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ORIGINAL RESEARCH ARTICLE

Contrasting and Predicting Social Media's Role in Addictive Use and Well-Being

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Abstract

This paper explores the complex relationship between social media problematic use and their contribution to well-being. While social media platforms offer opportunities for connection, information access, and self-expression, concerns have arisen regarding their impact on mental health and in some cases their obsessive use leading to conflict with other life priorities. This study investigates the duality of social media's effects, recognising that its impact on well-being can be both beneficial and harmful, depending on personal, psychological, and situational factors. Additionally, the paper examines whether problematic social media use (PSMU) correlates with perception of social media's contribution to well-being (SM-WB) and explores common influencing factors and motivations. The data was collected via an online survey conducted among two distinct populations, the Arab (281, 141 females) and the UK (281, 155 females). We employed PERMA profiler to assess SM-WB whereas PSMU was measured through Social Media Disorder (SMD) scale. The results show that PSMU symptoms of preoccupation, tolerance, and withdrawal correlates positively with SM-WB in both Arab and UK samples. In a linear regression model, internal locus of control predicted SM-WB, whereas external locus of control and social media usage time predicted PSMU in both Arab and UK samples. Competence in using social media significantly predicted both PSMU and SM-WB in the Arab sample. These findings underscore the complexities of promoting healthier social media use and question the effectiveness of simply suggesting the reduction of usage as the sole solution, considering that usage can also enhance well-being.

Keywords Social media · Problematic use · Well-being · Locus of control · Competency

Introduction

Social media has become deeply embedded in daily life, with 59% of internet users engaging on platforms and spending an average of 151 min per day on them as of January 2023, a 40-min increase since 2015 (Statista, 2023a). It serves various functions, from fostering connections and accessing information to self-expression and entertainment, which drive people to engage. Given its integral role, there are growing concerns about its impact on well-being (Kross et al., 2021) and mental health (Hussain & Griffiths, 2021). However, social media also plays a role in fostering relatedness, bonding, and social recognition, which contribute to well-being (Ryan et al., 2017; Zhang et al., 2023).

Studies present diverse viewpoints on the relationship between social media use and well-being. Seligman (2011) defines well-being as encompassing positive emotions, using one's capabilities, and finding purpose through meaningful

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relationships and goals. Some studies view social media as a positive force, offering emotional support and enhancing belongingness (Clark et al., 2017; Halston et al., 2019; Zhang et al., 2023). Conversely, others highlight concerns about its harmful effects, linking prolonged use with anxiety, depression, and decreased life satisfaction (Kross et al., 2021; Valkenburg, 2022; Woods & Scott, 2016). Excessive social media use can escalate into problematic social media use (PSMU), characterized by compulsive, excessive use that negatively impacts individuals and their social networks (Andreassen & Pallesen, 2014; Cham et al., 2019; Altuwairiqi et al., 2019; Griffiths et al., 2014). PSMU aligns with behavioral addiction criteria, such as those for gambling disorder (American Psychiatric Association, 2013), with features like preoccupation with social media, mood modification, and withdrawal symptoms when unable to access platforms (Kuss & Griffiths, 2017). The dual nature of social media's effects necessitates a deeper exploration of its impact on well-being, highlighting the need for a nuanced approach that considers both its positive and negative outcomes.

PSMU and social media well-being (SM-WB) may be correlated, as the factors contributing to positive well-being could overlap with those driving problematic use. According to Uses and Gratifications Theory (Katz et al., 1973), users perceive social media as a way to gratify needs such as social, informational, and entertainment, all of which contribute to well-being (Haung et al., 2014). From a self-medication perspective (Khantzian, 1997), individuals might turn to social media to manage distress, potentially leading to excessive use if they believe it enhances well-being (Moretta & Buodo, 2018). Over time, this can lead to a tolerance effect, where more engagement is sought to maintain perceived benefits (Andreassen & Pallesen, 2014). Cognitive dissonance theory (Festinger, 1954) suggests that when individuals have conflicting beliefs and actions, they experience psychological stress, compelling them to resolve this inner conflict. One way to address this dissonance is altering beliefs, actions, or their perception of those actions. In the context of online addictive behavior, individuals might rationalize their addictive behavior by convincing themselves that social media positively impacts their well-being, thus perpetuating the cycle of addiction (Davis, 2001; Mantler, 2013). However, we stress here that this is one potential explanation, and that the conflict can be inherent, not necessarily resulting from denial, cognitive dissonance, or compensatory beliefs.

The duality of social media's effects on well-being depends on various personal, psychological, and situational factors. The impact of social media can vary based on how and why individuals engage with these platforms. For example, individual differences such as locus of control (LOC) may influence social media use patterns. Those with a strong internal locus of control, believing they have primary control over their lives, tend to regulate their online behavior better, while those with an external locus of control may struggle with excessive use due to environmental influences (Hou et al., 2017; Salik Sengul et al., 2021). Therefore, understanding PSMU and SM-WB requires examining these factors and how they shape individuals' interactions with social media.

Culture can influence perceptions of social media's contribution to well-being. Stronger correlations were found between social networking site usage and positive mental health indicators (e.g., life satisfaction, self-esteem) in collectivist cultures compared to individualistic ones (Yin et al., 2019). This discrepancy arises from different motivations for social media use; collectivistic users seek social support and acceptance from existing relationships, while individualistic users focus more on entertainment and self-promotion (Kim et al., 2011; Sheldon et al., 2017). However, the pressure to conform to reciprocity norms and maintain relationships in collectivist cultures may increase online time, potentially raising the risk of PSMU (Cheng et al., 2021).

Beyond personal factors, usage parameters such as time spent on social media and the number of accounts can explain both positive perceptions and excessive usage patterns. Research indicates that longer usage and specific styles of engagement can indicate addictive behavior (Hassan et al., 2020; Johansson & Götestam, 2004; Yesilyurt & Solpuk Turhan, 2020). Conversely, reducing social media usage has led to significant improvements in health, immune function, loneliness, and depression (Reed et al., 2023). Social media also served to sustain well-being during the COVID-19 pandemic by facilitating communication and providing entertainment (Tkáčová et al., 2021). Additionally, older adults who are unfamiliar with social media features may experience anxiety, negatively impacting their well-being (Jung et al., 2017).

This paper explores the relationship between PSMU and individual perceptions of social media's contribution to well-being (SM-WB). We investigate whether factors such as time spent on social media, number of accounts, competency, locus of control, and gender underlie both PSMU and SM-WB. Identifying common predictors can inform targeted interventions. For example, individuals with a high external locus of control may view social media as a means to improve well-being, with positive feedback from others contributing to their self-perception (Sheldon & Bryant, 2016). However, an external locus of control may also predict psychological distress if individuals receive little attention on social media (Voggenreiter et al., 2024). Promoting mindfulness could help individuals reflect on their social media interactions, encouraging healthier engagement patterns (Poon & Jiang, 2020).

Social media use varies across cultures in terms of applications, communication styles, and activities (Sandel & Ju, 2019). Research suggests cultural differences

in attitudes toward social media use, influenced by dimensions like individualism and collectivism (Alsaleh et al., 2019). Comparing UK and Arab cultures, which have distinct values and norms (Hofstede, 2001), provides a unique opportunity to explore these cultural influences.

In this study, we conducted an online survey with participants from the UK and Arab populations, the latter being relatively under-researched. We aim to answer the following research questions:

- RQ1: Is there an association between PSMU and SM-WB across Arab and UK samples?
- RQ2: Is there a difference in PSMU and SM-WB between Arab and UK samples?
- RQ3: Do PSMU and SM-WB have common predictors across both populations?

Method

Participants

A total of 562 participants were recruited for the online survey, with 281 from the UK (155 females) and 281 from Arab Gulf Cooperation Council (GCC) countries (141 females). Participants were aged between 18 and 60 (UK, $M = 34.92$; SD = 12.50; Arab, $M = 32.11$; SD = 8.47). The UK sample included individuals from England (83.99%), Scotland (8.54%), Wales (5.69%), and Northern Ireland (1.78%), while the Arab sample comprised participants from Saudi Arabia (52.31%), the United Arab Emirates (34.52%), Bahrain (12.45%), and Qatar (0.71%). GCC countries were deliberately chosen for the Arab sample due to their unique relationships, geographic proximity to one another, similar political systems grounded in Islamic beliefs, and shared goals (as noted by Christie, 1987). In addition, GCC countries digital penetration rates (Statista, 2023b) and financial level (Qanas & Sawyer, 2022) are comparable. Participants were recruited through TGM Research, a multi-country online market research company (TGM Research, 2023). To qualify for the study, participants had to be at least 18 years old, active users of social networking (e.g., Facebook, Instagram, Twitter) and messenger platforms (WhatsApp, Facebook Messenger), and self-identify as British or Arab gulf area in terms of culture and norms. Participants were pre-screened through a survey to ensure they met the inclusion criteria before participating in the study. Attention checks were included, and the time taken to complete the survey was recorded, both serving to assess the quality of responses.

Questionnaire Design

The research team developed the survey on SurveyMonkey (https://www.surveymonkey.com). They engaged in an iterative process to refine the clarity of the questions. The survey aimed to examine users' perceptions of the impact of social media and artificial intelligence (AI) on well-being, as well as the influence of individual characteristics. It included demographic information, education, employment status, social media and AI usage patterns and competency, along with specific questions on willingness to use AI for different purposes, concerns about AI adoption and the PERMA model, which was adapted to each of social media and AI. Attention checks were incorporated to ensure high quality data. A pilot test enabled the removal of ambiguous wording. The finalized English questionnaire was translated to Arabic and back-translated to check accuracy and consistency prior to distribution. This followed the back-translation method (Brislin, 1970) and was administered by three bilingual and proficient authors of this work. Though collected as part of a broader study, this paper will present parts of the questionnaire that directly addresses the research questions posed. The full study design can be found on the Open Science Framework (OSF) link provided in the Supplementary Material section.

In the first part of the questionnaire, participants were asked about their demographic information which consisted of gender, age, education level, employment status. Participants were asked to indicate the social media platforms they use most frequently. Moreover, we measured social media competency using a single-item question. Participants rated their ability to use social media and adjust its settings on a 6-point Likert scale (1 = not competent at all, 6 = very competent). The question was "Please rate your competency in using social media and adjusting its settings (e.g., posting and commenting, replying privately, hiding/showing posts, creating and administering groups, adjusting privacy settings. Lastly, participants were asked how much time they spend on social media per day.

The second part of the questionnaire explored participants' perceptions of how social media contributes to well-being (SM-WB). For this purpose, PERMA Profiler (Butler & Kern, 2016) which is a widely used measure to assess overall well-being was contextualised and used. The original PERMA Profiler has 23 items, five dimensions with three items each (P: positive emotion, E: engagement, R: relationship, M: meaning, A: accomplishment) and eight filler items (i.e., items concerning health, negative emotion, loneliness, and overall happiness). Respondents answer each item using a 11-point Likert scale (0 = never or not at all to 10 = always or completely). The total score for overall well-being is calculated by adding

up the overall happiness item with the five dimensions of PERMA and higher scores indicate better overall well-being. The PERMA Profiler has high internal consistency with reported Cronbach's alphas ranging from 0.60 to 0.90 for all PERMA factors (de Carvalho et al., 2023; Pezirkianidis et al., 2021). In the contextualized version, the sole adjustment was made to the introductory statement. Participants were directed to respond to the PERMA Profiler items with the modified prompt: "Thinking of Social Media, your use of them and their presence in society, how often do you feel…" Health-related items were removed from the scale as they were deemed unrelated to the scope of social media impact.

The last part of the questionnaire included the 9-items Social Media Disorder Scale (SMD) (van den Eijnden et al., 2016). Problematic social media use (PSMU) was measured by employing both the original English version and a translated Arabic version of the SMD. The nine symptoms listed as items are preoccupation, tolerance, withdrawal, persistence, escape, problems, deception, displacement, and conflict. Respondents answer each item using a 5-point Likert scale (0 = never to 5 = always). The total score for SMD is calculated by adding up the items and higher scores indicate more problematic use of social media. The scale demonstrates high internal consistency with reported Cronbach's alphas ranging from 0.75 to 0.81 (Fung, 2019; van den Eijnden et al., 2016).

The Internal–External Locus of Control Short Scale-4 (IE-4) was employed to evaluate participants' perceptions of whether their life events were shaped by their actions or by external factors (Nießen et al., 2022). This scale comprises items representing two aspects: internal locus of control (e.g., "I'm my own boss") and external locus of control (e.g., "fate often gets in the way of my plans"). The item stating "fate often gets in the way of my plans" was modified to "circumstances often get in the way of my plans" for cultural sensitivity. In Arab culture, fate is not perceived as an obstruction and should not convey a negative connotation. Participants rated the extent to which each item applied to them on a 5-point scale: (1) = does not apply at all, (2) = applies a bit, (3) = applies somewhat, (4) = applies mostly, (5) = applies completely. Subscale scores were computed independently based on the scale means. The IE-4 demonstrated sufficient reliability and validity in measuring locus of control (Nießen et al., 2022).

Data Collection

The study received approval from the Research Ethics Committee at the institute of the last author (ID: IRB-2024–59), and data collection took place from the end of October 2023 to the middle of December 2023. Individuals meeting specific criteria were allowed to proceed to the main survey focusing on exploring their interactions with social media and Artificial Intelligence (AI) and their perceptions and their perspectives on its impact on their well-being. The scope of this paper is limited to the research questions mentioned in the Introduction section. Eligible participants were asked to review the participant information sheet and give informed consent before proceeding with the questionnaire. Participants were informed that they could opt out of the study at any time. Participants who completed the survey and did not fail attention checks or complete in speedy fashion were compensated for their participation.

Data Analysis

Data was cleaned by removing participants who failed attention checks, gave inconsistent responses, or did not finish the survey. Additionally, participants who completed the survey in a speedy fashion were removed, with "speedy" responses defined as those completed within 50% or less of the median duration of all participants, calculated after excluding outliers. The study's age range was confined to 18–60 years to facilitate a direct comparison between the UK and Arab samples. This choice aimed to ensure sample balance, compensating for the absence of participants over 60 in the Arab sample despite their presence in the UK sample.

Descriptive statistics were performed for both samples on number of social media accounts, competency using social media, time spent on social media, locus of control, PERMA social media score (measuring SM-WB), total PSMU, PSMU symptoms and age. Overall, the number of social media accounts, locus of control, PERMA score, total PSMU score and age displayed skewness and kurtosis ± 2 (George & Mallery, 2010). For these variables, the normality assumption was not violated. However, competency using social media and subscales of PSMU (e.g., problem, deception, conflict) in the UK sample, and time spent on social media in both samples was higher than the specified range. A boxplot analysis was conducted on time spent on social media for both samples and it revealed outliers. Outliers were identified as scores falling outside the boxplot whiskers, determined using the Tukey (1977) formula: {25 th-Quantile − [1.5 × (75 th-Quantile − 25 th-Quantile)]} and {75 th-Quantile + [1.5 − (75 th-Quantile − 25 th-Quantile)]}. The outliers were identified as those exhibiting exceptionally high usage time, which may indicate either genuine extreme values, such as 20 h of usage per day or potential errors in reporting. For the Arab sample ($n = 12$) and the UK sample ($n = 24$), the outlier values were replaced with the highest non-outlier score within each respective sample.

Pearson's correlation was employed to examine relationships between normally distributed variables, while Spearman's correlation was used for competency using social media and PSMU subscales (problem, deception, conflict) in the UK sample, as well as time spent on social media in both samples, as these variables deviated from normality. Independent samples *t*-test was used to compare how Arab and UK samples differ in PSMU and SM-WB levels. Multiple linear regression analysis was employed to investigate how usage style, locus of control, and demographic factors influence PSMU and SM-WB levels across Arab and UK participants. Data was analyzed using SPSS version 28.

Table 1 Participant characteristics

Variables	UK ($N = 281$)	Arab ($N = 281$)
Gender (%)		
Male	126 (44.84%)	140 (49.82%)
Female	155 (55.16%)	141 (50.18%)
Age		
M (SD)	34.92 (12.50)	32.11 (8.47)
Range	18–60	18–59
Education (%)		
No formal education	3 (1.07%)	-
Primary education (elementary)	1 (0.36%)	-
Secondary education (high school)	69 (24.55%)	38 (13.52%)
Pursuing or completed vocational or technical education	56 (19.93%)	12 (4.27%)
Pursuing or completed undergraduate degree (bachelor's)	112 (39.86%)	202 (71.89%)
Pursuing or completed postgraduate degree (master's, Ph.D., etc.)	40 (14.23%)	29 (10.32%)
Employment (%)		
Full time employment	155 (55.16%)	158 (56.23%)
Part time employment	58 (20.64%)	36 (12.81%)
Run my own business	7 (2.49%)	17 (6.05%)
Unemployed	23 (8.19%)	21 (7.47%)
Student	16 (5.69%)	23 (8.18%)
Retired	6 (2.14%)	3 (1.07%)
Homemaker	11 (3.91%)	22 (7.83%)
Other	5 (1.78%)	1 (0.36%)
Social media usage		
Hours spent on social media per day M(SD)	2.69 (1.90)	5.00 (2.53)
Number of social media accounts M(SD)	3.78 (1.75)	5.47 (1.67)
Competency using social media M (SD)	5.11 (0.89)	5.11 (0.93)
Social media platform preference (%)		
Facebook	216 (76.87%)	183 (65.12%)
Twitter	118 (41.99%)	203 (72.24%)
Instagram	188 (66.91%)	247 (87.9%)
WhatsApp	211 (75.09%)	265 (94.31%)
LinkedIn	41 (14.59%)	96 (34.16%)
Snapchat	98 (34.88%)	216 (76.87%)
TikTok	126 (44.84%)	224 (79.72%)
Pinterest	53 (18.86%)	92 (32.74%)
Other	10 (3.56%)	10 (3.56%)
PERMA M(SD)	6.07 (1.70)	7.57 (1.56)
PSMU M(SD)	16.80 (6.43)	22.73 (6.33)
Internal locus of control M(SD)	3.01 (0.92)	4.52 (0.55)
External locus of control M(SD)	2.65 (0.85)	2.60 (0.91)

Results

Participant Demographics

Table 1 summarises participant characteristics and social media usage patterns for both UK and Arab samples. The table includes social media users' platform preferences and the mean and standard deviation for the variables used in the study. While the numbers show an almost balanced distribution between both samples, vocational or technical education was about 20% in UK sample but only about 4% in Arab sample as it is more popular in the UK than in the GCC Arab countries.

Scale Reliability

Before proceeding with the main analyses, we assessed the internal consistency of the scales used in the study. Internal consistency for the SM-WB subscales was acceptable to excellent in both samples: the reported Cronbach's alpha for the subscale scores were 0.84 and 0.76 for Positive emotion, 0.69 and 0.59 for engagement, 0.86 and 0.74 for relationship, 0.89 and 0.87 for meaning, and 0.84 and 0.76 for accomplishment, for UK and Arab sample, respectively. The SM-WB showed an internal consistency reliability coefficient of 0.932 for Arab and 0.945 for the UK in the current study, indicating excellent level. For PSMU measured through SMD scale, Cronbach's alpha was 0.88 and 0.80, for UK and Arab sample, respectively.

RQ1: Problematic Social Media Use vs Social Media's Contribution to Well-Being

Pearson and Spearman correlations were run to assess the relationship between SM-WB (measured through PERMA) and the total PSMU and its symptoms (measured through SMD scale) for Arab and UK samples. For both samples, there was no statistically significant correlation between SM-WB and PSMU total score. As shown in Table 2, there was a statistically significant correlation between SM-WB and the preoccupation, tolerance, and withdrawal symptoms of PSMU for both samples. Please refer to Tables 5 and 6 (see Appendix) for correlation tables displaying the relationships between PERMA subscales and symptoms of PSMU.

RQ2: Difference in PSMU and SM-WB Between Arab and UK Samples

Independent samples *t*-test was used to compare PSMU levels (measured through SMD) and SM-WB (measured through PERMA) between the Arab and UK samples.

Table 2 Pearson and Spearman correlation between perception of SM-WB, PSMU for Arab and UK samples

			PSMU									
			Total	Pre-occupation	Tolerance	Withdrawal	Persistence	Displacement	Problem	Deception	Escape	PSMU: conflict
SM-WB	*UK*	Pearson's r	0.11	0.13*	0.13*	0.19**	0.01	0.04	0.07	0.09	0.03	0.05
		Spearman's rho	0.09	0.12*	0.14*	0.15*	0.00	0.04	0.09	0.09	0.00	0.06
	Arab	Pearson's r	0.06	0.22***	0.12*	0.15*	0.07	− 0.06	− 0.03	− 0.04	− 0.02	− 0.07
		Spearman's rho	0.07	0.23***	0.12*	0.14*	0.06	− 0.05	− 0.06	0.00	0.01	− 0.07

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

Table 3 The results of *t*-test on the difference in PSMU and the perceptions of social media's contribution to well-being between Arab and UK samples

	UK		Arab		Differences between the two samples		
	Mean	SD	Mean	SD	t	*p*	Cohen's d (effect size)
PSMU	16.80	6.43	22.73	6.33	11.02	< 0.001	0.93
SM-WB	6.07	1.70	7.57	1.56	10.91	< 0.001	0.93

As shown in Table 3, the difference between PSMU and SM-WB scores were significantly different between Arab and UK samples. The PSMU score was statistically significantly higher in the Arab sample (*M*, 22.73; SD, 6.33) than the UK samples (*M*, 16.80; SD, 6.43). Similarly, SM-WB score was higher in the Arab sample (*M*, 7.57; SD, 1.56) than the UK samples (*M*, 6.07; SD, 1.70). That is, individuals in the Arab sample exhibited higher tendencies toward PSMU and believed that social media had a higher contribution to their well-being compared to individuals from the UK sample.

RQ3: Predicting PSMU and SM-WB by Common Factors

To explore whether PSMU (assessed here with the SMD scale) level and SM-WB (assessed through PERMA) have similar predictors, we conducted multiple regression analyses. The independent variables were time spent on social media per day (i.e., hours), number of social media accounts, competency using social media, locus of control, age, and gender.

Pearson and Spearman correlations were run to analyze the associations between variables (see Appendix: Tables 7, 8). There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. The assumption of normality was met, as assessed by a Q-Q Plot. There was independence of residuals, as assessed by Durbin-Watson statistic (PSMU: Arab = 2.01, UK = 1.89), (PERMA: Arab = 2.11, UK = 2.13). There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. Outliers with studentized deleted residuals exceeding ± 3 standard deviations were identified and

Table 4 Multiple regression analysis for predicting PSMU and SM-WB

	UK				Arab			
Predictors	*β*	*t*	*p*		*β*	*t*	*p*	
PSMU	R^2	Adjusted R^2	*F*	*p*	R^2	Adjusted R^2	*F*	*p*
	0.28	0.26	14.73	< 0.001	0.11	0.09	5.00	< 0.001
Time spent on social media	0.36	5.86	< 0.001		0.22	3.59	< 0.001	
Number of social media accounts	− 0.01	− 0.09	0.929		0.01	0.14	0.891	
Competency in social media usage	− 0.08	− 1.46	0.145		0.13	2.01	0.045	
Internal locus of control	0.08	1.52	0.131		0.02	0.30	0.765	
External locus of control	0.23	4.38	< 0.001		0.18	3.04	0.003	
Age	− 0.12	− 1.98	0.049		0.03	0.45	0.650	
Gender								
Female–male	0.059	1.08	0.280		0.10	1.73	0.085	
SM-WB	R^2	Adjusted R^2	*F*	*p*	R^2	Adjusted R^2	*F*	*p*
	0.19	0.17	8.84	< 0.001	0.35	0.34	20.92	< 0.001
Time spent on social media	0.10	1.48	0.141		0.02	0.47	0.641	
Number of social media accounts	0.07	1.16	0.247		0.06	1.10	0.273	
Competency in social media usage	0.10	1.77	0.077		0.22	3.83	< 0.001	
Internal locus of control	0.33	5.87	< 0.001		0.45	8.36	< 0.001	
External locus of control	− 0.11	− 1.88	0.061		− 0.05	− 0.89	0.375	
Age	− 0.06	− 0.86	0.391		0.10	1.89	0.060	
Gender								
Female–male	0.01	0.21	0.834		0.05	0.99	0.324	

subsequently removed from relevant analysis. Two outliers were removed from the UK sample and five outliers were removed from the Arab sample when analyzing the predictors for PERMA. One outlier was removed from the UK sample when analyzing the predictors for PSMU. The dependent variable of the first regression analysis was PSMU level and the dependent variable of the second regression analysis was SM-WB. Table 4 presents the results and significance levels for each beta coefficient.

Regression analysis for the UK sample significantly predicted the PSMU level, with F (7, 272) = 14.73, $p < 0.001$, $R^2 = 0.28$, and adjusted $R^2 = 0.26$. Within this model, time spent on social media per day ($\beta = 0.36$, p < 0.001), external locus of control ($\beta = 0.23$, $p < 0.001$) and age ($\beta = -0.12$, $p = 0.05$) predicted the PSMU level. That is, for the UK sample, more time spent on social media per day and higher levels of external locus of control predicted more problematic social media use. Moreover, as age increases, the PSMU level is predicted to decrease. For the Arab sample, the regression analysis also significantly predicted the PSMU level, with F (7, 273) = 5.00, $p < 0.001$, $R^2 = 0.11$, and adjusted $R^2 = 0.09$. In the Arab context, time spent on social media per day ($\beta = 0.22$, $p < 0.001$); competency using social media ($\beta = 0.13$, $p = 0.045$); and external locus of control ($\beta = 0.18$, $p = 0.003$) predicted the PSMU level. That is, for the Arab sample, more time spent on social media per day, higher competency using social media and higher levels of external locus of control predicted more problematic social media use.

Regression analysis for the UK sample significantly predicted the SM-WB, with F (7, 271) = 8.84, $p < 0.001$, $R^2 = 0.19$, and adjusted $R^2 = 0.17$. Within this model, higher levels of internal locus of control ($\beta = 0.33$, $p < 0.001$) predicted SM-WB score. For the Arab sample, the regression analysis significantly predicted the perception of social media's contribution to well-being, with F (7, 268) = 20.92, $p < 0.001$, $R^2 = 0.35$, and adjusted $R^2 = 0.34$. In the Arab context, competency using social media ($\beta = 0.22$, $p < 0.001$) and higher levels of internal locus of control ($\beta = 0.45$, $p < 0.001$) predicted SM-WB score. That is, within the Arab sample, higher competency using social media and higher levels of internal locus of control predicted a more positive perception of social media's contribution to well-being.

Discussion

In the present study, we explored the relationship between PSMU and SM-WB through an online survey with two distinct samples. The study further investigates whether common factors underpin PSMU and SM-WB.

The study revealed no significant overall correlation between PSMU and SM-WB across both samples. However, specific PSMU symptoms—preoccupation, tolerance, and withdrawal—showed significant correlations with SM-WB. Using the PERMA model, these findings highlight a nuanced interplay between well-being facets like positive emotions, engagement, and relationships, and social media usage patterns. Individuals may perceive social media as enhancing positive emotions, engagement, relationships, meaning, and accomplishment, leading to preoccupation with maintaining online interactions and content consumption. From a self-medication perspective (Khantzian, 1997), individuals might rely on social media to enhance their emotional state, leading to tolerance and an increased need for usage to achieve the same effects. Withdrawal symptoms, such as anxiety or loneliness, may arise when usage decreases. Similarly, the cognitive dissonance theory (Festinger, 1954) suggests that individuals justify intense social media use by believing it supports their well-being, even when behaviors become compulsive. Additionally, some attachments may stem from genuine emotional needs rather than a mere desire to alleviate discomfort (Altuwairiqi et al., 2019).

The divergence between the lack of significant overall correlation and the strong association with specific symptoms reflects the distinct impacts of these symptoms. Preoccupation, tolerance, and withdrawal more directly influence emotional and cognitive states, contributing to stress, anxiety, and mood declines (Khantzian, 1997; Festinger, 1954; Vancappel et al., 2024). Tolerance reduces mood-enhancing effects, while withdrawal triggers irritability and depression (Koob & Volkow, 2016; Turton & Lingford-Hughes, 2016). In contrast, behaviors like escape or displacement might serve as coping mechanisms, exerting context-dependent effects on well-being. Together, these factors underscore the complex relationship between these symptoms and overall well-being.

The cross-cultural analysis revealed significant disparities between the UK and Arab contexts. Participants from the Arab sample reported higher levels of PSMU and perceived SM-WB than their UK counterparts. This aligns with previous findings suggesting that collectivist societies, such as those in Arab contexts, exhibit higher PSMU prevalence due to the social pressures to maintain group norms and relationships (Cheng et al., 2021). Additionally, prior research highlights stronger correlations between social media use and positive mental health in collectivist cultures compared to individualistic ones (Yin et al., 2019). Supporting these results, the Arab sample also reported greater social media engagement, spending more time online and maintaining more accounts than the UK sample.

Predictors of PSMU showed consistency across both samples, with time spent on social media and external locus of control significantly associated with PSMU.

Prolonged online presence is a known indicator of addictive tendencies (Johansson & Götestam, 2004). Despite the growing emphasis on considering usage intentions and contextual factors (Brailovskaia et al., 2020; Zhuang et al., 2023), this study reaffirms that time spent online remains a key predictor of PSMU, consistent with findings linking high Instagram and TikTok usage to PSMU (Hendrikse & Limniou, 2024). However, time spent on social media did not predict SM-WB, suggesting that quality and meaningfulness of interactions matter more than duration. The challenge lies in identifying the meaning of quality time on social media and helping users find it.

External locus of control was identified as a significant predictor of PSMU. Individuals with a high external locus of control tend to believe external forces, such as peer pressure and societal norms, dictate their actions (Fabris et al., 2020; Rotter, 1966; Turel & Osatuyi, 2017). This belief might compel them to conform to social expectations, like maintaining a consistent presence on social media platforms. Moreover, persuasive design of social media platforms could be another influence (Cemiloglu et al., 2021; Alutaybi et al., 2019). Social media platforms are designed to be highly engaging, employing various persuasive techniques such as notifications, personalized content recommendations, infinite scrolling, and gamification elements. Individuals with high external locus of control may find themselves spending more time on social media than they intended due to the influence of these design features. Consequently, they may feel less agency to regulate or control their usage, leading to excessive time spent and potential addiction.

In the Arab sample, social media competency emerged as a significant predictor of PSMU, indicating a positive relationship between familiarity with platforms and problematic usage. As described earlier in the Questionnaire Design section, social media competency refers to the ability to perform common technical and managerial tasks on social media, such as posting, commenting, adjusting privacy settings, and administering groups. Higher competency, often stemming from extended time spent on social media, can enhance user engagement, thereby increasing susceptibility to PSMU. This highlights the need for further research to explore how competency influences problematic usage patterns. Conversely, in the UK sample, age negatively predicted PSMU. While age was analyzed continuously, the negative association suggests that younger individuals may be more vulnerable to PSMU, potentially due to peer pressure or self-regulation challenges. Factors such as low self-esteem and poor self-control are more prevalent among youth, making them more susceptible to PSMU (Li et al., 2021). Additionally, adolescents may feel more motivated by peer pressure to use social media than individuals in other age groups (Steijn, 2014). Moreover, it is suggested that older adults have lower internet usage rate among demographic groups. The theory of control suggests that as individuals age, they may struggle to maintain control over their environments, including technology use. As a result, older adults may be less likely to adopt and utilize social media platforms (Thanasrivanitchai et al., 2017). Future studies could distribute participants across age groups to better analyze the effect of age on SM-WB and PSMU.

Internal locus of control and social media competency were identified as significant predictors of SM-WB. Individuals possessing an internal locus of control adhere to the belief that they wield control over their lives and subsequent outcomes (Rotter, 1966), leading them to view social media positively as a tool for enhancing well-being. Social media competency, particularly in the Arab sample, was also positively related to SM-WB. Competent users are better at navigating platforms, engaging with positive content, and managing negative interactions (Polanco-Levicán & Salvo-Garrido, 2022; Zhu et al., 2020). They can mitigate negative impacts by adjusting settings or disabling notifications, thereby benefiting their mental health. Additionally, those skilled in social media use may rely on platforms for support, information, and connection (Bahramian et al., 2018). However, this increased engagement can lead to a greater likelihood of addiction due to spending more time and involvement.

Our study finds that, in both samples, internal LOC is a positive predictor of SM-WB, whereas external LOC is a positive indicator of PSMU. This is because individuals with an internal LOC tend to perceive social media as a tool they can control to enhance their well-being. Competency in social media use was another critical predictor, particularly in the Arab sample, where it influenced both SM-WB and PSMU by enabling users to engage positively while mitigating harm. Cultural differences, such as those in collectivist versus individualistic societies, shaped perceptions of social media, underscoring the importance of context in understanding its role in well-being.

Implications

This study offers key insights into the relationship between PSMU and SM-WB, emphasizing the need to consider various personal, technical, and contextual factors that influence this relationship. Social media should not be viewed as a singular technology, but rather as a diverse set of tools for self-representation, information sharing, and connection. The findings suggest that while some aspects of social media can trigger addiction, others can foster

well-being. Consequently, interventions targeting PSMU should focus on specific symptoms like preoccupation, tolerance, and withdrawal rather than just reducing overall social media usage. Healthy social media use should be promoted by encouraging users to prioritize the quality of interactions over the quantity, and educational programs should emphasize meaningful engagement and effective time management. Programs could include strategies to enhance personal agency and reduce reliance on external influences. Additionally, interventions should consider individuals' external locus of control, as those attributing their social media behaviors to external factors may be more vulnerable to problematic use. Contextual factors, such as cultural differences and individual emotional states, should also be taken into account when designing interventions. It is essential for intervention programs to be cautious not to attempt to eliminate symptoms of problematic social media use entirely, as they intersect with the reasons people derive benefits from social media for their well-being.

Limitations

This study has some limitations, particularly the inherent challenges of self-reporting on social media's impact on well-being. Social media competency, time spent and well-being outcomes are subjective, relying on individual perceptions and experiences (e.g., rating their ability to adjust privacy settings or recalling how often social media caused anxiety), which may not align with objective measures (e.g., actual privacy configuration skills) and could be influenced by social desirability bias. However, steps were taken to minimize potential bias, such as ensuring participants were aware of the questionnaire's anonymity and that they could withdraw at any time. Moreover, we relied on a single-item measure for social media competency, although we tried to mitigate this limitation by clearly defining competency to encompass both basic and advanced technical and managerial tasks across social media platforms. Furthermore, establishing causality proves challenging due to the cross-sectional design of our study. For example, although our analysis showed an association between time spent on social media and problematic social media usage, we cannot determine whether this problematic usage stems from pre-existing factors rather than being caused by time spent on social media. Our focus on two specific cultural contexts, the UK and Arab societies, enhances methodological rigor but may limit broader applicability across Eastern and Western countries. Recruitment via online platforms may also oversample tech-literate populations. Replication studies are necessary to validate and extend the findings. While the sample size was sufficient for statistical analysis and comparable to studies such as (LaRose et al., 2014) and (Rui & Stefanone, 2013), it may not, along with the sampling process, support claims of cultural representation, and future research should address this limitation by using larger, more diverse samples. Additionally, the research design involved active users of social media platforms which may limit representativeness as infrequent users or those who avoid social media for privacy reasons or well-being choices were excluded Future research may include a more diverse range of users to explore whether similar patterns hold across infrequent users.

Conclusion

The study underscores the complexity of social media use, showing that it can simultaneously be a source of both problematic behavior and well-being. The context in which social media is used, including cultural and personal factors, significantly shapes user experiences. For example, individuals in collectivist societies, where social media is integral to maintaining social ties, may benefit from interventions that balance the social and emotional benefits of these platforms with strategies to promote healthy usage. Ultimately, well-being is not determined solely by the amount of time spent on social media, but by how that time is used. This finding highlights the limitations of current screen time monitoring tools, which often overlook the broader technical context, cultural norms, and personal factors that influence the impact of social media on well-being.

Appendix

Table 5 Pearson and Spearman correlation between social media disorder subscales, and well-being dimensions, UK sample

		1	2	3	4	5
1. PERMA_Positive Emotion	Pearson's r	—				
	Spearman's rho	—				
2. PERMA_Engagement	Pearson's r	0.68***	—			
	Spearman's rho	0.68***	—			
3. PERMA_Relationships	Pearson's r	0.79***	0.61***	—		
	Spearman's rho	0.78***	0.61***	—		
4. PERMA_Meaning	Pearson's r	0.81***	0.58***	0.74***	—	
	Spearman's rho	0.80***	0.59***	0.75***	—	
5. PERMA_Accomplishment	Pearson's r	0.79***	0.54***	0.67***	0.86***	—
	Spearman's rho	0.79***	0.56***	0.67***	0.83***	—
6. Preoccupation	Pearson's r	0.15*	0.18**	0.07	0.10	0.14*
	Spearman's rho	0.15*	0.17**	0.07	0.09	0.13*
7. Tolerance	Pearson's r	0.13*	0.16**	0.08	0.07	0.15*
	Spearman's rho	0.15*	0.18**	0.09	0.08	0.17**
8. Withdrawal	Pearson's r	0.17**	0.20***	0.13*	0.15*	0.20***
	Spearman's rho	0.16**	0.18**	0.10	0.11	0.18**
9. Persistence	Pearson's r	0.02	0.19**	0.05	− 0.09	− 0.04
	Spearman's rho	0.02	0.18**	0.03	− 0.10	− 0.03
10. Displacement	Pearson's r	0.03	0.16**	0.02	− 0.04	0.04
	Spearman's rho	0.06	0.16**	0.01	− 0.03	0.09
11. Problem	Pearson's r	0.05	0.15**	0.03	0.08	0.06
	Spearman's rho	0.06	0.14*	0.06	0.09	0.07
12. Deception	Pearson's r	0.08	0.13*	0.03	0.10	0.07
	Spearman's rho	0.10	0.15*	0.05	0.09	0.07
13. Escape	Pearson's r	0.04	0.25***	0.00	− 0.03	0.00
	Spearman's rho	0.01	0.23***	− 0.03	− 0.04	0.01
14. Conflict	Pearson's r	0.03	0.04	0.01	0.09	0.08
	Spearman's rho	0.06	0.06	0.01	0.07	0.08

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

Table 6 Pearson and Spearman correlation between social media disorder subscales, and well-being dimensions, Arab sample

		1	2	3	4	5
1. PERMA_Positive Emotion	Pearson's r	—				
	Spearman's rho	—				
2. PERMA_Engagement	Pearson's r	0.62***	—			
	Spearman's rho	0.62***	—			
3. PERMA_Relationships	Pearson's r	0.77***	0.67***	—		
	Spearman's rho	0.75***	0.68***	—		
4. PERMA_Meaning	Pearson's r	0.75***	0.67***	0.74***	—	
	Spearman's rho	0.75***	0.68***	0.74***	—	
5. PERMA_Accomplishment	Pearson's r	0.77***	0.62***	0.72***	0.82***	—
	Spearman's rho	0.79***	0.63***	0.72***	0.82***	—
6. Preoccupation	Pearson's r	0.20***	0.23***	0.14*	0.18**	0.21***
	Spearman's rho	0.23***	0.22***	0.17**	0.20***	0.25***
7. Tolerance	Pearson's r	0.10	0.14*	0.06	0.15*	0.11
	Spearman's rho	0.08	0.11	0.05	0.15*	0.11
8. Withdrawal	Pearson's r	0.14*	0.22***	0.11	0.10	0.15*
	Spearman's rho	0.14*	0.19**	0.08	0.09	0.15*
9. Persistence	Pearson's r	0.03	0.09	0.08	0.03	0.06
	Spearman's rho	0.03	0.06	0.08	0.04	0.08
10. Displacement	Pearson's r	− 0.12	0.01	− 0.07	− 0.04	− 0.04
	Spearman's rho	− 0.10	− 0.01	− 0.09	− 0.02	− 0.01
11. Problem	Pearson's r	− 0.01	0.02	− 0.06	− 0.01	− 0.08
	Spearman's rho	− 0.03	− 0.01	− 0.10	− 0.05	− 0.09
12. Deception	Pearson's r	− 0.05	− 0.02	− 0.04	− 0.04	− 0.05
	Spearman's rho	− 0.02	− 0.04	0.00	0.00	− 0.02
13. Escape	Pearson's r	− 0.05	0.07	− 0.05	− 0.01	− 0.01
	Spearman's rho	− 0.02	0.07	− 0.02	0.01	0.04
14. Conflict	Pearson's r	− 0.11	− 0.05	− 0.09	− 0.02	− 0.05
	Spearman's rho	− 0.07	− 0.06	− 0.08	− 0.02	− 0.03

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

Table 7 Pearson and Spearman correlation between SMD (PSMU), SM-WB and independent variables, UK sample

		1	2	3	4	5	6	7	8
1. SM-WB	Pearson's r								
	Spearman's rho								
2. SMD (PSMU)	Pearson's r	0.11	—						
	Spearman's rho	0.09	—						
3. Time spent on social media	Pearson's r	0.18**	0.45***	—					
	Spearman's rho	0.19**	0.47***	—					
4. Number of social media accounts	Pearson's r	0.17**	0.19**	0.36***	—				
	Spearman's rho	0.16**	0.22***	0.39***	—				
5. Competency in social media usage	Pearson's r	0.14*	0.04	0.19**	0.23***	—			
	Spearman's rho	0.13*	0.001	0.22***	0.26***	—			
6. External locus of control	Pearson's r	− 0.11	0.27***	0.16**	0.1	0.05	—		
	Spearman's rho	− 0.12*	0.28***	0.13*	0.1	0.05	—		
7. Internal locus of control	Pearson's r	0.34***	0.01	0.11	0.09	0.05	− 0.1	—	
	Spearman's rho	0.31***	0.05	0.12	0.08	0.06	− 0.11	—	
Age	Pearson's r	− 0.15*	− 0.28***	− 0.44***	− 0.38***	− 0.22***	− 0.07	− 0.04	—
	Spearman's rho	− 0.14*	− 0.30***	− 0.48***	− 0.37***	− 0.22***	− 0.06	− 0.06	—
Gender	Pearson's r	0.07	0.17**	0.25***	0.22***	0.09	0.04	− 0.02	− 0.26***
	Spearman's rho	0.05	0.20***	0.28***	0.24***	0.09	0.05	− 0.04	− 0.24***

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

Male = 0, Female = 1

Table 8 Pearson and Spearman correlation between SMD (PSMU), SM-WB and independent variables, Arab sample

		1	2	3	4	5	6	7	8
1. SM-WB	Pearson's r	—							
	Spearman's rho	—							
2. SMD (PSMU)	Pearson's r	0.06	—						
	Spearman's rho	0.07	—						
3. Time spent on social media	Pearson's r	0.10	0.25***	—					
	Spearman's rho	0.10	0.26***	—					
4. Number of social media accounts	Pearson's r	0.24***	0.09	0.24***	—				
	Spearman's rho	0.22***	0.09	0.23***	—				
5. Competency in social media usage	Pearson's r	0.35***	0.17**	0.21***	0.36***	—			
	Spearman's rho	0.36***	0.17**	0.2***	0.35***	—			
6. External locus of control	Pearson's r	− 0.12*	0.17**	0.04	− 0.15*	− 0.03	—		
	Spearman's rho	− 0.15*	0.15*	0.04	− 0.13*	− 0.01	—		
7. Internal locus of control	Pearson's r	0.48***	0.05	0.08	0.19**	0.33***	− 0.11	—	
	Spearman's rho	0.43***	0.02	0.04	0.16**	0.27***	− 0.13*	—	
Age	Pearson's r	0.15*	− 0.05	− 0.17**	− 0.02	− 0.03	− 0.07	0.09	—
	Spearman's rho	0.13*	− 0.05	− 0.17**	− 0.02	− 0.05	− 0.07	0.09	—
Gender	Pearson's r	− 0.10	0.07	0.02	0.06	− 0.12	− 0.10	− 0.16**	− 0.24***
	Spearman's rho	− 0.08	0.06	0.01	0.04	− 0.10	− 0.11	− 0.15*	− 0.23***

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

Male = 0, Female = 1

Author Contribution DC, AB and SA contributed equally to this work: conceptualization, study design, data preparation, formal analysis, and writing original draft.

MN: study design, reviewing original draft.

DA: study design, reviewing original draft.

RA: conceptualization, study design, data collection and preparation, reviewing and editing original draft; project management.

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Data Availability As part of a broader study, this paper presents only the questionnaire items that directly address the research questions posed. The full study design is available on the Open Science Framework (OSF) at (https://osf.io/jng5m). Additionally, the datasets generated by the survey research during the current study are available at (https://osf.io/g7wvq).

Declarations

Ethical Approval The study was conducted in accordance with the ethical standards set forth in the Declaration of Helsinki and was approved by the Institutional Review Board (IRB) of the Hamad Bin Khalifa University (ID: HBKU-IRB-2024–59).

Informed Consent All participants provided informed consent before taking part in this study.

Conflict of Interest The authors declare no competing interests.

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