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The Use of Social Media and Narcissism: A Perspective from Saudi Arabia

Abstract

Purpose: This study examines the effects of social media use on narcissism, empathy, sympathy, and psychological well-being, with a particular focus on gender differences in the Saudi Arabian context.

Study design/methodology/approach: A quantitative research design was used in which survey data were analyzed using regression models to examine the psychological and emotional factors in social media use.

Sample and data: Data were collected in Saudi Arabia, with a sample of 404 social media users. Two separate analyses were conducted for male and female participants.

Results: The results show that social media use is negatively associated with narcissism in all study models. In the male model, social media use has no significant effect on empathy or sympathy, although these factors influence psychological well-being. In the female model, social media use significantly predicts sympathy. In addition, narcissism shows a significant interaction effect in the full and female models but not in the male model.

Originality/value: This study contributes to the limited literature on the psychological effects of social media use in the Arab world- and offers gender-specific findings in a culturally specific setting.

Research limitations/implications: The study is limited to self-reported data from a single country and may not capture all causal relationships. Future research could explore longitudinal studies and cross-cultural comparisons.

Keywords: Empathy, Narcissism, Social Media, Sympathy, Well-Being, Saudi Arabia.

JEL classification: I3

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الملخص

استخدام وسائل التواصل الاجتماعي والنرجسية: منظور من المملكة العربية السعودية

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هدف الدراسة: تهدف هذه الدراسة إلى تحليل أثر استخدام وسائل التواصل الاجتماعي على النرجسية، والتعاطف، والشفقة، والرفاهية النفسية، مع دراسة الفروقات بين الجنسين في السياق الثقافي السعودي. **تصميم/ منهجية/ طريقة الدراسة:** اعتمدت الدراسة المنهج الكمي، من خلال توزيع استبانة وتحليل البيانات باستخدام نماذج الانحدار لاختبار العلاقات بين العوامل النفسية والاجتماعية. **عينة الدراسة وبياناتها:** تكونت العينة من 404 مشاركين من المملكة العربية السعودية، وتم إجراء تحليلات منفصلة لعينة الذكور والإناث.

نتائج الدراسة: أظهرت النتائج وجود علاقة سلبية بين استخدام وسائل التواصل الاجتماعي والنرجسية في جميع نماذج الدراسة. لم تظهر علاقة بين استخدام وسائل التواصل الاجتماعي والتعاطف والشفقة لدى عينة الذكور، بينما تظهر أن الشفقة تتأثر بشكل باستخدام وسائل التواصل الاجتماعي لدى عينة الإناث. كما أظهر عامل النرجسية أثراً تفاعلياً في النموذجين (النموذج الكلي والخاص بالإناث)، دون دلالة في نموذج الذكور.

أصالة الدراسة: تقدم الدراسة مساهمة علمية نوعية من خلال تناولها لموضوع لم يحظَ بالاهتمام الكافي في الأدبيات العربية، وتسهم في فهم الأبعاد النفسية والاجتماعية لاستخدام وسائل التواصل الاجتماعي ضمن بيئة ثقافية محددة.

حدود الدراسة وتطبيقاتها: تقتصر نتائج الدراسة على بيانات ذاتية من دولة واحدة، مما قد يحد من التعميم. وتوصى الدراسات المستقبلية بتبني تصاميم البحث الطولية واستخدام عينات من دول مختلفة.

الكلمات المفتاحية: التعاطف، النرجسية، وسائل التواصل الاجتماعي، الموساة، الرفاهية، المملكة العربية السعودية.

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Introduction

Social media has become an integral part of people's lives- and is changing the way they communicate with their social circles, including family and friends (Nuzulita & Subriadi, 2020). Essentially, social media platforms are interactive technologies that promote human connection, collaboration, and connectivity- and contribute to advancements in various professional fields. These platforms allow individuals to connect and engage with others across geographical boundaries (Ndiege, 2019). By sharing their daily experiences on social media, they foster a sense of belonging, acceptance, and social identity (Yu et al., 2015). Consequently, the benefits of using social media extend across different social classes.

While previous research has primarily focused on exploring factors that drive or inhibit social media use (e.g., Rauschnabel et al., 2019), little attention has been paid to the question of how social media use affects individuals' lives. In particular, the impact of social media on the psychological well-being of users is an area that deserves closer scrutiny. Recognizing the relationship between social media use and users' psychological well-being is crucial to understanding the broader impact of these platforms on people's lives.

A person's psychological well-being is closely linked to their personality traits (Nikbin et al., 2020). Personality traits- such as extraversion or neuroticism- play a role in the expression of perceived psychological well-being (Salami, 2011). This close link between personality and psychological well-being emphasizes the importance of investigating how social media use might affect psychological well-being through other personality traits- such as narcissism, empathy, and sympathy.

Narcissism encompasses various elements, ranging from recognizing shared humanity and practicing self-love to promoting one's own well-being and actively comforting in difficult situations, recognizing that such experiences are part of being human (Westaby et al., 2014). Cognitive empathy, on the other hand, refers to a person's ability to conceivably understand and consider another person's perspective (Girard et al., 2015). It involves the cognitive ability to understand how people react to different situations and offer help when needed, which emphasizes an understanding of individual differences and the ability to interact with people in different ways. In contrast, sympathy is an emotional consideration shown primarily when one has little or nothing to offer and is distinct from affective

empathy (Girard et al., 2015). Affective empathy is about understanding another person's emotions and responding appropriately, whereas sympathy does not necessarily require a response (Song & Shi, 2017).

Narcissism and empathy are innate human personality traits that are subject to both innate and cultivated development (Fang et al., 2015). Essentially, narcissism can be understood as self-absorption, while empathy is synonymous with empathizing with others. These two traits develop over time through life experiences and human knowledge (Kardos et al., 2017). Girard et al. (2015) find that teenagers- in particular- tend to disclose personal information and show higher levels of emotional empathy on social media compared to adults. However, this openness can also lead to potential pitfalls, such as jeopardizing their well-being when others exploit or negatively impact their personal lives online.

Well-being, defined as the cumulative psychological experience and functioning of individuals through various life experiences, is closely linked to the digital world, symbolized by the use of social media. This connection serves as a litmus test for human narcissism, empathy, sympathy- and overall well-being.

In the context of sympathy, well-being takes center stage as people who empathize with others are often distressed when they don't have the means to materially help those in need. As Taylor (2011) suggests in his social support project, people can be unhappy when they empathize with others without having concrete ways to actively contribute to their happiness, which ultimately affects the individual's well-being.

This study has two main objectives: (1) to examine the effects of social media narcissism on cognitive empathy and sympathy within the Saudi Arabian context and (2) to explore potential gender differences in this relationship. Given the notable differences in the way men and women in Saudi Arabia use and interpret social media content, this study aims to provide a deeper understanding of these dynamics. Specifically, the research seeks to address the following questions: (a) How does social media use affect the personality traits of narcissism, sympathy, and empathy?, (b) How do these personality traits affect psychological well-being?, (c) Does narcissism moderate the relationship between sympathy, empathy, and psychological well-being?, and (d) Do the effects of social media use and personality traits on psychological well-being differ significantly between men and women?

First, this study makes a valuable contribution to the growing number of literature that focus on social media use, narcissistic traits, and empathetic responses- particularly, cognitive empathy and sympathy- especially in the Arab context. Second, by examining how Saudi users interact on social media, particularly how narcissism may influence their capacity for cognitive empathy and sympathy, the research offers important insights into broader patterns of digital communication in the Arab world. Saudi Arabia has a young, digitally active population with high social media engagement, making it an important setting for studying these psychological and behavioral dynamics. Studying these interactions can help researchers and practitioners better understand the emotional and social impact of social media use in the region. From a practical standpoint, these findings have real-world implications. A deeper understanding of how narcissistic tendencies affect online empathy-related behaviors can inform awareness campaigns and digital literacy programs. These efforts can help promote healthier, more emotionally intelligent social media interactions. Moreover, the results may support the development of platform features or community guidelines that promote empathetic engagement and prevent toxic or narcissistic behaviors. Finally, while prior studies have analyzed the connections between social media use, sympathy, empathy, and psychological well-being in isolation, this study provides a comprehensive, integrative model. By examining how these variables interact, it provides a more holistic understanding of the psychological impact of social media use, and paves the way for more nuanced research and more targeted interventions.

Literature Review

Social Media Use and Gender

Krasnova et al. (2017) examined gender differences in social networking site (SNS) continuance intentions using multiple theoretical models. Their findings indicated that although both genders valued self-enhancement, women were more motivated by relational uses (e.g., maintaining ties and accessing social information), whereas men prioritized general information-seeking. Twenge and Martin (2020) explored gender differences in social media use by analyzing data from three large, representative surveys of adolescents aged 13 to 18 in the U.S. and UK (total $N = 221,096$). The results showed that adolescent girls used social media and texting more frequently, while boys engaged more in gaming and general device use. Heavy digital media use was associated with lower psychological well-being, with stronger negative effects observed among girls. Light users re-

ported slightly better well-being than non-users, especially among boys. In contrast, heavy users of both genders exhibited a higher risk of mental health issues, including suicide-related risk factors. Booker et al. (2018) investigated the relationship between social media interaction and well-being among 10- to 15-year-olds in the UK. Their findings revealed gender differences, with higher social media use at age 10 linked to declining well-being in females but not in males. Significant correlations were found between social media interaction and both levels and trends well-being, particularly among females. These results were consistent across multiple well-being measures. Similarly, Lin et al. (2017) explored gender differences in users' intentions to continue using social networking sites (SNSs). By integrating SNS-specific factors—such as perceived privacy risk, enjoyment, reputation, and community identification—into the Expectation-Confirmation Model of Information Systems Continuance (ECM-ISC), and incorporating gender as a moderating variable, the study demonstrated that these factors influenced SNS continuance intentions differently for men and women.

Social Media Use and Narcissism

Several previous studies have conducted a systematic reviews examining the association between social media and narcissism. McCain and Campbell (2018), for example, reviewed 62 research samples ($N = 13,430$) to assess the link between narcissism and social media behavior. Their meta-analysis revealed that grandiose narcissism is positively associated with time spent online, frequency of status updates, number of followers, and selfie-posting behaviors—although these associations vary depending on cultural context and social media platform. In contrast, vulnerable narcissism did not show a significant relationship with social media use, although limited sample sizes in those studies hindered conclusive findings. Addressing the lack of research connecting narcissism with Problematic Social Media Use (PSMU), Casale and Banchi (2020) searched several electronic literature databases and systematically reviewed 14 empirical studies on narcissism and PSMU. Their meta-analytic results showed a consistent positive correlation between grandiose narcissism and PSMU. While fewer studies examined vulnerable narcissism, those that did also found a significant association with PSMU. However, findings became less consistent in studies that did not differentiate between specific social media platforms. Alloway et al. (2014) investigated the relationship between Facebook use, empathy, and narcissism in adults. The results indicated that chatting on Facebook was associated with increased perspec-

tive-taking among males, while viewing videos enhanced emotional identification among females. The use of photo-sharing feature was positively associated with both empathy and narcissism. Overall, the findings suggested that social media appeared may serve more as a connection tool than a platform for self-promotion. Kristinsdottir et al. (2021) examined communal narcissism and its relationship with social media use on Instagram, Twitter, and Reddit. Data from 334 participants showed that communal narcissism was associated with higher usage of Instagram and Twitter, greater concern for content quality and feedback, and a strong desire for validation. Sharing behavior was fully mediated by the need for social validation and self-presentation motives, highlighting the relevance of communal narcissism in social media engagement. Martingano et al. (2022) explored the relationship between social media use, narcissism, alexithymia, and empathy in a sample of 1253 American adults. Their findings showed that social media use was negatively associated with empathy (especially cognitive empathy) and positively associated with narcissism and alexithymia. These effects varied based on demographic factors such as age and nationality. A mini meta-analysis revealed that studies conducted in Europe or with younger populations more often found a positive link between social media use and empathy, with more recent data suggesting an overall shift toward more positive outcomes. Hepper et al. (2014), emphasized the importance of empathy for healthy social relationships, noting that narcissists often struggle in this area, which leads to interpersonal difficulties. In three experimental studies, they explored whether narcissists lack empathy due to inability or a lack of motivation. Results demonstrated that maladaptive narcissism-characterized by entitlement, exploitativeness, and exhibitionism-was associated with low empathy. However, empathy levels improved when narcissists were encouraged to engage in perspective-taking. Narcissists also showed increases in both self-reported empathy and physiological emotional responses under certain conditions.

Social Media Use and Psychological Well-being

Best et al. (2014) conducted a systematic narrative review of 43 studies published between 2003 and 2013, analyzing the impact of online technologies on adolescent mental well-being. The reported benefits of using online technologies included increased self-esteem, social support, social capital, identity exploration, and self-disclosure. However, negative outcomes were also observed, such as exposure to harmful content, social isolation, depression, and cyberbullying. Most studies reported either mixed or no significant effects on adolescent well-being.

Popat and Tarrant (2022) conducted a systematic review of 24 qualitative studies published between 2014 and 2020, focusing on adolescents' (ages 13–17) perspectives regarding social media's impact on mental health. Five key themes emerged: self-expression and validation, body image concerns, pressure to stay connected, peer support, and exposure to harmful content. The findings highlighted both negative effects-such as validation-seeking, fear of judgment, body comparison, addiction, and cyberbullying-and positive effects, including social connection, peer support, and access to online communities. While social media can harm adolescent well-being, it also serves as a space for connection and emotional support. The authors recommended further research into adolescent-driven improvements, the experiences of younger users, and the impact of COVID-19. Erfani and Abedin (2018) systematically reviewed studies published between 2003 and 2016 on the relationship between social networking site (SNS) use and psychological well-being. Their findings suggested that SNS use can have both positive and negative effects on well-being, depending on various moderating factors. However, they noted that many studies lacked robust theoretical frameworks and primarily focused on young, healthy student populations, thus neglecting other user demographics. Ostic et al. (2021) examined the impact of social media use on psychological well-being using structural equation modeling (SEM) with data from 940 Mexican users. Results indicated a positive indirect effect on well-being, primarily mediated through bonding and bridging social capital. Nevertheless, adverse outcomes such as social isolation and smartphone addiction were also identified. Schivinski et al. (2020) investigated predictors of problematic social media use (PSMU) across various platforms, surveying a sample of 584 social media users. Their results revealed that 6.68% of respondents exhibited potentially problematic usage patterns. Key predictors of PSMU included intrapersonal motives, negative affect, daily social media use, and, to a lesser extent, positive affect. Together, these factors accounted for approximately 37% of the variance in PSMU, with intrapersonal motives emerging as the most significant predictor.

Sympathy and Empathy

Although often used interchangeably, empathy and sympathy hold distinct meanings in psychological discourse. Sympathy refers to an emotional response in which an observer acknowledges another person's feelings without directly internalizing them. In contrast, empathy involves emotionally absorbing the distress of others (Keskin et al., 2017). These responses- empathetic or sympathetic- can

be shaped by how individuals interpret emotional cues in messages. For example, Facebook may serve as a platform for both social interaction and business promotion (Ye et al., 2016). In such contexts, if clients react positively to advertisements, it may indicate empathy. However, if reactions stem from concerns about a business's potential failure, they reflect sympathy. Despite the psychological significance of these emotional processes, research on their specific roles in the context of social media and psychological well-being remains limited. Studies like El Ali et al. (2018) identified a sympathy bias in social media, wherein user reactions are influenced by the emotional tone of posts. DiStaso et al. (2015) explored how the nature of a post affects user engagement, with responses often filtered through a lens of sympathy. On the other hand, users may express empathy toward others experiencing hardship or adversity. Cognitive, affective, and associative empathy frameworks (Wei & Liu, 2020) explain the different ways people engage with others' emotional experiences. Trait empathy refers to a person's enduring disposition to empathize, while state empathy denotes an immediate emotional response to another's distress (Weiss & Cohen, 2019). According to the hyper-personal communication theory, social media facilitates personal information sharing (Vossen & Valkenburg, 2016), enabling individuals to gain support from an empathetic audience. Howard Gardner's theory of multiple intelligences emphasizes intrapersonal and interpersonal intelligences, fostering emotional stability and facilitating communication through empathy (understanding others' emotions) and sympathy (recognizing others' feelings) (Sahyaja & Rao, 2018). Gentina et al. (2021) argue that social media can positively influence theory of mind, thereby enhancing interpersonal communication across different contexts. Albashrawi et al. (2022) investigated the relationship between demographics, social media use, and emotional variables-empathy, sympathy, and wellbeing-in Saudi Arabia. Using structural equation modeling (SEM), they found that age, income, and social media use significantly predicted emotional responses. Notably, social media use was indirectly associated with wellbeing and more strongly linked to sympathy than empathy. In a related study on leadership, Raina (2022) explored the use of prosocial empathic skills to manage employee motivation and performance during crisis. Key themes from leadership interviews include compassionate empathy, transparent communication, support for autonomy, and encouragement of competence. These findings suggest that empathetic leadership fosters stronger mental health and improves employee performance, particularly during challenging times like the COVID-19 pandemic.

Gaps

Although numerous studies have examined the direct effects of social media use on personality traits such as narcissism or empathy, limited research has explored how these traits, influenced by social media use, in turn affect psychological well-being. In particular, there is a lack of integrated models that connect social media use, personality traits, and psychological outcomes. This gap is further widened by the frequent absence of robust theoretical frameworks guiding the explanation of these interrelationships, which may reduce the validity and explanatory power of the findings. Additionally the moderating effect of gender on personality traits has been rarely examined. Lastly, very few studies have examined the effect of social media use and personality traits in Arab contexts. Individuals in Arab societies would have different personality traits, largely due to their cultural difference from Western societies. Hence, our study provides a more comprehensive understanding of how social media use and personality traits influence psychological well-being.

Theory and Research Model

Self-Discrepancy Theory (SDT) proposed by Higgins (1987) suggests that individuals have three distinct self-domains. The first, the actual self, reflects subjective perception of one's own attributes rather than an objective evaluation. This domain closely aligns with an individual's self-image, encompassing identity and the impression of how one is defined and perceived by others (Schlenker, 1984). Positive self-images yield desired impressions, while negative ones lead to undesired reactions. The second domain is the ideal self, representing the desirable status that individuals aspire to attain. The third domain, the outer self, includes attributes an individual believes they should or are expected to have, though not necessarily desired. According to SDT, psychological discomfort arises when discrepancies exist between the actual self and either the ideal or the ought self. A mismatch between the actual and ideal self may result in dissatisfaction or depression, whereas dissonance between the actual and ought self can evoke anxiety or guilt (Vartanian, 2012). Such emotional distress often motivates behaviors aimed at reducing the self-discrepancy.

SDT offers insight into the relationship between social media use and narcissism. Many individuals use social media for social interactions, where visual communication-such as posting photographs or videos-plays a vital role in en-

hancing these interactions (Nesi et al., 2018). Visual communication serves not only as a means of connecting with others but also as a fundamental method of self-presentation (Steinsbekk et al., 2021). Individuals project their self-images through the photos or videos they share on social media, often selectively choosing ideal representations to maximize attractiveness and self-presentation. When people encounter these ideal self-presentations on social media, they may perceive a significant gap between their actual selves and the ideal selves of others, as the attributes displayed on social media can appear difficult to achieve (Steinsbekk et al., 2021). The tension between the actual self and ideal self can lead to negative emotional states such as depression and low self-esteem (Higgins, 1987), which may manifest on social media as decreased levels of sympathetic and empathic behavior, ultimately affecting an individual's well-being.

In this study, we develop our research model based on SDT, as depicted in Figure 1 to illustrate the proposed relationships. Social media use is identified as a predictor of three constructs: narcissism, cognitive empathy, and sympathy. Both cognitive empathy and sympathy are hypothesized to be determinants of psychological well-being, with their effects moderated by narcissism. We present a rationale for these relationships in the following section.

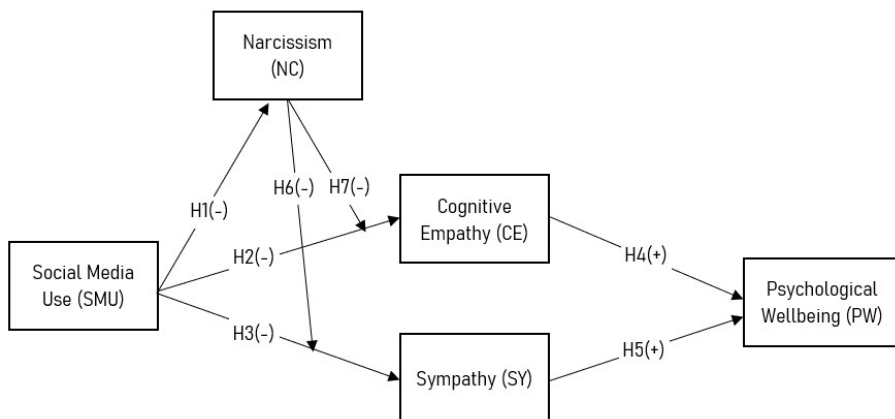


Figure 1: Research Model

Hypotheses Development

The Effect of Social Media on Narcissism, Empathy, and Sympathy

Previous research has shown an inverse correlation between social media use and self-esteem. For example, individuals often exhibit lower self-esteem when they compare themselves to their social media profiles, including metrics such as likes, comments, and reported achievements (Vogel et al., 2015). Consequently, frequent social media use tends to cause a decline in self-esteem, as people measure their real selves against the idealized versions presented by others. Narcissism, defined by an elevated focus on self-worth and esteem (Wai & Tiliopoulos, 2012), is particularly affected by this dynamic. Therefore, social media use may reduce narcissistic tendencies by undermining self-esteem through the ongoing comparison between narcissists' actual selves and the idealized selves of other social media users. Accordingly, we replicate Hypothesis H1:

H1: *The use of social media is negatively associated with narcissism.*

The use of social media diminishes empathy, as online interactions often become restricted and superficial (Konrath, 2011). The dominance of visual communication—such as photos—combined with the absence of non-verbal cues like facial expressions, gestures, or eye contact, impairs the ability to understand others' thoughts, opinions, or emotional states (Carrier et al., 2015). Consequently, social media use is linked to reduced sensitivity toward others and weaker empathy. A longitudinal study by Konrath et al. (2011) supports this finding, reporting a decline in empathy with increased social media use.

Similarly, social media use may be negatively associated with sympathy. The ability to produce sympathetic responses often depends on a strong focus and attention toward others, which helps construct a vivid mental image (Slovic, 2007). In contrast, social media communication tends to be shallow, limiting attention to others and potentially reducing sympathy. Additionally, the frequent habit of simultaneously interacting with multiple people on social media, rather than focusing on one individual, makes it difficult to build strong mental associations. Accordingly, we replicate hypotheses H2 and H3:

H2: *The use of social media is negatively associated with cognitive empathy.*

H3: *The use of social media is negatively associated with sympathy.*

The Effect of Cognitive Empathy and Sympathy on Psychological Well-being

Previous research has provided empirical evidence supporting the positive effect of empathy on psychological well-being. For example, Ivcevic and Ambady (2013) observed that cognitive empathy serves as a key predictor of psychological well-being among individuals using instant messaging, especially when expressing empathic sentiments. Taylor (2011) also indicates that individuals with higher cognitive empathy scores show more positive indicators of psychological well-being. Additionally, sympathy has been recognized as an important determinant of psychological well-being in several studies (Karmiyati et al., 2020). Accordingly, we replicate hypotheses H4 and H5:

H4: Cognitive Empathy is positively associated with psychological well-being.

H5: Sympathy is positively associated with psychological well-being.

The Effect of Narcissism on Cognitive Empathy and Sympathy

A narcissistic personality is commonly marked by a lack of concern for others and is generally viewed as negatively affecting empathy (Westaby et al., 2014). However, this negative association may stem from an oversimplification of the components of empathy (Di Pierro et al., 2018). In particular, some research suggests that narcissistic traits are significantly linked to deficits in emotional empathy but only slightly affect cognitive empathy. This implies that narcissism doesn't necessarily indicate deficiencies in cognitive empathy (Wai & Tiliopoulos, 2012).

Conversely, other studies suggest an inverse relationship between narcissism and cognitive empathy. According to the organismic integration mini-theory, behavior exists on a continuum from controlled (left end) to autonomous (right end) forms of motivation (Sheldon et al., 2017). As behavior shifts away from autonomy, it is driven by controlled motivation, which lacks self-determination. Narcissistic behaviors often align with controlled motivation for external rewards, where actions are performed to gain rewards, social approval, or avoid punishment (Sedikides et al., 2019). Narcissistic behaviors are driven by a strong sense of self-worth and internal pressure to assert superiority over others, and secure others' approval and loyalty (Sedikides et al., 2019). Consequently, narcissists may adapt their behavior if it aligns with their goals- such as gaining social approval or loyalty by being aware of others' opinions or states (Sedikides & Gregg, 2001). Hepper et al. (2014) argue that "if empathizing with another person is beneficial to narcissists' goals, they may be more likely to show empathy" (p. 1081).

Sympathy involves responding to others' situations, perspectives, or emotions, but unlike empathy, the sympathetic observer does not internalize others' opinions or feelings (Girard et al., 2015). Since narcissists' concerns about others are driven by external rewards such as social approval, they are less likely to absorb others' views or emotions. Therefore, we argue that the impact of social media use on cognitive empathy and sympathy is weakened by narcissism. Although social media significantly limits social interaction—partly due to the absence of nonverbal cues—and thereby reduces empathy and sympathy for others, narcissistic traits can prompt individuals to consider others intentionally for personal gain. Hence, we replicate hypotheses H6 and H7:

H6: *Narcissism weakens the effect of social media use on cognitive empathy.*

H7: *Narcissism weakens the effect of social media use on sympathy.*

Research Method

Survey and Measures

We collected study data through an online survey targeting social media users in Saudi Arabia. The survey began with an introduction outlining the study's objectives and potential contributions to society, emphasizing its voluntary nature and giving participants the option to withdraw at any time. To reduce survey bias, we included an unrelated attention-check question to evaluate participants' focus during the survey. Respondents who failed this attention check were excluded from the sample. Records with missing values were also excluded, resulting in a final sample of 404 participants. To ensure diversity and better national representation, we targeted multiple regions across Saudi Arabia.

The study constructs were adapted from well-established measures in the relevant literature. Psychological well-being was drawn from Shevlin and Adamson (2005), social media use from Vossen and Valkenburg (2016), cognitive empathy and sympathy from Vossen et al. (2015), and narcissism from Gentile et al. (2013). All constructs were measured using a seven-point Likert scale, where 7 indicated strong agreement and 1 indicated strong disagreement.

Demographics of Participants

As shown in Table 1 below, our sample included 404 participants, with 197 males and 207 females. The majority of participants were in the young age group of 18 to 35 years (84%), which represents typical social media users. In addition,

a large portion of the participants held at least a bachelor's degree, were employed full-time, and reported having adequate income for a comfortable lifestyle. In terms of marital status, the majority were unmarried, including individuals who were single or divorced.

Table 1
Participants Demographics

Demographics		Count
Gender	Male	197
	Female	207
Age	18 - 25	149
	26 - 35	189
	36 - 45	48
	> 45	18
Education	Before college	69
	Associate degree	26
	Bachelor's degree	195
	Graduate degree	114
Employment	Full-time	200
	Part-time	4
	Self-employed	21
	Retired	8
	Student	133
	Other	38
Income	No income	56
	Less than sufficient income	68
	More than sufficient income	78
	Sufficient income	202
Marital status	Married	185
	Not married	219

Measurement Model

Before evaluating the structural model, we conducted a thorough assessment of multiple indicators to ensure the reliability and validity of the constructs. The data analysis was carried out using SmartPLS.

As shown in Table 2, all study variables demonstrated Cronbach's alpha (CA) and item factor loadings (FL) exceeding 0.7, indicating strong reliability. Both the average variance extracted (AVE) and composite reliability (CR) exceeded the thresholds of 0.5 and 0.7, respectively, confirming robust convergent validity. Our analysis indicated no collinearity among the study variables, with all variance inflation factor (VIF) values below 5. Finally, the square root of AVE, displayed along the diagonal in Table 3, was greater than the corresponding inter-construct correlations, confirming good discriminant validity.

Table 2
Psychometric Properties

Variables	FL	VIF	AVE	CR	CA
Sympathy (SY)					
SY1	0.879	2.360			
SY2	0.879	2.526	0.741	0.919	0.884
SY3	0.783	1.851			
SY4	0.898	2.929			
Cognitive Empathy (CE)					
CE1	0.907	3.450			
CE2	0.894	2.890	0.799	0.941	0.916
CE3	0.855	2.371			
CE4	0.920	3.761			
Narcissism (NC)					
NC1	0.716	2.016			
NC2	0.892	3.323	0.694	0.900	0.857
NC3	0.842	2.096			
NC4	0.869	1.933			

Cont. Table 2
Psychometric Properties

Variables	FL	VIF	AVE	CR	CA
Psychological Well-being (PW)					
PW1	0.808	1.682			
PW2	0.818	1.808	0.685	0.897	0.847
PW3	0.876	2.618			
PW4	0.807	2.060			

Note: FL: factor loading; CA: Cronbach's alpha; CR: composite reliability; AVE: average variance extracted; VIF: variance inflation factor.

Table 3
Variables' Correlations

Variables	CE	NC	PW	SMU	SY
CE	0.894				
NC	0.308	0.833			
PW	0.530	0.477	0.828		
SMU	-0.035	-0.132	-0.120	1.000	
SY	0.625	0.354	0.548	-0.155	0.861

Note: CE = Cognitive empathy; NC = Narcissism; PW = Psychological well-being; SMU = Social media use; SY = Sympathy; The values on the diagonal of the table indicate the square root of AVE.

We evaluated the model's predictive power and fit. As shown in Table 4, the selected factors accounted for 36.8% of the variance in psychological well-being, indicating strong predictive capability. For model fit, the SRMR value (0.063) was below the 0.08 threshold, indicating a good fit. Although the NFI value was below the recommended threshold, it remained within an acceptable range (Molwus et al., 2013). We also assessed fit using geodesic discrepancy (d_G) and unweighted least squares discrepancy (d_{ULS}), which compare empirical and model-implied correlation matrices based via bootstrap samples. Both d_G and d_{ULS} were below the 99% bootstrap quantile, further supporting model fit. Furthermore, the model exhibited high statistical power (nearly 1.0 at $\alpha = 0.05$), exceeding the 0.8 threshold and indicating a low risk of Type II error. While predictive strength and statistical significance were high, model fit was only partially supported.

Table 4
Model Assessment

Statistics		Value	Threshold
Predictability	R^2	0.384	
	SRMR	0.063	≤ 0.80 (Hu & Bentler, 1998)
	d_ULS	0.598	< 1.893 (95% Upper limit) (Schuberth et al., 2023)
Model Fit	d_G	0.230	< 1.285 (95% Upper limit) (Schuberth et al., 2023)
	NFI	0.869	≥ 0.90 (Henseler et al., 2016)

Analysis Results

We utilized structural equation modeling – partial least squares (SEM-PLS) to assess the study hypotheses for two main reasons: 1) its capability to accommodate a single-item variable like social media use; and 2) its robustness against the assumption of normality distribution.

To capture the incremental effect of the moderating variable, we developed three models. The first model included only the independent variables, the second model incorporated the first interaction effect in addition to the independent variables, and the third model examined the full model by incorporating both interaction effects. For deeper analysis, we created gender-specific models— one for males (197 participants) and another for females (207 participants).

Table 5
SEM-PLS Regression Results

Hypotheses Testing	Model 1	Model 2	Model 3 (Full Model)	Male Model	Female Model
H1: SMU $\rightarrow$ NC	-0.163*** (3.608)	-0.151** (2.947)	-0.152** (3.008)	-0.122* (1.674)	-0.131* (1.751)
H2: SMU $\rightarrow$ CE	-0.074 (1.145)	-0.018 (0.391)	-0.018 (0.379)	-0.042 (0.670)	-0.013 (0.191)
H3: SMU $\rightarrow$ SY	-0.125** (2.522)	-0.125** (2.615)	-0.070 (1.492)	-0.027 (0.416)	-0.118* (1.176)

Cont. Table 5
SEM-PLS Regression Results

Hypotheses Testing	Model 1	Model 2	Model 3 (Full Model)	Male Model	Female Model
H4: CE → PW	0.335*** (5.816)	0.335*** (6.168)	0.336*** (5.927)	0.368*** (4.720)	0.311*** (3.755)
H5: SY → PW	0.348*** (6.162)	0.348*** (6.735)	0.346*** (6.104)	0.345*** (4.599)	0.353*** (4.699)
H6: SMU×NC → CE		0.122** (2.834)	0.123** (2.997)	0.081 (1.220)	0.176*** (3.438)
H7: SMU×NC → SY			0.064 (1.642)	0.079 (1.356)	0.054 (1.069)
<i>R</i> ² in PW			0.384	0.425	0.358

Note: CE = Cognitive empathy; NC = Narcissism; PW = Psychological well-being; SMU = Social media use; SY = Sympathy; *** < 0.01; ** < 0.05; * < 0.10; values for *t*-statistics inside parentheses.

Regression testing for Model 1 and Model 2 produced consistent results regarding the effects of the independent variables—both narcissism and sympathy were negatively influenced by social media use, while psychological well-being was positively associated with both cognitive empathy and sympathy. In Model 2, the interaction between social media use and narcissism on cognitive empathy was found to be significantly positive.

In Model 3, social media use continued to show a negative effect on narcissism, with no significant influence on either cognitive empathy or sympathy. Both cognitive empathy and sympathy remained positive predictors of individual well-being. However, narcissism, when treated as a moderating variable, had a significant effect on cognitive empathy but not on sympathy.

For the male model, results were quite similar to those in Model 3, particularly in terms of the impact of social media use on narcissism, cognitive empathy, and sympathy. However, the male model revealed no significant effects from the interaction terms. In contrast, the female model aligned more closely with Model 3, especially regarding the moderating role of narcissism, which was found to be significant for females but not for males. This led us to conclude that the significance of the interaction effect of narcissism in Model 3 can be attributed primarily to females.

Overall, the prediction model demonstrated a solid fit, accounting for a substantial amount of variance in the full model (38.4%), the male model (42.5%), and the female model (35.8%), as shown in Table 5. The full model's hypotheses testing results are provided in table 6.

Table 6
Hypotheses Test Results

Hypotheses Testing	Full Model	Hypotheses Test Results
H1: SMU → NC	-0.152** (3.008)	Supported
H2: SMU → CE	-0.018 (0.379)	Not supported
H3: SMU → SY	-0.070 (1.492)	Not supported
H4: CE → PW	0.336*** (5.927)	Supported
H5: SY → PW	0.346*** (6.104)	Supported
H6: SMU×NC → CE	0.123** (2.997)	Not supported
H7: SMU×NC → SY	0.064 (1.642)	Not supported
R^2 in PW	0.384	

Note: CE = Cognitive empathy; NC = Narcissism; PW = Psychological well-being; SMU = Social media use; SY = Sympathy; *** < 0.01; ** < 0.05; * < 0.10; values for *t*-statistics inside parentheses.

Discussion

The objective of this study is to examine the impact of social media on narcissism and well-being among Saudi social media users. The findings reveal that the interaction effect of social media use and narcissism on cognitive empathy is significantly positive, aligning with Hepper et al. (2014). Additionally, social media use appears to negatively affect narcissism but not cognitive empathy or sympathy. Surprisingly, these results on cognitive empathy and sympathy differ from those reported by Konrath et al. (2011). Both cognitive empathy and sympathy were found to positively influence a person's well-being, corroborating the results of Karmiyati et al. (2020) and Taylor (2011). Notably, narcissism demonstrated a considerable impact on cognitive empathy but not on sympathy.

The regression results suggest gender differences when examining the impact

of social media on narcissism and well-being among Saudi users. Specifically, unlike females, males did not exhibit any significant levels of narcissism. This notable finding highlights gender differences in social media usage and opens avenues for future research in this domain.

Implications for Theory and Practice

Similar to the relationship between social media use and empathy, it is essential to consider individual well-being and the diverse contributions of various narcissism factors in building an accurate theoretical framework. This study explores a distinct behavioral dimension with limited literature, particularly within a comparable regional context. The theoretical framework is rooted in psychological studies exploring the nuanced interplay between different narcissism dimensions and social media usage. The empirical investigation conducted in this study contributes to the emerging body of theory-building knowledge in this domain, providing novel insights into the complex relationship and interaction between social media engagement, user empathy, and well-being.

Specifically, the use of social media has been associated with elevated levels of narcissism marked by grandiosity, self-importance, and a lack of empathy. Platforms such as Twitter, Facebook, and Instagram allow users to present an idealized version of themselves to a wide audience, potentially reinforcing narcissistic tendencies. Individuals with high narcissistic traits tend to accumulate more social media connections, post more often, and spend prolonged periods on these platforms. Moreover, social media use has been linked to heightened levels of self-objectification, where users focus on physical appearance and external validation.

The implications of the link between social media use and narcissism extend to potential negative effects on mental health, including depression and anxiety. Excessive social media use may also hinder the development and maintenance of real-life relationships. It is essential to acknowledge the complexity of this relationship, as not all social media users exhibit narcissistic traits. Nevertheless, recognizing the potential risks of excessive social media use and its impact on mental health is crucial for cultivating a healthy and balanced approach to these platforms.

The distorted self-perception resulting from curated online images is another theoretical implication. Social media allows users to craft their online image,

creating a gap between self-perception and how individuals are perceived in real life. Additionally, social media fosters a culture of constant comparison, leading to feelings of inadequacy and low self-esteem, especially among individuals predisposed to narcissistic tendencies.

From a practical perspective, digital behavior change interventions emerge as potential solutions to counter the negative effects of excessive social media use. These interventions aim to adjust individuals' behavior and attitudes toward social media, providing information, tools, and strategies for more balanced usage. Examples include social media detox programs, which promote breaks from social media, and monitoring tools to track and regulate usage patterns. Additionally, cognitive behavioral therapy principles integrated into apps and online platforms address negative thought patterns and behaviors linked to social media use. It is essential to personalize digital behavior change interventions to individual needs and preferences, taking into account factors such as social media habits, motivations, and goals. While these interventions are still evolving, research highlights their potential effectiveness in mitigating the harmful effects of excessive social media use on mental health and well-being. In summary, understanding and navigating the complex relationship between social media use, narcissism, and well-being requires a thoughtful and individualized approach, considering both theoretical and practical implications.

Our findings also have managerial implications. First, organizations-particularly in marketing and HR-should recognize the differing effects of social media on males and females. Specifically, social media usage was found to significantly predict sympathy levels among female users but not among male users. This indicates that female users are more emotionally responsive and attuned to the social and empathetic aspects of online interactions. Such findings have important implications for digital marketing, particularly in the areas of audience segmentation and personalized engagement strategies. For example, marketing content targeting women could emphasize emotional storytelling, community building, and social causes, as these elements are more likely to evoke sympathetic responses and promote deeper emotional engagement. Brand narratives emphasizing shared experiences, personal journeys, acts of kindness, or community impact may resonate more deeply with female users. Second, given the high level of social media usage in Saudi Arabia, organizations should consider integrating social media awareness and responsible usage into their employee well-being programs. This might include workshops on the potential effects of social media on mental

health, self-esteem (related to narcissism), and interpersonal relationships (linked to empathy and sympathy). The programs should be customized to address the distinct concerns of both male and female employees. Finally, policymakers and tech firms operating in Saudi Arabia should consider these findings when designing digital platforms. Features promoting empathetic interactions could improve user well-being, particularly for female users, and foster healthier online communities.

Implications on Arab Societies

The findings of this study provide several important implications for Arab countries, particularly those with high levels of social media engagement, such as Saudi Arabia, the UAE, and Egypt. Given the socio-cultural similarities across the region, these insights can guide policymakers, educators, and mental health professionals in understanding the psychological impacts of social media use.

Contrary to common perceptions, the study finds that social media use does not elevate narcissism among Saudi users. This challenges existing narratives and suggests that social media in Arab societies may operate differently due to cultural norms rooted in collectivism and modesty, highlighting the need to examine the influence of culture—especially in relation to social media use (Al-Hassan et al., 2024). Future research should explore whether similar trends exist across other Arab nations with different levels of digital engagement and traditional values.

The study also highlights notable gender differences in how social media affects psychological well-being. Among males, social media does not significantly influence empathy and sympathy, even though these traits are associated with well-being. In contrast, among females, social media use positively predicts sympathy, suggesting that women may engage with social media in ways that foster emotional connection and prosocial behavior. These findings imply that mental health and digital literacy initiatives should be gender-sensitive, addressing the distinct psychological impacts of social media on men and women in Arab societies.

Finally, in the context of Saudi Arabia, where social media use is widespread, concerns have arisen about its effects on the mental health and well-being of youth. Continuous exposure to curated images and idealized online lives may foster narcissistic traits among younger individuals. Additionally, cultural norms that tightly regulate social media activity may also lead to self-censorship, further deepening the gap between online and offline identities.

Conclusion

This study explores the influence of narcissism on empathy among individuals in Saudi Arabia within the context of social media. The proposed theoretical model reveals intricate relationships among various factors, including narcissism and well-being. The study's findings provide a potential foundation for a growing field that investigates the effects of social media use on personality traits such as empathy, sympathy, and narcissism, particularly in the Arab world.

Limitations and Directions for Future Research

Nevertheless, the research has inherent limitations that can serve as avenues for future exploration. First, this study used convenience sampling, which may introduce bias, as the sample might not accurately represent the broader population, thereby limiting the generalizability and validity of the results. Second, the sample is heavily skewed toward younger individuals, with 83.7% of participants under the age of 36, which also limits the applicability of the findings to older populations. Third, the study relies on correlation techniques to test hypotheses rather than covariance-based structural equation modeling (CB-SEM), which may not establish causality between factors. Future research could consider using covariance-based structural equation modeling (CB-SEM), as well as benefit from experimental or longitudinal designs. Incorporating textual data mining from real social media accounts may also provide deeper and more comprehensive insights. Fourth, the lack of information about the regions from which the data was collected limits the validity of the analysis. If the majority of the sample originates from a single region, the overall representativeness of the data may be compromised.

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