108				
Masculinity	MASC1	-0.034	**0.911**	-0.051	-0.022	-0.06	-0.018	0.103	1.233	0.855	0.922	No
	MACS2	0.034	**0.873**	0.052	0.022	0.061	0.019	-0.105				
	COLV1	0.204	0.435	**0.784**	-0.148	0.078	-0.001	-0.157				
Collectivism	COLV2	-0.043	-0.123	**0.934**	0.008	-0.048	-0.021	-0.035	1.176	0.591	0.808	No
	COLV3	-0.077	-0.127	**0.921**	0.082	0.008	0.025	0.139				
	POWR1	-0.150	0.012	0.100	**0.897**	-0.118	-0.070	-0.032				
Power Dist	POWR2	0.063	-0.012	-0.09	**0.874**	-0.008	-0.009	0.080	1.289	0.688	0.868	No
	POWR3	0.092	0.000	-0.003	**0.858**	0.142	0.089	-0.061				
Uncer. Avid	UNAV1	0.034	0.044	0.040	-0.107	**0.953**	-0.002	-0.043	1.184	0.789	0.882	No
	UNAV2	-0.036	-0.047	-0.043	0.116	**0.926**	0.002	0.046				
	LIFE1	0.091	0.016	-0.034	-0.038	0.006	**0.940**	0.044				
Quality Life	LIFE2	0.055	0.018	-0.084	0.030	0.071	**0.933**	0.019	1.129	0.785	0.936	No
	LIFE3	-0.090	0.043	0.02	-0.047	-0.021	**0.922**	-0.054				
	LIFE4	-0.064	-0.073	0.101	0.049	-0.06	**0.935**	-0.013				
	PERF1	0.024	0.021	0.057	-0.011	-0.043	0.014	**0.949**				
Performance	PERF2	-0.009	-0.015	-0.011	0.002	0.023	-0.021	**0.938**	1.101	0.830	0.936	No
	PERF3	-0.011	-0.001	-0.035	0.007	0.011	0.010	**0.942**				

All loadings are significant at $p < 0.001$; *FCVIF* = full collinearity variance inflation factor, ideally if the average (2.78) is < = 3.3. or accepted if FCVIF is < = 5.0 (Kock, 2022), *AVE*: average variance extracted; *CR*: composite reliability

Table 2 Inter-construct correlation matrix correlation

	ADDC	MASC	COLV	POWR	UNAV	LIFE	PERF
ADDC	**0.714**						
MASC	0.078	**0.924**					
COLV	0.117	0.057	**0.769**				
POWR	0.053	0.317	0.195	**0.829**			
UNAV	-0.210	-0.074	0.064	0.091	**0.888**		
LIFE	-0.229	0.014	0.036	0.050	-0.002	**0.886**	
PERF	-0.140	-0.138	0.082	-0.162	0.147	0.074	**0.911**

Bold: square root of average variance extracted (AVEs)

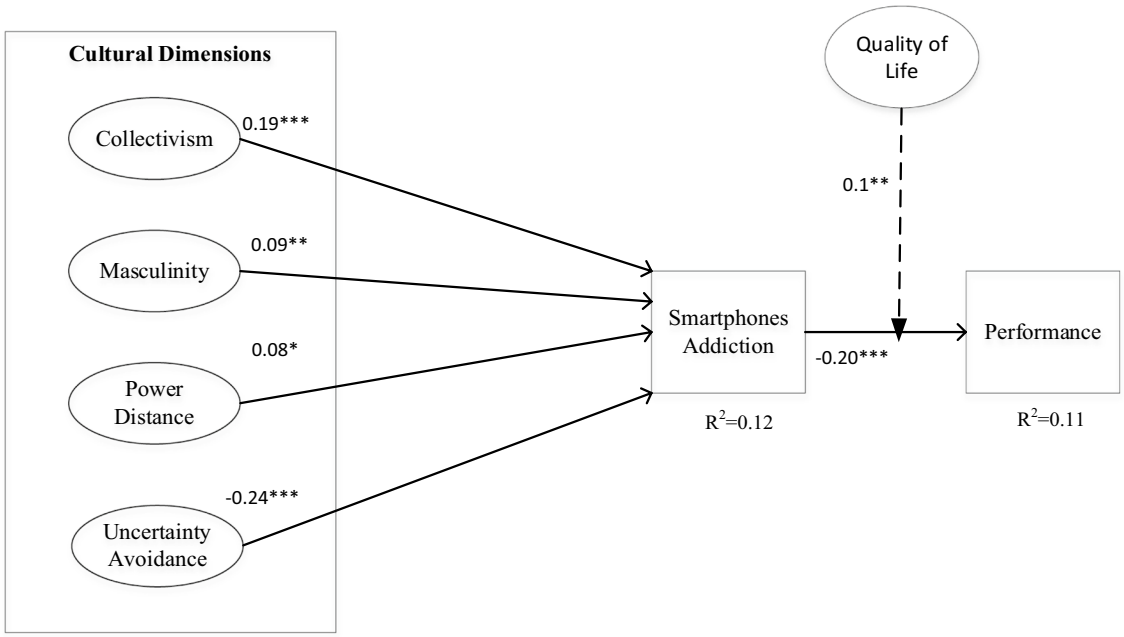

Fig. 2 Model with results. *** $P<0.01$; ** $P<0.05$; *$P<0.1$

performance (H6: $\beta=0.1$, $p<0.05$). The model illustrates that our research explained 11% of the variance in employee performance. Concerning the control variables, the results indicate that age ($\beta=-0.14$, $p<0.01$), educational level ($\beta=0.11$, $p<0.05$), and work nature ($\beta=0.16$, $p<0.01$) were significant. Educational level was measured using this scale: 1 = Less than High School, 2 = High School, 3 = Associate Degree, 4 = Bachelor Degree, 5 = Master Degree, 6 = Doctoral Degree or JD. Work nature was measured using this scale: 1 = IT/Health IT, 2 = Administrative, 3 = Research, 4 = Clinical. This result indicates that the higher the educational level is the better employee performance is. It also shows that the clinical employees perform better than the others On the other hand, gender, job title, and marital status were not significant. It should be noted that female employees were more addicted to smartphones than male employees ($\beta=0.16$, $p<0.01$).

7 Discussion

This study aimed to further our understanding of the impact of cultural dimensions on smartphone addiction and the impact of this addiction on employee performance through the lens of attachment, coping, and distraction theories. Additionally, it examines the moderating impact of employee's quality of life on the hypothesized relationship between smartphone addiction and performance using self-regulation theory. The result indicates that employees with high levels of smartphone addiction would have a low level of performance. This finding is consistent with a result of a study by Alan et al. (2022), which found that there is a negative relationship between employees' smartphone addiction and employee performance in the healthcare sector.

This study proposed that collectivism, masculinity, and power distance cultural dimensions are positively associated with smartphone addiction, but uncertainty avoidance is negatively related to smartphone addiction. Individuals facing attachment anxiety are attributed to smartphone addiction differences based on their cultural dimensions. Different coping strategies also determined whether individuals became addicted to smartphones based on the four cultural dimensions. The results suggest that individuals, who are part of collectivistic cultures (e.g., Chinese and Indian people), face anxiety attachment (Frías et al., 2014; Sümer & Yetkili, 2018) and thus are prone to spending their time using smartphones, eventually getting addicted (Rasouli Dezfouli & Srite, 2022). The results further confirm the proposition that people who espouse masculine cultural values (e.g., Chinese and American people) are positively associated with smartphone addiction. Those who identify with masculine cultural values are more competitive and have a success-seeking nature which encourages them to spend more time on smartphones to stay updated on events (Sanakulov & Karjaluoto, 2017).

We also hypothesized that uncertainty avoidance has a negative relationship with smartphone addiction in contrast to other cultural dimensions. Our data supported this hypothesis. Individuals with lower uncertainty avoidance cultural

values (e.g., United States and United Kingdom) tend to use smartphones as a coping mechanism.

Depending on different cultural dimensions and values, smartphone addiction varies from individual to individual. This study shows that individuals with collectivistic cultural values tend to be more social, especially more engaged in smartphone usage, possibly due to attachment anxieties (Frías et al., 2014; Sümer & Yetkili, 2018) that may cause them to get in touch with others more. Furthermore, individuals with masculine cultural values have more technology-focused tendencies and therefore could experience smartphone addiction the more they connect with others, possibly due to attachment desires. However, individuals with high uncertainty avoidance cultural values (e.g., Arab countries and Chile) tend not to trust technology. We attribute this to their tendencies to use withdrawal coping mechanisms when uncertainty increases; thus, they would avoid excessive use of smartphones to decrease uncertainties further.

The findings of this study confirm our hypothesis that the impact of smartphone addiction on performance will be less for those employees with high quality-of-life scores. Specifically, employees who experience high quality of life conditions, such as overall good physical and mental health, would have more control over their smartphone addiction and reduce its negative impact on their performance. In other words, employees with a higher quality of life are likely to have better coping mechanisms (Folkman & Lazarus, 1986), higher self-regulation control (Hadwin & Oshige, 2011), greater emotional resilience (Troy et al., 2023), and more balanced lifestyle (Schalock & Felce, 2004). These attributes can mitigate the stress and compulsive behaviors associated with smartphone addiction (Ratan et al., 2021), thereby reducing its adverse effects on job performance.

7.1 Research Contributions

The contributions of any research endeavor may include one or more of the following: 1) confirming prior research results in the same or different context; 2) furthering our understanding of the phenomenon under study by either investigating the phenomenon in a new setting (new situational context) or inclusion of new factors in the proposed mode; and 3) developing a new method or theory to tackle the research question at hand (Venkatesh et al., 2012). As such, the current study's research contributions include confirming prior research findings as stated in the previous section (e.g., the negative relationship between smartphone addiction and performance); offering a new understanding of the relationship between culture and smartphone addiction; and advancing our understanding of the buffering impact of quality of life on the relationship between technology addiction (smartphones) and employee performance.

The present study explored four dimensions of Hofstede's cultural dimensions—collectivism/individualism, masculinity/femininity, power distance, and uncertainty avoidance. This research integrates these cultural dimensions with attachment and coping theories to elucidate why collectivists tend to exhibit higher smartphone addiction compared to individualists. This inclination may be attributed to collectivists seeking support from others during periods of heightened anxiety (Frías et al., 2014; Sümer & Yetkili, 2018). Given that collectivistic individuals are characterized as more social, friendly, and extroverted (Hofstede, 2003), they may prefer connecting with others through smartphones on social media platforms.

Furthermore, this study enhances theoretical understanding by examining the impact of the masculine cultural dimension in the context of attachment styles. The findings indicate that individuals with masculine cultural tendencies rely more on their smartphones, and attachment anxieties could contribute to this addiction. Hayslett-McCall and Bernard (2002) proposed that individuals facing attachment anxieties often exhibit low self-control, engaging in potentially harmful activities.

Additionally, this research advances theory by associating the influence of the uncertainty avoidance cultural dimension with coping strategies. The study identifies various hierarchical coping mechanisms employed by individuals managing stress (Menninger, 1963). Those with high uncertainty avoidance tendencies may resort to the second-level coping mechanism of withdrawal, potentially leading them to avoid smartphone usage. These results prompt further exploration by researchers into the roles of attachment styles and coping strategies, contributing to a deeper understanding of why certain dimensions in Hofstede's cultural framework are linked to smartphone addiction.

The third contribution is the employment of the self-regulation theory to enhance our understanding of the moderating role of quality of life in the relationship between smartphone addiction and employee performance. It is evident that such a factor has a positive impact, in the sense it reduces the negative impact of smartphone addiction on employee performance. This finding should inspire researchers' interest in considering the inclusion of quality of life as a moderator factor when examining human behavior and human decisions.

7.2 Practical Contributions

Cessation programs and applications have been developed for smoking (Abroms et al., 2013; Zeng et al., 2015),

and it is now pertinent to consider similar initiatives to address smartphone addiction. This research reveals that individuals with collectivist cultural inclinations exhibit a higher propensity for smartphone addiction. This insight can guide practitioners in tailoring the design of cessation programs and apps to align with this cultural dimension. Furthermore, the study indicates that individuals with masculine cultural tendencies may resort to smartphones as a stress-reduction tool, but this behavior carries the risk of addiction. Consequently, our findings suggest a need to customize cessation programs and applications, focusing on masculine rather than feminine cultural tendencies. In light of previous research highlighting the competitive nature of those with masculine cultural traits and their susceptibility to technology addiction, practitioners should devise solutions to divert them from excessive smartphone interaction. Additionally, application designers and program developers might consider tailoring their offerings for individuals with low uncertainty avoidance cultural tendencies. Our results strongly support the hypothesis that individuals from high uncertainty avoidance cultures are more inclined to avoid smartphone use to the point of addiction. Therefore, developers should shape their programs and apps with a focus on individuals exhibiting low uncertainty avoidance, given their proclivity for risk-taking behavior (McGrath et al., 1992).

Managers in societies that are dominated by collectivism, masculinity, and low uncertainty cultural values like China, India, Malaysia, and Qatar need to closely monitor their employees to prevent the excessive use of smartphones during work hours so that it will not affect their performance. How? The answer depends on many factors such as the organization's culture and structure, the relationship between managers and employees, and the policies and rules that govern the usage of technology at work. Moreover, managers need to pay attention to their employees' health status by establishing wellness programs that emphasize physical and mental health practices.

Our research suggests that enhancing employees' quality of life can be an effective strategy for organizations aiming to counteract the negative impact of smartphone addiction on performance. Employers can implement programs focused on improving work-life balance, promoting physical health, and supporting mental well-being. Initiatives such as flexible working hours, remote work options, and sufficient leave policies, wellness programs, and mental health resources (e.g., counseling services) can contribute to a higher quality of life among employees, thus serving as a buffer against the performance detriments associated with smartphone addiction.

7.3 Limitation and Future Research

Potential limitations, which suggest avenues for future research, are worth noting. Firstly, our examination of the proposed model relied on data collected from a medical center situated in the United States. To enhance generalizability, subsequent researchers might broaden their sample size by incorporating respondents from diverse sectors or countries. Secondly, the data obtained from respondents were self-reported, meaning their responses regarding smartphone addictive use and cultural dimension values lacked independent verification through behavioral observations. Subsequent investigations could differentiate between students and employees, given that teenagers have been observed to exhibit higher smartphone addiction rates (Wallace, 2016). Future research should explore how control variables like age, gender, and job title might moderate the relationships between smartphone addiction and performance, providing a more nuanced understanding of the underlying dynamics. Furthermore, we suggest future research to extend our model to include additional variables that could mediate the relationship between smartphone addiction and employee performance, to gain a more nuanced understanding of this complex relationship. Potential candidates for mediation might include variables such as job stress, work engagement, or cognitive overload. Lastly, this study employed a cross-sectional survey approach. Future endeavors could benefit from adopting a longitudinal research design to gain a deeper understanding of the relationship between cultural dimensions and smartphone addiction over time.

8 Conclusion

This study has three primary objectives: 1) to assess the influence of cultural dimensions on smartphone addiction; 2) to examine the impact of smartphone addiction on employees' performance; and 3) to investigate the role of quality of life in the hypothesized relationship between smartphone addiction and performance. Our research reveals variations in smartphone addiction across Hofstede's cultural dimensions. The results indicate that individuals with high collectivistic cultural values exhibit greater smartphone addiction compared to those with individualistic cultural values, possibly linked to their anxious attachment style. Moreover, the findings highlight that individuals with masculine cultural tendencies experience higher levels of smartphone addiction than those with feminine tendencies, potentially due to utilizing smartphones to fuel their competitive nature

and alleviate stress, thereby displaying an anxious attachment style. In contrast, individuals with high uncertainty avoidance show lower smartphone addiction, attributed to their avoidance coping mechanism, as they may opt to refrain from using smartphones due to a fear of encountering unfamiliar situations. The study also establishes a negative relationship between smartphone addiction and employees' performance, with the quality of life moderating this association. These results provide valuable insights for future research endeavors and offer practical guidance to managers, enabling them to make informed decisions on managing smartphone use in the workplace. Such measures aim to mitigate the negative impact of smartphone usage at work, ultimately enhancing employees' performance and engagement in the workplace.

Appendix

Descriptive Result for Items Scale.

Construct	Items	Statement	Means	Std. Dev
Performance	PERF1	I always complete the work specified in my job description	4.27	0.669
	PERF2	I meet all the formal performance requirements of my job	4.36	0.668
	PERF3	I fulfill all responsibilities required by my job	4.40	0.663
Smartphone Addiction	ADDC1	I have made unsuccessful attempts to reduce the time I interact with my smartphone at work	3.39	1.086
	ADDC2	Using my smartphone sometimes interfered with other activities at work	2.75	1.075
	ADDC3	Arguments have sometimes arisen at work because of the time I spend on my smartphone at work	2.08	1.090
	ADDC4	I am late for engagements at work because I interact with my smartphone	2.21	1.155
	ADDC5	I think that I am addicted to smartphone use	2.61	1.192
Quality of Life	LIFE1	In general, how would you rate your overall health during the past week:	5.35	1.298
	LIFE2	How would you rate your overall quality of life during the past week:	5.54	1.141
	LIFE3	How would you rate your overall mental (e.g., stress, depression, and problems with emotions) health during the past week:	5.22	1.359
	LIFE4	How would you rate your overall physical (e.g. physical illness and injury) health during the past week:	5.39	1.184
Masculinity	MASC1	It is preferable to have a man in high-level position rather than a woman	1.86	1.054
	MASC2	Solving organizational problems requires the active forcible approach, which is typical of men	1.67	0.845
Collectivism	COLV1	Being accepted as a member of a group is more important than having autonomy and independence	2.54	1.008
	COLV2	Group success is more important than individual success	3.41	1.005
	COLV3	Being loyal to a group is more important than individual gain	3.48	0.924
Power Distance	POWR1	Managers should make most decisions without consulting subordinates	2.00	0.828
	POWR2	Decision-making power should stay with top management in the organization and not be delegated to lower-level employees	2.12	0.900
	POWR3	Employees should not question their manager's decisions	2.10	0.913
Uncertainty Avoidance	UNAV1	Rules and regulations are important because they inform workers what the organization expects of them	3.98	0.851
	UNAV2	Order and structure are very important in a work environment	4.14	0.810

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Availability of Data and Material Original data are available upon request.

Declarations

Ethics Approval and Consent to Participate The study was approved by the IRB at a major University Medical Center in the Midwest region of the United States.

Consent for Publication We hereby provide consent for the publication of the manuscript detailed above.

Competing Interest None Declared.

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Khaled A. Alshare is a professor of Information Systems at Qatar University. He served as associate dean for research and graduate studies. He received his Ph.D. from the University of Texas at Arlington. His teaching interests include business analytics, project management, systems analysis and design, and strategic MIS. His research interests include technology adoption, behavioral information security, cross-cultural studies in IS, Higher education challenges, and data envelopment analysis. His work appeared in various academic journals. He has served in numerous professional organizations such as the Decision Sciences Institute-DSI (VP and Board member), Southwest DSI (SWDSI president, program chair, council member, and track chair), AMCIS (mini-track chair, session chair, and reviewer), The Consortium for Computing Sciences in Colleges (board member, papers chair, and treasurer), and the president of the Association for Information systems (AIS) Qatar chapter.

Murad Moqbel is Associate Professor of Information Systems and founding director of the Master of Science in Business Analytics at the University of Texas Rio Grande Valley. He holds a PhD degree in Management Information Systems from Texas A&M International University. He graduated Cum Laude with a bachelor's in business administration and computer information systems, and he received an MBA with information systems concentration, from Emporia State University, Emporia, Kansas. He has authored and co-authored several papers that appeared in Information & Management, Information Technology and People, Journal of Computer Information Systems, AIS Transactions on HCI, Internet Research, and the proceedings of major IS conferences such as ICIS, HICSS, and AMCIS. His research interests focus on the interaction between human behavior and information technologies including social media, emerging technologies and health IT, information security and privacy, and international business.

Mohammad I. Merhi is a Professor and Associate Dean at the Judd Leighton School of Business & Economics at Indiana University South Bend. His research interests include behavioral aspects of information security and privacy, the adoption and implementation of information and analytics systems in organizations, the impact of digital transformation and Artificial Intelligence, and cross-cultural studies. Dr. Merhi has published his research in several leading journals including Information Systems Frontiers, International Journal of Production Economics, International Journal of Information Management, International Journal of Production Research, Journal of Global Information Management, Computers in Human Behavior, Computers and Education, and Technological Forecasting and Social Change. He has also presented his research at leading international and national conference meetings and workshops.

Valerie L. Bartelt is an Associate Professor in the Information and Technology Management Department in the Sykes College of Business at the University of Tampa. She earned a Ph.D. in Information Systems at Indiana University. Her work has been published in several journals, including MIS Quarterly, Proceedings of the National Academy of Sciences, Journal of Management Information Systems, European Journal of Information Systems, and Decision Sciences. Her research has also been noted in several media outlets including Reuters, Financial Times, The New York Times, Forbes, and Bloomberg. Valerie's research interests primarily involve information communication technologies in virtual teams, health information systems, and issues surrounding technology use and adoption.

Maliha Alam is a third year PhD candidate at the department of Information Systems in the University of Texas Rio Grande Valley. She is working as a Research Assistant in the University of Texas Rio Grande Valley. She has completed her Bachelor of Business Administration and Master of Business Administration, both from the department of Management Information Systems from the University of Dhaka, Bangladesh. She has been awarded Dean's scholarship for the year 2021-2022. Her research interest lies in technology and cultural dimension, social media Analytics and Information systems security.