

Research Article

Exploring the Role of Online Social Capital in Differentiating Technology Addiction Effect on Well-Being

Mirko Duradoni , **Giulia Colombini** , **Virginia Battistoni**, **Veronica Zagaglia**,
and **Andrea Guazzini** 

Department of Education, Literatures, Intercultural Studies, Languages and Psychology, University of Florence, Florence, Italy

Correspondence should be addressed to Mirko Duradoni; mirko.duradoni@unifi.it

Received 3 October 2024; Accepted 13 March 2025

Academic Editor: Tze Wei Liew

Copyright © 2025 Mirko Duradoni et al. Human Behavior and Emerging Technologies published by John Wiley & Sons Ltd. This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

Today's widespread and increasing access to the Internet and new technologies not only offers great opportunities but also risks for problematic use, whose psychological dynamics need to be understood in depth. This study examines how technology addiction may differentially affect well-being (i.e., psychological, eudaimonic, and cognitive hedonic) and digital life balance depending on people's reported levels of online social capital. Seven hundred and eleven participants (75.70% female; Mage = 28.33 years, SD = 12.30) took part in the data collection. Drawing on the Psychology of Harmony and Harmonization framework, the study found that people with high levels of addiction and high levels of online social capital showed higher well-being scores, as indicated by higher perceptions of life satisfaction and feelings of personal and social success, compared to people with high addiction patterns and low levels of online social capital. In addition, the results also highlighted a better digital life balance in the former group. Overall, the findings point to online social capital as a key factor in unraveling the different dynamics of social media and Internet addiction, showing how it can contribute to ensuring the satisfaction of driving social needs, maintaining better well-being even in the face of maladaptive behaviors, and ultimately challenging a monolithic concept of new forms of addiction. Indeed, the results suggest the potential existence of distinct types or shades of technological addiction that impact well-being differently and reflect varying levels of psychological distress, depending on underlying social needs and behaviors.

Keywords: digital life balance; Internet addiction; online social capital; social media addiction; well-being

1. Introduction

In today's era of hyperconnectivity [1], global access to the Internet and social media offers vast opportunities for users. Information and communication technologies now allow people to access support and information and build identity capital at any time [2]. Social media engage people in a variety of activities, including entertainment (e.g., watching TV series and movies), social activities such as communication, keeping in touch with relevant virtual social communities, or maintaining offline networks [2]. The healthcare context is another example of how change has been facilitated. Here,

the Internet offers people the opportunity to schedule appointments and tests online [2], and to search for health information, especially for young people. Digital support, which is especially valuable for this group, provides anonymity and access, addressing barriers such as stigma or practical challenges faced when seeking in-person interaction [3]. Social media also address identity needs by allowing the creation of a virtual social identity [2] and promoting the exploration of personal insights, purpose, and meaning in life, especially for young people [4].

At the same time, the pervasiveness and constant accessibility of the Internet and new technologies can challenge

people to maintain a harmonious and balanced relationship between their online and offline lives. When this balance is disrupted, patterns of dysfunctional use and addiction to new technologies can emerge, arising as endpoints of different psychological dynamics and processes. This is confirmed by the fact that, when analyzing the myriad relationships between addiction and other relevant psychological factors, constellations of potential processes that activate or are associated with addictive patterns may emerge [5].

The use of the Internet and social media among young Italians continues to grow with nearly 85% of young people between the ages of 11 and 19 having a profile on a social media platform, and the percentage exceeding 97% in the 17–19 age group [6]. This trend is also reflected in the overall use of the internet: Italians spend an average of 5 h and 49 min per day online, with 87.7% of the population being connected [7]. Social media also play an increasing role in purchasing decisions, with a large amount of content consumption, including music videos and viral videos [7]. However, the intensive use of the internet has also led to an increase in risks related to addiction. According to data from Demoskopika [8], over 430,000 young people between the ages of 18 and 23, accounting for 38% of the total, fall into the “high addiction” category, at risk of pathological dependence, followed by 390,000 individuals between the ages of 24 and 29.

These data underscore the contemporary relevance of better understanding technology addiction, going beyond time spent online and assessing the importance of satisfying needs through digital platforms, to gain insight into vulnerabilities and patterns of dysfunctional technology use.

1.1. Literature Review on Psychological Factors and Technology Use

1.1.1. Previous Studies on Susceptibility to Dysfunctional Technology Use: Personality and Emotional Dynamics. One line of research on risk for maladaptive technology use has focused on the dynamics of comorbidity between addiction and psychopathological factors. For example, studies suggest that the presence of psychopathological symptomatology would seem to increase susceptibility to the dysfunctional technology use and the development of Internet addiction, particularly in the presence of depressive and anxiety symptoms [9–11]. Here, maladaptive personality traits and personality disorders, especially those related to Clusters B and C, seem to be frequently associated with patterns of Internet addiction [12], finding in them the activation of peculiar coping dynamics (e.g., using the Internet to suppress unpleasant emotional feelings such as sadness, hopelessness, or guilt, and to manage psychological distress) [13].

More recently, then, another line of research has considered psychological processes related to fear of missing out and anxious states as relevant antecedents of dysfunctional technology use [14–18] and of unbalanced harmonization between online and offline life [19]. Overall, evidence in this area values the role of social media in enabling the potential fulfillment of basic needs for relationships, autonomy, and competence [20]. In this line, also loneliness appears to con-

tribute to dysfunctional technology use [21], showing that enhanced individual perception of being alone may be associated with an increased likelihood of Internet addiction [21, 22], excessive Internet use [23], problematic online gaming [24], and a general imbalance within real and digital life [19].

1.1.2. Recent Research on Technology Use and Online Social Capital. Recent evidence highlights the role that societal-level factors, such as Internet social capital (i.e., the extent and strength of social ties people have online), play in shaping the balance between online and offline life and influencing dysfunctional technology use [2, 25], yielding mixed results. On the one hand, some authors have found robust positive relationships between social capital and Internet use. According to these findings, the Internet would contribute to the creation, transformation, maintenance, and integration of social capital, especially thanks to the wide opportunities for connection, communication, and interaction offered by the increasing diffusion of new technologies [26, 27]. In particular, social media platforms provide opportunities for maintaining and strengthening existing relationships, contributing to a sense of social support and enhancing life satisfaction [28]. Therefore, the use of the Internet can enhance relational and psychological well-being, fostering social connections and reducing feelings of isolation under certain conditions [29], and is associated with lower levels of loneliness [30]. In addition, with increasing digitization, the use of artificial intelligence has also been shown to indirectly improve well-being at work by satisfying psychological needs such as autonomy, competence, and relatedness [31]. Similarly, recent studies on social media have highlighted how their use can positively impact psychological well-being [32], through positive interactions that can help to reduce loneliness and isolation.

However, when individuals rely excessively on online interactions to fulfill unmet social and emotional needs, their reliance on digital environments may foster an imbalanced relationship with technology. For example, if the need for mattering (i.e., the subjective sense of importance to others) [33] is primarily satisfied online, people may become more vulnerable to social media addiction. This compensatory behavior suggests that, under certain conditions, digital environments may become the primary means of satisfying social and emotional needs, increasing the risk of maladaptive technology use [25]. Furthermore, recent studies provided evidence that fear of missing out and psychological distress may mediate the relationship between life satisfaction, problematic social media use, and problematic smartphone use, further suggesting that emotional vulnerability, such as fear of social exclusion, and social needs may drive problematic technology use [34]. Moreover, excessive Internet use has also been associated with increased loneliness and depression, particularly when online activities replace essential real-world behaviors, such as physical activity, sleep, and face-to-face interactions [29]. For instance, the phenomenon of “temporal displacement” suggests that significant time spent online could substitute meaningful social or physical activities, negatively impacting overall well-being [29].

1.1.3. The Digital Life Balance (DLB) Model for Harmonic and Nonharmonic Technology Use. In trying to understand and interpret all these possible and complex interplay of technology use antecedents, another line of literature, drawing on the Psychology of Harmony and Harmonization framework [35–37], has recently hypothesized that families of needs that are frustrated in real life and which find satisfaction online may be at the root of the dysfunctional use of new technologies. Here, the concept of DLB has been proposed to capture individuals' harmonic (i.e., balanced) and disharmonic (i.e., unbalanced) use of ICTs as a new tool for understanding the impact of Internet use on well-being [19]. Indeed, previous research has tended to highlight several needs that may drive people toward increased use of social media and technology as a compensatory strategy. In general, the needs that have emerged can be grouped into control and sociality-related needs, including, for example, the need to maintain relationships [38], social approval, attention-seeking, and the desire to be liked and admired [38–40]. In this vein, recent findings suggest that satisfying a need for mattering primarily through online interactions may be linked to vulnerability to disconnect online and offline life, complicating their DLB [25]. At the same time, other driving dynamics and needs seem to be the necessity to find excessive reassurance through mobile phone use [38], while also elevating self-esteem and alleviating feelings of uncertainty and worry through online interactions [28], but also to regulate negative emotions or escape emotional pain, expecting that online interactions may help reduce tension and alleviate distress [28].

1.1.4. Unraveling the Gaps in the Complexity of Technological Addiction: The Key Role of Sociality. An overview of previous studies reveals the complexity of the antecedents that may lead to addiction and identifies gaps in the current psychological literature on the topic. First, research often tends to view technology addiction as a unique and homogeneous concept. However, given the diverse motivational processes that may drive such conditions, it is also reasonable to expect the existence of distinct types of addiction or varying degrees of it. Evidence suggests that a key to unraveling the phenomenon and better differentiating between addictions may lie in the specific behaviors that underlie them. Among these, sociality oriented behaviors and related psychological needs emerge as potentially critical factors for operating the distinction. Indeed, in line with the needs described above, the literature highlights a socially oriented type of addiction, where the object of addiction (e.g., Internet, social media, and smartphones) serves a social function. Examples of behaviors performed here are directed at satisfying social needs such as facilitating friendships, compensating for a lack of socialization, protecting relationships [41], enabling networking and the sharing of personal views [42], and providing more accessible communication [43].

On the other hand, the literature also reports more individually focused forms of addiction. This is the case, for instance, with the use of new technologies for social withdrawal behaviors, known in the Hikikomori phenomenon [44, 45] or for passive content fruition [46], driven by moti-

vations like procrastination, emotional regulation, and avoidance, contributing to social withdrawal [43]. Although a dichotomy has been proposed between active social media use (i.e., socializing, texting, and posting comments) and passive use (i.e., scrolling or browsing the content without engaging in social interactions) [47], the association with well-being remains debated [48]. In this vein, indeed, another research issue is the shortage of comprehensive models that can clearly distinguish different orientations of technological addiction. This may raise questions about the differential impact on the well-being of addictions based on social components versus those based on individualistic characteristics. Moreover, while much research has focused on the amount of time spent using technologies, a more nuanced and extensive assessment that considers the underlying needs driving these behaviors is often lacking. In this light, the online social capital becomes particularly relevant, as it represents an essential social aspect implied in interpersonal relationships and social participation. Amidst the contrasting evidence in the literature, studies highlight its protective potential in promoting supportive behaviors in the society, favoring positive coping with situations [49]. Thus, given its positive role, online social capital may be crucial in shaping the relationship between technology addiction and well-being. Indeed, it might be expected that the impact of addiction on well-being would be different for people with high and low levels of online social capital. Overall, then, online social capital may help to deepen the complexity of addiction and its associated distress, while also contributing to a better understanding of the social and psychological needs and behaviors that technology may help to satisfy.

These considerations of current research questions lead to the aim of the present work, which is to examine how high levels of technology addiction may differentially affect well-being and DLB as a function of reported levels of online social capital. Different conceptualizations of well-being (i.e., psychological, eudaimonic, and cognitive hedonic) were used to test the impact of online social capital on the well-being of people with high levels of addiction.

1.2. Hypothesis Development. The literature highlights a well-established effect of social capital on well-being [50] and also considers how the Internet can nowadays affect social capital itself [51]. Given the wide range of opportunities provided by the Internet, such as facilitating communication and relationship building [52] and the fact that people with high technology addiction tend to spend a significant amount of time online, it is possible that they develop online social capital. According to the uses and gratifications theory [53], online social capital can be seen as a response to individuals' sociopsychological needs, offering platforms to interact, maintain relationships, and receive social support. This also aligns with the belongingness theory [54], which emphasizes the human need for belonging and relatedness as a central driver of behavior.

Furthermore, in line with the theory of social support [55–57], online social capital can be conceptualized as an extension of traditional social networks, capable of offering

emotional, informational, and relational support [58, 59]. As it satisfies essential needs such as belonging and emotional comfort, this kind of support is fundamental for promoting well-being. However, a significant gap in the literature is the tendency to conceptualize technology addiction as a homogeneous phenomenon, often overlooking its varying degrees and different orientations. Indeed, much of the existing research prioritizes quantifying addictive behaviors (e.g., time spent online) rather than adopting a more nuanced, psychological needs-based perspective. We propose that technology addiction should not be viewed as a uniform condition but rather as a multidimensional phenomenon influenced by underlying specific psychological needs, hypothesizing in particular a key role for online social capital. To address gaps in the literature, our hypotheses first build on classical theories, assuming as reasonable the potential distinction of two group configurations: people with high addiction who have online social capital and people with high addiction who do not.

Based on this literature, we developed our hypotheses:

H1: People with high levels of technology addiction and high online social capital report significantly higher well-being scores than those with high technology addiction and low online social capital.

Moreover, given that the current era is characterized by widespread hyperconnectivity and technological pervasiveness [60], the construct of DLB [19] has been proposed within the psychology of harmony and harmonization [35–37] as a new lens for analyzing contemporary well-being. Here, different levels of balance between online and offline life seem to stem from the frustration of various needs (e.g., sociality, and control) that can then be satisfied online. Thus, people who develop online social capital may be able to satisfy their need for relationships, while people who use the Internet and new technologies just as passive users may not be able to compensate for these needs, and thus report different patterns of online/offline life balance.

The theory of social support highlights how online networks can serve as a compensatory mechanism to meet basic needs that go unmet offline [58, 61]. This perspective is consistent with the theory of compensatory Internet use, which posits that people use technology to address, satisfy, or compensate for needs that are systematically frustrated in real life [62]. As a result, problematic behaviors would not be directly caused by high Internet use per se, but rather by underlying motivations rooted in psychosocial problems or unmet needs as originally conceptualized in classical needs theory [63, 64]. These needs, unmet in real life, would find alleviation and compensation through digital engagement [62].

In this context, people who actively develop and cultivate meaningful online social capital can leverage this support to foster a harmonious balance between digital and traditional spheres [2], thereby satisfying their underlying needs. Conversely, passive users who fail to secure social support online or offline may experience a more compromised DLB. However, there is currently a shortage of literature that conceptualizes well-being as the maintenance of balanced and harmonious relationships across different domains of

life, through well-adjusted need satisfaction. This gap is particularly evident in the context of technology addiction, where psychological needs are often left aside in favor of other factors. To address this gap and deepen the understanding of the multidimensional nature of technology addiction, we propose that online social capital may also play a key role in the balance between online and offline life as a broader and more nuanced indicator of aspects of well-being.

Based on the above, we, therefore, developed another hypothesis:

H2: People with high addiction and high social capital have significantly higher DLB scores than those with high addiction and low social capital.

2. Methods

2.1. Research Design. The research is cross-sectional in design, as it collects and analyses data in a single time point, and was chosen to obtain a snapshot of the relationship between technology addiction measures and well-being in an Italian sample. This is convenient in terms of time and resources, even if it excludes the possibility of identifying causal relationships between the variables of interest.

2.2. Participants and Procedure. Before recruiting participants, we conducted a power analysis to determine the necessary sample size for our study's objectives. In our design, two ANOVA analyses were planned: one involving four clusters and another with only two clusters. For the first ANOVA, a sample of 180 participants would ensure a statistical power of 0.80 to detect medium effects ($f^2 = 0.25$) with a significance level of 0.05. For the second ANOVA, the same power and effect size could be achieved with 128 participants. Given that we included 245 participants in the first analysis and 132 in the second, the sample sizes can be considered adequate for the purposes of this study.

This study was conducted with a total sample size of 711 participants and used a nonrandom, snowball sampling technique. Data collection was carried out using Google modules, through which we easily created an online questionnaire that we distributed via email, and through various online platforms and social networks, including Instagram, Facebook, WhatsApp, and Telegram. Participants were recruited on the basis of a voluntary census through dedicated online messages, with inclusion criteria of a minimum age of 14 and proficiency in Italian. Each participant was informed of their right to withdraw from the study at any time. To ensure confidentiality, all data collected were completely anonymous, in accordance with Italian privacy legislation (Legislative Decree DL-101/2018) and the EU General Data Protection Regulation (2016/679). The questionnaire took approximately 20 min to complete.

The sample was predominantly composed of cisgender females (75.70%) with an age range from 15 to 80 (average age = 28.33; SD = 12.30).

2.3. Measures. To achieve the research objectives, an online questionnaire was created and administered with the help

of Google Forms. Basic sociodemographic information (i.e., age and gender) was primarily requested, then the following measures were used, all of which had their validated Italian versions:

Satisfaction With Life (SWL) Scale [65]. We used the validated Italian version of this scale [66] to measure people's sense of satisfaction with their lives, which is a very important factor in determining their subjective well-being. It is a one-dimensional scale that involves five items (e.g., "I am satisfied with my life", "The conditions of my life are excellent") that are rated using a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*).

The SWL has exhibited excellent reliability with a Cronbach's alpha coefficient of 0.87 [65]. Di Fabio and Busoni [66] reported on the psychometric properties and validity of the Italian version, revealing Cronbach's alpha coefficient of 0.85 for the SWL score. The scoring range varies between a minimum of 5 and a maximum of 35, where high scores correspond to greater life satisfaction.

Flourishing Scale [67]. This scale was employed to evaluate self-perceived success across key domains such as relationships, self-esteem, purpose, and optimism [67]. It has been validated in Italian by Di Fabio [68]. It is a one-dimensional scale that includes eight items (e.g., "I lead a full and meaningful life," "People respect me") that are rated using a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). The Flourishing Scale has demonstrated optimal reliability with a Cronbach's alpha coefficient of 0.87 [67]. The psychometric properties and validity of the Italian version reveal Cronbach's alpha coefficient of 0.90 for the SWL score [68]. The scoring range varies between a minimum of 8 and a maximum of 56, where high scores correspond to greater well-being.

Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) [69]. This scale consisted of 14 items and was developed to enable the monitoring of mental well-being in the general population. In this study, the 12-item Italian version was used [70]. Items (e.g., "I've been dealing with problems well," "I've been feeling interested in other people") are rated using a 5-point Likert scale (1 = *none of the time*; 5 = *all of the time*). The internal consistency coefficient for the scale is $\alpha = 0.87$ [70]. The scoring range varies between a minimum of 12 and a maximum of 60, where higher scores indicate greater positive mental well-being.

DLB Scale [19] was composed of 4 items using a 7-point Likert scale, from *strongly disagree* (1) to *strongly agree* (7). Examples of items are as follows: "I currently have a good balance between the time I spend online and the time I have available for offline activities," and "Overall, I believe that my online and offline life are balanced." The reliability of the DLB scale was measured using McDonald's Omega and was found to be excellent ($\omega = 0.89$). Possible scores on the scale range from a minimum of 4 to a maximum of 28, and the higher the score, the better the balance between online and offline life.

Social Media Capital (SMC) Scale [71]. This scale evaluates online social capital and people's confidence in their ability to use social media to stay connected with others. It consists of 7 items (e.g., "I feel confident in using social

media," and "Since getting on social media, I have become more connected to people like me") that are rated on a 5-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). The scale presents two factors: SMC_Efficacy (F1) and SMC_Social (F2). The reliability of the SMC scale was measured using McDonald's Omega: $\omega = 0.81$ (F1) and $\omega = 0.86$ (F2) [71]. The scoring range varies between a minimum of 7 and a maximum of 35, where higher scores indicate greater online social capital and greater confidence in the ability to use social media to stay connected with others.

Bergen Social Media Addiction Scale (BSMAS) [72]. This scale, translated and validated in Italian by Monacis and colleagues [73], is useful for measuring a person's degree of dependence on social networks. It is made up of six items (e.g., "I don't get tired of playing video games," and "I lose track of time when I play") that are rated using a 5-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). The internal consistency coefficients for the scale are $\alpha = 0.88$ [73] and $\alpha = 0.86$ [74]. The scoring range varies between a minimum of 6 and a maximum of 30, where high scores correspond to greater addiction.

A table briefly summarizing the measurement tools used is provided in Appendix 1.

2.4. Data Analysis. From the initial pool of 711 participants recruited for this study, a subset of 159 participants was extracted to focus on those aligning with the specific cases relevant to our hypotheses. This selection was based on the participants' scores in two primary measures, namely BSMAS and SMC Scale. We employed a quartile-based clustering approach to segment this subset into four distinct clusters, ensuring clear differentiation between participants based on their levels of technology addiction and online social capital. This method was chosen for its interpretability and methodological robustness in distinguishing high and low levels of the studied variables while minimizing ambiguity in classification. Unlike alternative clustering methods (e.g., *k*-means or hierarchical clustering), quartile-based segmentation does not require arbitrary parameter selection, making it particularly suitable for studies where predefined distribution-based thresholds offer clear group delineation. By excluding participants with midrange scores (between the first and third quartiles), we ensured that our analysis focused on well-defined profiles with distinct characteristics, allowing for a clearer examination of differential effects.

As a result, we identified four distinct clusters reflecting combinations of technology addiction and online social capital:

1. Tech-balanced networkers: participants reporting low technology addiction and high online social capital ($n = 27$);
2. Tech-balanced loners: participants showing low technology addiction and low online social capital ($n = 86$);
3. Tech-addicted networkers: participants reporting high technology addiction and high online social capital ($n = 89$);

TABLE 1: Descriptive statistics of the study variables.

Variable	Min-max	Mean (s.d.)	Skew.	Kurt.
SWL	5–34	21.55 (6.07)	–0.32	–0.57
Flourishing	15–56	40.99 (7.06)	–0.48	–0.05
WEMWBS	14–59	40.53 (6.23)	–0.31	0.55
SMC-social	3–15	8.99 (2.74)	–0.14	–0.36
BSMAS	6–30	12.71 (4.49)	0.63	0.16
DLB	4–28	17.79 (5.15)	–0.16	–0.24

Abbreviations: Kurt., kurtosis; s.d., standard deviation; Skew., skewness; SWL, satisfaction with life.

4. Tech-addicted loners: participants showing high technology addiction and low online social capital ($n = 43$).

This clustering approach enables us to directly examine groups with contrasting profiles in order to further investigate the impact of these combinations of variables (i.e., BSMAS and SMC scores) on the participants' well-being.

To avoid data bias, we assessed the data both qualitatively through visual inspection and quantitatively using functions designed to detect potential patterns (e.g., straight lines or zig-zag fills). As a result, no responses were identified as suspicious based on these criteria.

3. Results

Firstly, we calculated the descriptive statistics. For the collected variables, we provided measures of central tendency and variability, as well as information on the skewness and kurtosis of their distributions. This was done to verify the adherence to the statistical assumptions required for the tests we intend to use (Table 1).

As indicated in Table 1, none of the variables exhibit nonnormal distributions. Therefore, we proceeded with the planned parametric analyses.

Initially, we considered all four identified clusters by extracting a total of 159 participants respecting the attribution to the cases subject to the hypothesis and dividing them based on the quartile distribution. We compared the means of the four clusters concerning the well-being and DLB scales using ANOVA.

As shown in Table 2, there is a statistically significant difference between the means for both the three measures related to well-being conceptualizations and DLB. This indicates a clear distinction between clusters with individuals exhibiting high levels of technological addiction and those with low levels. In terms of effect size, using the common interpretation rules for eta-squared, which identify 0.01, 0.06, and 0.14 as indicating small, medium, and large effects, respectively, we observed that the difference between clusters in terms of DLB is very large. The difference related to psychological well-being (i.e., WEMWBS) and eudaimonic well-being (i.e., Flourishing) falls between medium and large, while the difference related to cognitive hedonic well-being (i.e., SWL) is medium.

Subsequently, we analyzed the differences between clusters containing individuals with high levels of social media

addiction, who differ in terms of experienced online social capital (Table 3).

In this case, we also observe a statistically significant difference for the same measures investigated previously, although the effect sizes are more moderate, generally around medium values. Specifically, individuals with social media addiction who possess high levels of online social capital appear to have better well-being and a higher DLB compared to those with social media addiction who lack online social capital.

Finally, to enhance the clarity of our results, we also provide the complete ANOVA post hoc pairwise comparison analysis (LSD) in Appendix 2, covering all cases examined in the study.

Overall, a statistical difference in well-being measures constantly emerged when comparing tech-addicted networkers and tech-addicted loners.

Conversely, no differences in well-being measures were consistently observed when comparing people with low addiction scores (i.e., tech-balanced networkers and tech-balanced loners) based on their high or low levels of online social capital. However, when comparing individuals with low scores of addiction (i.e., tech-balanced networkers and tech-balanced loners) to those with higher addiction scores (i.e., tech-addicted networkers and tech-addicted loners), significant differences in well-being measures were frequently identified. Specifically, people with lower addiction scores tended to report higher levels of well-being than those reporting higher addiction patterns.

In summary, a higher level of online social capital generally appeared to serve as a protective factor for well-being.

4. Discussion and Conclusions

In today's hyperconnected world, the Internet represents an essential tool [1, 75, 76] that is becoming increasingly important in people's daily lives [2, 76, 77]. Daily access to several services, in the fields of business, healthcare, and entertainment, requires the use of the Internet and new technologies, which have witnessed a widespread diffusion also driven by the recent COVID-19 pandemic [78]. Their pervasiveness has indeed fostered progress and provided benefits such as access to information and wider social contacts [77], as well as the potential development of online social capital. However, in light of this large phenomenon, it is important to recognize that while the use of the Internet

TABLE 2: Anova analysis among the four clusters.

Variable	Tech-balanced networkers mean (s.d.)	Tech-balanced loners mean (s.d.)	Tech-addicted networkers mean (s.d.)	Tech-addicted loners mean (s.d.)	$F_{(3;223)}$	η^2
SWL	22.67 (5.39)	22.58 (6.39)	20.92 (5.43)	18.83 (5.05)	4.64**	0.06
Flourishing	42.44 (6.52)	42.77 (6.26)	40.00 (6.70)	36.60 (6.63)	9.36***	0.11
WEMWBS	40.78 (7.28)	42.37 (5.35)	39.83 (5.29)	37.21 (4.15)	8.96***	0.10
DLB	20.26 (5.23)	21.70 (4.58)	14.88 (4.82)	12.02 (4.33)	53.16***	0.41

Note: N tech-balanced networkers = 27; tech-balanced loners = 86; tech-addicted networkers = 89; tech-addicted loners = 43; F = Fisher's index; η^2 = eta-squared measure.

Abbreviation: s.d., standard deviation.

** $p < 0.01$.

*** $p < 0.001$.

TABLE 3: Anova analysis among the two clusters of main interest.

Variable	Tech-addicted networkers mean (s.d.)	Tech-addicted loners mean (s.d.)	$F_{(1;124)}$	η^2
SWL	20.92 (5.43)	18.83 (5.05)	4.31*	0.04
Flourishing	40.00 (6.70)	36.60 (6.63)	7.29**	0.06
WEMWBS	39.83 (5.29)	37.21 (4.15)	7.87**	0.06
DLB	14.88 (4.82)	12.02 (4.33)	10.52**	0.08

Note: N tech-addicted networkers = 89; N tech-addicted loners = 43; F = Fisher's index; η^2 = eta-squared measure.

Abbreviation: s.d., standard deviation.

* $p < 0.05$.

** $p < 0.01$.

and new technologies is a valuable resource, their potential dysfunctional use can also pose significant challenges to mental health and social functioning, negatively affecting people's psychological well-being [79–81], and harming their balance between online and offline life, as theorized by the DLB construct [19]. The concept of online social capital can provide a key framework for understanding these issues.

Currently, different types of addictions are distinguished based on the device that is central to the addiction itself [82, 83], and social media uses have been initially conceptualized as being active (i.e., aimed at socializing) or passive (i.e., just scrolling or browsing) [47], although this dichotomy is under debate [84]. However, current studies do not unravel the existence of different configurations of technological addictions, taking into account the centrality of peoples' online social networks and resources and their perception of a balanced state in which they feel good. Therefore, our study is aimed at investigating how technological addictions can be distinguished in terms of their footprint on people's well-being based on online social capital.

Consistent with our first hypothesis (H1), this study highlighted that people with a high level of addiction and high social capital reported higher well-being scores as compared to those with high addiction and low social capital. Indeed, the results underline a tendency for people with high addiction and high social capital to perceive themselves as more satisfied with their lives, as indicated by higher scores on the SWL Scale, and more successful in key areas such

as relationships and self-esteem, as evidenced by higher scores on the Flourishing Scale, as well as higher scores on the WEMWBS, than people with high addiction and low social capital. By incorporating these different instruments, the findings show that online social capital in addictive patterns can affect well-being in a complex, transversal, and multidimensional way. Thus, the results suggest that online social capital cannot only support general well-being but also positively impact more specific aspects, such as eudaimonic and cognitive hedonic aspects, interpersonal relationships, quality of life, feelings of personal and social success, and self-esteem, thereby strengthening people against the negative effects of technological addiction. This multidimensional approach adds robustness and meaning to the observed data, providing a more comprehensive and nuanced view of the role of social capital in promoting well-being.

The results of this study also confirm our second hypothesis (H2), as when comparing people with high levels of addiction, those with high social capital showed higher scores on the DLB scale [19] than those with low social capital.

Overall, these results point to social capital as an element that makes a difference to the well-being of people with dysfunctional technology use and an imbalance between online and offline life. Indeed, the differences in well-being and DLB showed medium to large effect sizes, emphasizing the significant role of online social resources in shaping well-being and digital life harmony among people with addictive

patterns. This suggests that well-being in maladaptive behaviors is not solely determined by addiction scores but is also strongly influenced by online social capital. From a practical perspective, this highlights the potential effectiveness of interventions aimed at enhancing social support. However, the effect sizes do not completely rule out the potential influence of other variables (e.g., personality traits, relationship quality, coping strategies, co-occurring mental health issues) in shaping well-being, suggesting a more complex framework that warrants further exploration.

This finding integrates with the Psychology of Harmony and Harmonization framework, further suggesting that clusters of needs that are frustrated in real life and which find satisfaction online may be at the root of the dysfunctional use of new technologies [35–37]. This is also in line with the literature that has already found an effect of social capital on well-being [50]. Indeed, people who develop online social capital seem to be able to satisfy their need for relationships and sociality, and as a result, despite having high levels of addiction, they are better off in terms of well-being and online–offline life balance than those who do not compensate for this need, using the Internet and new technologies passively and without entering into a network of social ties.

These dynamics of actual or absent need for compensation can also be explained by the theory of compensatory Internet use [62], which suggests that technology can be used as a coping strategy to deal with problematic situations and experienced negative emotions. For example, it has been shown that people may be motivated to socialize online in the absence of offline social connections and that people with high levels of social anxiety may compensate for their feelings of loneliness by socializing in online games or social networks, feeling safer thanks to the anonymity effect [85]. Thus, according to this theory, it is not so much the high level of Internet use that leads to problematic behavior, but rather the underlying motivations, which stem from psychosocial problems and unmet needs in real life that are alleviated or compensated for by the use of new technologies [62]. In this line, the results of the present study suggest a better well-being state resulting from actively participating in online social relationships and enjoying online social resources (i.e., receiving benefits from online social capital), thus finding satisfaction for underlying social motivations, despite reporting high levels of addiction. These results imply that compensating for these needs online leads to greater life satisfaction, feelings of social and personal success, and a better online–offline balance, while helping to counteract the more detrimental effects of addiction on well-being, which in turn are more likely to be experienced by people with high levels of addiction and lack of solid online social capital to satisfy these social drivers.

These findings also deepen the outcomes of previous studies framed by motivational theories, which have been adapted and updated to explain social media addiction [86]. In particular, social gratifications and sociopsychological needs are shown to be among the crucial motivations that can predict addictive patterns of social media use (e.g., [87, 88]). This is the case, for example, with the uses and

gratifications theory [53], according to which the role of social gratifications is emphasized as new technologies and platforms provide opportunities to interact and maintain social networks, communicate, and receive online social support. At the same time, our results are also in line with the belongingness theory [54] and the self-determination theory [89], for which the need for belonging and relatedness is one of the basic psychological needs that people have to fulfill and therefore central to driving their behavior, even in the context of maladaptive technology use. In this sense, in our study, high levels of online social capital are indicative of these motivational processes for sociality, showing how actual and potential resources, social ties, and support in and from one's online relational networks can satisfy relational needs but, most importantly, ensure the maintenance of better well-being and life balance, even in a maladaptive framework.

In conclusion, our results contribute to broadening the existing literature by addressing key research gaps. In the current context of global hyperconnectivity and technology pervasiveness, our study provides valuable insights into how technology addiction, combined with online social capital, can differentially affect well-being and the balance between digital and offline life. In particular, people with high levels of addiction who have robust online social networks tend to experience greater well-being and a more harmonious balance between online and offline activities than equally addicted people with limited online social capital. While current studies often treat technology addiction as a unique and homogeneous concept, these results contribute to a deeper understanding of the complexity of technology addiction patterns, highlighting that not all forms of addiction have the same impact on mental health and social functioning. These findings also suggest that addictions cannot be conceptualized as monolithic entities based solely on the different objects of addiction, but rather as complex and multidimensional phenomena in which the interplay of different processes can result in different footprints on people's well-being. In this sense, the findings also contribute to the shortage of comprehensive literature that distinguishes different orientations of technological addiction by examining the specific relevance of sociality-oriented needs and behaviors. To help fill this gap, the findings provide evidence for the impact of online social capital on the relationship between addiction and well-being, highlighting its protective role in maintaining better well-being despite engaging in maladaptive behaviors. These results are insightful into the existing research gap, as much of the addiction literature has focused primarily on time spent using technologies. In fact, the findings underscore the necessity to pay attention to the underlying psychological needs that drive these behaviors and encourage a more need-focused perspective by showing that the resulting outcomes can be significant.

Nevertheless, further research is needed to explore other factors, such as cultural context and individual differences, in order to deepen the literature and also to improve intervention strategies for managing technology-related addictions.

5. Implications of the Results

The present findings open up to theoretical and practical perspectives.

5.1. Academic and Research Implications. First, the findings point to the importance of recognizing that social media and technology addictions are not unique, rigid, and unidimensional entities, thus also highlighting the practical need for personalized assessments and tailored intervention strategies. Here, the findings suggest that online social capital is a key factor in understanding the different dynamics of social media and Internet addiction, showing how it can help meet social needs and support well-being even in the presence of maladaptive behaviors. Although this issue is still being debated [84], this implies that sociality may play a pivotal role in differentiating types of addiction, ultimately affecting well-being in various ways based on the presence of more social or individualistic elements in the addictive patterns. Thus, from a purely theoretical point of view, these results contribute to the conceptualization of addictions as complex, multidimensional, and multifaceted psychological phenomena, given the interplay of various processes that may contribute to impact well-being.

5.2. Practical Implications. From a more applied perspective, the implications of the findings may pave the way for personalized approaches, indicating the opportunity for them to focus on online social capital to address dysfunctional patterns in two main ways. When online social capital is high, it should be valued to help balance online and offline life, which this study shows is possible (i.e., higher online social capital was associated with higher DLB), and, thus, to change and reduce addictive behaviors. Conversely, when online social capital is low, encouraging the development and maintenance of social connections and enhancing social support could contribute to improve well-being and address addictive behavioral patterns.

On the whole, these implications basically revolve around the need to support people in building deep and meaningful relationships that can satisfy their social needs (e.g., relatedness, belonging, interaction, and communication), focusing on the unique contribution of social capital to well-being, avoiding overreliance on digital platforms, and promoting their use in a functional and balanced way. In this sense, interventions could also consider group settings to share and start building offline social capital, leveraging social support as a central factor, as also indicated by the readiness to change [90] and the transtheoretical model of change [91], which was really born in the context of addiction. In this context, some studies have shown the efficacy of interventions in group settings for technological addiction [92, 93], but evidence is still lacking for the evaluation of virtual-based group therapies. The results of the present study may be insightful and applicable for exploring virtual environments as other additional settings for psychological interventions for addiction problems, leveraging the protective role of online social capital, and working on the

maladaptive relationship between people and technology within the virtual context itself.

These findings may also have implications for the educational field, suggesting that unfolding these psychological dynamics related to the satisfaction of people's needs could be a way to contribute to raising awareness about functional uses of social media and technology, especially among the youngest.

6. Limitations and Future Perspectives

Next to different implications for the research, several limitations have to be acknowledged in this study. Firstly, it must be considered that although online survey administration facilitates data collection by promoting the dissemination of the questionnaire and capturing a greater propensity of individuals to provide sensitive and honest information [94], at the same time, it may not take into account the effect of possible intervening variables (e.g., distraction, connection problems, or environmental disturbances) on the completion of the questionnaire itself. Furthermore, the voluntary nature of the recruitment may have favored self-selection bias. The use of self-report measures may have introduced some bias, both because of the known tendency of people to give socially acceptable answers and because of potential poor introspection and self-assessment skills. Despite our efforts to reduce response bias by encouraging participants to reflect on their previous participation in the data collection process, it remains possible that some individuals may have unknowingly provided multiple responses. Although we implemented strategies to identify and exclude duplicated or unreliable entries, the presence of response bias cannot be entirely ruled out. Future studies could consider incorporating additional measures, such as validation checks or identification verification, to better mitigate the potential influence of response bias on the findings.

Moreover, the sample is predominantly young (with a mean age of 28.33 years), educated (52.60% with a secondary school degree and 30.40% with a bachelor's degree), and composed of cisgender females (75.70%). In addition, the sample is composed of Italian participants and, therefore, may not adequately reflect potential cultural differences in the creation of online social capital and addiction patterns. The results should, therefore, be interpreted with caution, as they may not accurately represent the general population, thereby limiting their generalisability. Another limitation to be accounted for is the cross-sectional design of the study, which makes it impossible to identify causal relationships between the variables of interest. In this sense, the findings cannot even account for the long-term effects of online social capital on well-being because they are limited to a specific period in the participants' lives, which may not reflect their behavior over time.

Furthermore, this study used only one instrument to assess addictive behaviors, which limits the generalizability of the findings. Incorporating additional instruments, such as the Generalized Problematic Internet Use Scale 2 [95] or the Smartphone Addiction Scale [96] for example, may provide a more comprehensive and robust understanding of the

impact of online social capital on well-being in maladaptive behaviors.

In addition, the study cannot rule out the potential influence of confounding variables that may affect social capital, well-being, and technology use. These could include personality traits, personal orientation toward individualism or collectivism, offline social capital and support, relationship quality, preexisting mental health issues (e.g., anxiety, depressive and symptoms), emotional state at the time of participation, previous experience with addiction, habitual coping strategies, specific cultural differences, and digital literacy.

Future research should address these limitations. For example, forthcoming studies should use more diverse samples to increase the generalisability of the findings; for example, it would be desirable to take into account age differences, especially considering the different impacts and use of social media at different stages of life. Moreover, future studies could include additional measures to reduce the influence of response bias on the results as much as possible. In addition, longitudinal studies could further enhance the understanding of these results by identifying causal relationships between the factors included in the study.

Then, in the near future, psychosocial factors that contribute to DLB should be studied. For instance, analyzing how people with strong offline social networks and supportive relationships manage their social needs both online and offline [97] could help to better understand these dynamics. In this direction, even the role of the need for control and power could be further examined. Additionally, future lines of research should explore in greater depth factors such as boredom [13] and susceptibility to it, loneliness [21, 98], alexithymia [99–101], and obsessiveness [102], as these aspects may influence the likelihood of developing dysfunctional or addictive behaviors related to Internet use. Self-regulation ability could be another important area of research [103], as it may contribute to different DLB levels. In addition, potential confounding variables not accounted for in this study could be explored, such as the impact of personality traits, specific coping mechanisms, level of digital literacy, and the influence of possible co-occurring psychological symptomatology of distress. In addition, future studies could focus on the interplay between individual characteristics and contextual factors while exploring technological addictions and DLB, for example, taking into account a cultural perspective. In this direction, future research could investigate whether the peculiar patterns that emerged in the present study could be replicated in different cultures and social contexts. In fact, as highlighted by Sun & Zhang [86], the environmental life context, culturally and politically intended, could contribute to shaping addictions in different ways. Highly stressful contexts without opportunities for open sociality could encourage the use of social media as a refuge [104], potentially leading to dysfunctional patterns. Similarly, dominant individualistic and collectivist perspectives have also been linked to social media addiction [105, 106]. These lines of research need to be further investigated in order to better clear up the role of complex psychosocial processes in human relationships with and within new technologies.

Appendix 1

TABLE A1: Table of measurement instruments.

	Diener et al. [65]
1. Satisfaction With Life (SWL) Scale	(The validated Italian version of the scale by Di Fabio and Busoni [66] was used in this study.)
2. Flourishing Scale	Diener et al. [67]
3. Warwick–Edinburgh Mental Well-Being Scale (WEMWBS)	Tennant et al. [69]
4. Digital Life Balance (DLB) Scale	Duradoni et al. [19]
5. Social Media Capital (SMC) Scale	Duradoni et al. [71]
6. Bergen Social Media Addiction Scale (BSMAS)	Andreassen et al. [72]

Appendix 2

TABLE A2: Complete ANOVA post hoc pairwise comparison analysis.

Variable	1 vs. 2	1 vs. 3	1 vs. 4	2 vs. 3	2 vs. 4	3 vs. 4
SWL	−0.01	1.86	3.95**	1.87*	3.95***	2.09*
Flourishing	−0.23	2.36	5.82***	2.59**	6.05***	3.46**
WEMWBS	−1.49	0.87	3.67**	2.36**	5.17***	2.82**
DLB	−1.42	5.39***	8.19***	6.81***	9.61***	2.80**

Note: 1 = tech-balanced networkers (LA-HS); 2 = tech-balanced loners (LA-LS); 3 = tech-addicted networkers (HA-HS); 4 = tech-addicted loners (HA-LS).
**p* < 0.05.
***p* < 0.01.
****p* < 0.001.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Consent

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflicts of interest.

Funding

No funding was received for this research.

References

[1] J. Haynes, L. Zhang, and O. Lopez-Fernandez, “The hyper-connected world: Internet, technology use, and its effects on daily life,” *Journal of Digital Studies*, vol. 18, no. 2, pp. 101–118, 2024.

- [2] M. Duradoni, E. Serritella, F. P. Severino, and A. Guazzini, "Exploring the relationships between digital life balance and internet social capital, loneliness, fear of missing out, and anxiety," *Human Behavior and Emerging Technologies*, vol. 2024, no. 1, Article ID 5079719, pp. 1–9, 2024.
- [3] S. M. Garrett, J. Hilder, R. Tester et al., "Young people talk about digital support for mental health: an online survey of 15–30-year-olds in New Zealand," *Health Expectations*, vol. 27, no. 4, Article ID e70001, 2024.
- [4] S. Guo, J. Lei, and F. Zhang, "How social media social comparison influences Chinese adolescents' flourishing: the mediation effects of identity processing styles," *Child & Family Social Work*, pp. 1–10, 2024.
- [5] Z. Hussain and H. M. Pontes, "Personality, Internet addiction, and other technological addictions: an update of the research literature," in *Multifaceted Approach to Digital Addiction and its Treatment*, pp. 46–72, IGI Global, 2019.
- [6] Ministero Per i Minori e la Famiglia, "Nuove generazioni sempre più digitali e multiculturali: Indagine ISTAT [New generations increasingly digital and multicultural: ISTAT survey]," 2024, <https://www.minori.gov.it/it/notizia/nuove-generazioni-sempre-piu-digitali-e-multiculturali-indagine-istat>.
- [7] Futurametwork, "Rapporto digital 2024: Italiani sempre più sui social, TikTok in testa [Digital report 2024: Italians increasingly on social media, TikTok in the lead]," 2024, <https://futurametwork.eu/consumi-ed-economia-circolare/694-4374/rapporto-digital-2024-italiani-sempre-piu-sui-social-tiktok-in-testa>.
- [8] Demoskopika, "Dipendenza da Social: il Rischio Patologico Tra i Giovani Italiani [Social Media Addiction: The Pathological Risk Among Young Italians]," 2024, <https://demoskopika.it/wp-content/uploads/2024/02/CS-DIPENDENZA-SOCIAL.pdf>.
- [9] A. Akin and M. Iskender, "Internet addiction and depression, anxiety and stress," *International Online Journal of Educational Sciences*, vol. 3, no. 1, pp. 138–148, 2011.
- [10] T. Gao, J. Li, H. Zhang et al., "The influence of alexithymia on mobile phone addiction: the role of depression, anxiety and stress," *Journal of Affective Disorders*, vol. 225, pp. 761–766, 2018.
- [11] E. Şentürk, B. Geniş, and B. Coşar, "Social media addiction in young adult patients with anxiety disorders and depression," *Alpha Psychiatry*, vol. 22, no. 5, pp. 257–262, 2021.
- [12] S. Zadra, G. Bischof, B. Besser et al., "The association between internet addiction and personality disorders in a general population-based sample," *Journal of Behavioral Addictions*, vol. 5, no. 4, pp. 691–699, 2016.
- [13] M. Faramarzi, B. Karim, Z. Gholami et al., "Exploring internet addiction during COVID-19 pandemic: a comparative study considering psychological, social, familial, and individual aspects in university students," *Health Science Reports*, vol. 7, no. 10, Article ID e70118, 2024.
- [14] D. Alt and M. Boniel-Nissim, "Parent–adolescent communication and problematic internet use: the mediating role of fear of missing out (FoMO)," *Journal of Family Issues*, vol. 39, no. 13, pp. 3391–3409, 2018.
- [15] Ö. Baltacı, "The predictive relationships between the social media addiction and social anxiety, loneliness, and happiness," *International Journal of Progressive Education*, vol. 15, no. 4, pp. 73–82, 2019.
- [16] A. Jaiswal, S. Manchanda, V. Gautam, A. D. Goel, J. Aneja, and P. R. Raghav, "Burden of internet addiction, social anxiety and social phobia among university students, India," *Journal of Family Medicine and Primary Care*, vol. 9, no. 7, pp. 3607–3612, 2020.
- [17] D. Rozgonjuk, T. Ryan, J.-K. Kuljus, K. Täht, and G. G. Scott, "Social comparison orientation mediates the relationship between neuroticism and passive Facebook use," *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, vol. 13, no. 1, p. 2, 2019.
- [18] C. A. Wolniewicz, M. F. Tiamiyu, J. W. Weeks, and J. D. Elhai, "Problematic smartphone use and relations with negative affect, fear of missing out, and fear of negative and positive evaluation," *Psychiatry Research*, vol. 262, pp. 618–623, 2018.
- [19] M. Duradoni, E. Serritella, C. Avolio, C. Arnetoli, and A. Guazzini, "Development and validation of the digital life balance (DLB) scale: a brand-new measure for both harmonic and disharmonic use of ICTs," *Behavioral Sciences*, vol. 12, no. 12, p. 489, 2022.
- [20] A. K. Przybylski, C. S. Rigby, and R. M. Ryan, "The existential psychology of possibility: stress, hardiness, and posttraumatic growth," *Review of General Psychology*, vol. 58, no. 25, pp. 154–166, 2013.
- [21] Z. Tras, "Internet addiction and loneliness as predictors of Internet gaming disorder in adolescents," *Educational Research and Reviews*, vol. 14, no. 13, pp. 465–473, 2019.
- [22] T. Ayas and M. Horzum, "Relation between depression, loneliness, self-esteem and internet addiction," *Education*, vol. 133, no. 3, pp. 283–290, 2013.
- [23] D. J. Kuss, G. W. Shorter, A. J. van Rooij, M. D. Griffiths, and T. M. Schoenmakers, "Assessing Internet addiction using the parsimonious internet addiction components model—a preliminary study," *International Journal of Mental Health and Addiction*, vol. 12, pp. 351–366, 2014.
- [24] D. L. King, P. H. Delfabbro, and M. D. Griffiths, "Video game structural characteristics: a new psychological taxonomy," *International Journal of Mental Health and Addiction*, vol. 8, no. 1, pp. 90–106, 2010.
- [25] M. Duradoni, F. P. Severino, M. Bellotti, and A. Guazzini, "How mattering and anti-mattering experiences across offline and online environments contribute to people's digital life balance and social media addiction," *Journal of Community & Applied Social Psychology*, vol. 34, no. 6, Article ID e70008, 2024.
- [26] H. G. De Zúñiga, N. Jung, and S. Valenzuela, "Individual differences as predictors of social networking," *Journal of Computer-Mediated Communication*, vol. 19, no. 3, pp. 388–402, 2014.
- [27] N. Lin, K. S. Cook, and R. S. Burt, *Social Capital: Theory and Research*, Transaction Publishers, 2012.
- [28] A. R. Lima-Costa, A. E. Tosti, B. Bonfá-Araujo, and M. Duradoni, "Digital life balance and need for online social feedback: cross-cultural psychometric analysis in Brazil," *Human Behavior and Emerging Technologies*, vol. 2024, no. 1, Article ID 1179740, 2024.
- [29] J. Firth, J. Torous, J. F. López-Gil et al., "From 'online brains' to 'online lives': understanding the individualized impacts of Internet use across psychological, cognitive and social dimensions," *World Psychiatry*, vol. 23, no. 2, pp. 176–190, 2024.

- [30] N. Misirlis, M. H. Zwaan, and D. Weber, "International students' loneliness, depression and stress levels in COVID-19 crisis. The role of social media and the host university," *Journal of Contemporary Education Theory & Research*, vol. 4, no. 2, pp. 20–25, 2020.
- [31] W. Huo, Q. Li, B. Liang, Y. Wang, and X. Li, "When healthcare professionals use AI: exploring work well-being through psychological needs satisfaction and job complexity," *Behavioral Sciences*, vol. 15, no. 1, p. 88, 2025.
- [32] M. F. Shahzad, S. Xu, H. Liu, and H. Zahid, "Generative artificial intelligence (ChatGPT-4) and social media impact on academic performance and psychological well-being in China's higher education," *European Journal of Education*, vol. 60, no. 1, Article ID e12835, 2025.
- [33] M. Rosenberg and B. C. McCullough, "Mattering: inferred significance and mental health among adolescents," *Research in Community & Mental Health*, vol. 2, pp. 163–182, 1981.
- [34] P. Soraci, Z. Demetrovics, N. Bevan et al., "FoMO and psychological distress mediate the relationship between life satisfaction, problematic smartphone use, and problematic social media use," *International Journal of Mental Health and Addiction*, pp. 1–30, 2025.
- [35] A. Di Fabio and A. Tsuda, "The psychology of harmony and harmonization: advancing the perspectives for the psychology of sustainability and sustainable development," *Sustainability*, vol. 10, no. 12, p. 4726, 2018.
- [36] C. Li, "The Confucian ideal of harmony," *Philosophy East and West*, vol. 56, no. 4, pp. 583–603, 2006.
- [37] T. Lomas, "Life balance and harmony," *International Journal of Wellbeing*, vol. 11, no. 1, pp. 50–68, 2021.
- [38] G. Zerach, "Emptiness mediates the association between pathological narcissism and problematic smartphone use," *Psychiatric Quarterly*, vol. 92, no. 1, pp. 363–373, 2021.
- [39] C. Pearson and Z. Hussain, "Smartphone addiction and associated psychological factors," *Addicta: The Turkish Journal of Addictions*, vol. 3, no. 2, pp. 1–15, 2016.
- [40] M. Savci, M. E. Turan, M. D. Griffiths, and M. Ercengiz, "Histrionic personality, narcissistic personality, and problematic social media use: testing of a new hypothetical model," *International Journal of Mental Health and Addiction*, vol. 19, no. 4, pp. 986–1004, 2021.
- [41] M. Mehmet, R. Roberts, and T. Nayeem, "Using digital and social media for health promotion: a social marketing approach for addressing co-morbid physical and mental health," *Australian Journal of Rural Health*, vol. 28, no. 2, pp. 149–158, 2020, <https://shorturl.at/LUx7X>.
- [42] T. Reema, M. I. Katsioloudes, and D. Zondiros, "Knowledge sharing in online communities: the power game," *Journal of Business Strategy*, vol. 36, no. 3, pp. 11–17, 2015.
- [43] I. H. M. Hatamleh, "Exploring the multifaceted influences of social media motivation on online relationship commitment among young adults in Jordan: an empirical study," *Human Behavior and Emerging Technologies*, vol. 2024, no. 1, Article ID 2510500, 2024.
- [44] T. A. Kato, S. Kanba, and A. R. Teo, "Hikikomori: multidimensional understanding, assessment, and future international perspectives," *Psychiatry and Clinical Neurosciences*, vol. 73, no. 8, pp. 427–440, 2019.
- [45] T. M. Li and P. W. Wong, "Youth social withdrawal behavior (hikikomori): a systematic review of qualitative and quantitative studies," *Australian & New Zealand Journal of Psychiatry*, vol. 49, no. 7, pp. 595–609, 2015.
- [46] P. M. Valkenburg, I. Beyens, J. L. Pouwels, I. I. van Driel, and L. Keijsers, "Social media browsing and adolescent well-being: challenging the "passive social media use hypothesis,"" *Journal of Computer-Mediated Communication*, vol. 27, no. 1, Article ID zmab015, 2021.
- [47] P. Verduyn, O. Ybarra, M. Résibois, J. Jonides, and E. Kross, "Do social network sites enhance or undermine subjective well-being? A critical review," *Social Issues and Policy Review*, vol. 11, no. 1, pp. 274–302, 2017.
- [48] P. M. Valkenburg, I. I. van Driel, and I. Beyens, "The associations of active and passive social media use with well-being: a critical scoping review," *New Media & Society*, vol. 24, no. 2, pp. 530–549, 2022.
- [49] R. Karami and M. Keshavarz, "The emergence of online social capital during the COVID-19 outbreak and its impact on individual coping and community resilience in rural areas," *Current Psychology*, vol. 43, no. 19, pp. 17787–17800, 2024.
- [50] E. L. Spottswood and D. Y. Wohn, "Online social capital: recent trends in research," *Current Opinion in Psychology*, vol. 36, pp. 147–152, 2020.
- [51] J. Jiang and J. Song, "Health consequences of online social capital among middle-aged and older adults in China," *Applied Research in Quality of Life*, vol. 17, no. 4, pp. 2277–2297, 2022.
- [52] E. Hargittai and M. Micheli, "Internet skills and why they matter," in *Society and the Internet: How Networks of Information and Communication are Changing Our Lives*, Oxford Academic, 2019.
- [53] E. Katz, J. G. Blumler, and M. Gurevitch, "Uses and gratifications research," *Public Opinion Quarterly*, vol. 37, no. 4, pp. 509–523, 1973.
- [54] R. F. Baumeister and M. R. Leary, "The need to belong: desire for interpersonal attachments as a fundamental human motivation," *Psychological Bulletin*, vol. 117, no. 3, pp. 497–529, 1995.
- [55] S. Cobb, "Social support as a moderator of life stress," *Psychosomatic Medicine*, vol. 38, no. 5, pp. 300–314, 1976.
- [56] N. Lin, R. S. Simeone, W. M. Ensel, and W. Kuo, "Social support, stressful life events, and illness: a model and an empirical test," *Journal of Health and Social Behavior*, vol. 20, no. 2, pp. 108–119, 1979.
- [57] R. Weiss, "The provision of social relationships," in *Doing Unto Others*, Z. Rubin, Ed., pp. 17–26, Prentice-Hall, Englewood Cliffs, New Jersey, 1974.
- [58] S. Cohen, L. G. Underwood, and B. H. Gottlieb, *Social Support Measurement and Intervention: A Guide for Health and Social Scientists*, Oxford University Press, 2000.
- [59] J. Nesi, S. Choukas-Bradley, and M. J. Prinstein, "Transformation of adolescent peer relations in the social media context: Part 1—a theoretical framework and application to dyadic peer relationships," *Clinical Child and Family Psychology Review*, vol. 21, no. 3, pp. 267–294, 2018.
- [60] M. Hynes, "Hyperconnectivity and its discontents," 2024, <https://journals.sagepub.com/doi/10.1177/00943061241240882f>.
- [61] C. E. Cutrona, "Social support principles for strengthening families: messages from America," in *Family Support: Direction From Diversity*, J. Canavan, P. Dolan, and J. Pinkerton, Eds., pp. 103–122, Jessica Kingsley Publishers, 2000.

- [62] D. Kardefelt-Winther, "A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use," *Computers in Human Behavior*, vol. 31, pp. 351–354, 2014.
- [63] A. H. Maslow, "A theory of human motivation," *Psychological Review*, vol. 50, no. 4, pp. 370–396, 1943.
- [64] A. H. Maslow, *Motivation and Personality*, Harper, New York, 1954.
- [65] E. D. Diener, R. A. Emmons, R. J. Larsen, and S. Griffin, "The satisfaction with life scale," *Journal of Personality Assessment*, vol. 49, no. 1, pp. 71–75, 1985.
- [66] A. Di Fabio and L. Busoni, "Proprietà psicometriche della versione italiana della Satisfaction With Life Scale (SWLS) con studenti universitari [Psychometric properties of the Italian version of the Satisfaction with Life Scale (SWLS) with university students]," *Counseling: Giornale Italiano di Ricerca e Applicazioni*, vol. 2, no. 2, pp. 201–211, 2009.
- [67] E. Diener, D. Wirtz, W. Tov et al., "New well-being measures: short scales to assess flourishing and positive and negative feelings," *Social Indicators Research*, vol. 97, no. 2, pp. 143–156, 2010.
- [68] A. Di Fabio, "Flourishing scale: primo contributo alla validazione della versione italiana [flourishing scale: first contribution to the validation of the Italian version]," *Counseling*, vol. 9, 2016.
- [69] R. Tennant, L. Hiller, R. Fishwick et al., "The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): development and UK validation," *Health and Quality of Life Outcomes*, vol. 5, no. 1, pp. 1–13, 2007.
- [70] P. Gremigni and S. Stewart-Brown, "Una misura del benessere mentale: validazione italiana della Warwick-Edinburgh mental well-being scale (WEMWBS) [A measure of mental well-being: Italian validation of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)]," *Giornale Italiano di Psicologia*, vol. 38, no. 2, pp. 485–508, 2011.
- [71] M. Duradoni, S. Meacci, G. Panerai, G. Salvatori, and A. Guazzini, "Development and validation of the social media capital scale (SMC): a brand new measure for online social capital," *Human Behavior and Emerging Technologies*, vol. 2022, Article ID 9903615, pp. 1–15, 2022.
- [72] C. S. Andreassen, J. Billieux, M. D. Griffiths et al., "The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: a large-scale cross-sectional study," *Psychology of Addictive Behaviors*, vol. 30, no. 2, pp. 252–262, 2016.
- [73] L. Monacis, V. De Palo, M. D. Griffiths, and M. Sinatra, "Social networking addiction, attachment style, and validation of the Italian version of the Bergen Social Media Addiction Scale," *Journal of Behavioral Addictions*, vol. 6, no. 2, pp. 178–186, 2017.
- [74] N. Y. Shin, "Psychometric properties of the Bergen social media addiction scale in Korean young adults," *Psychiatry Investigation*, vol. 19, no. 5, pp. 356–361, 2022.
- [75] M. Kaess, T. Durkee, R. Brunner et al., "Pathological Internet use among European adolescents: psychopathology and self-destructive behaviours," *European Child & Adolescent Psychiatry*, vol. 23, no. 11, pp. 1093–1102, 2014.
- [76] O. Lopez-Fernandez, "How has Internet addiction research evolved since the advent of Internet gaming disorder? An overview of cyberaddictions from a psychological perspective," *Current Addiction Reports*, vol. 2, no. 3, pp. 263–271, 2015.
- [77] S. Zhang, Y. Zhang, and Z. He, "An application of brand personality to advergames: the effect of company attributes on advergame personality," *Computers in Human Behavior*, vol. 69, pp. 235–245, 2017.
- [78] S. Dahiya, L. N. Rokanas, S. Singh, M. Yang, and J. M. Peha, "Lessons from internet use and performance during COVID-19," *Journal of Information Policy*, vol. 11, pp. 202–221, 2021.
- [79] P. M. Bhandari, D. Neupane, S. Rijal, K. Thapa, S. R. Mishra, and A. K. Poudyal, "Sleep quality, internet addiction and depressive symptoms among undergraduate students in Nepal," *BMC Psychiatry*, vol. 17, no. 1, pp. 1–8, 2017.
- [80] R. C. Ho, M. W. Zhang, T. Y. Tsang et al., "Life balance and harmony," *BMC Psychiatry*, vol. 11, no. 1, pp. 50–68, 2021.
- [81] K. Kawabe, F. Horiuchi, M. Ochi, Y. Oka, and S. Ueno, "Internet addiction: prevalence and relation with mental states in adolescents," *Psychiatry and Clinical Neurosciences*, vol. 70, no. 9, pp. 405–412, 2016.
- [82] M. D. Griffiths, "Alcohol use disorders in the draft ICD-11, and how they compare with DSM-5," *Current Addiction Reports*, vol. 5, no. 2, pp. 257–264, 2018.
- [83] D. J. Kuss and M. D. Griffiths, "Social networking sites and addiction: ten lessons learned," *International Journal of Environmental Research and Public Health*, vol. 14, no. 3, p. 311, 2017.
- [84] P. M. Valkenburg, I. Beyens, J. L. Pouwels, I. I. van Driel, and L. Keijsers, "Social media use and adolescents' Self-Esteem: Heading for a person-specific Media effects Paradigm," *Communication Research*, vol. 71, no. 1, pp. 56–78, 2021.
- [85] K. Y. McKenna, A. S. Green, and M. E. Gleason, "Relationship formation on the Internet: what's the big attraction?," *Journal of Social Issues*, vol. 58, no. 1, pp. 9–31, 2002.
- [86] Y. Sun and Y. Zhang, "A scoping review of hard systems and tools that restrict money and cash for gambling," *Journal of Behavioral Addictions*, vol. 10, no. 3, pp. 587–600, 2021.
- [87] S. Casale and G. Fioravanti, "Avoidant attachment style and conspiracy ideation," *Personality and Individual Differences*, vol. 134, pp. 329–336, 2018.
- [88] W. Gao, Z. Liu, and J. Li, "How does social presence influence SNS addiction? A belongingness theory perspective," *Computers in Human Behavior*, vol. 77, pp. 347–355, 2017.
- [89] R. M. Ryan and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," *American Psychologist*, vol. 55, no. 1, pp. 68–78, 2000.
- [90] B. Cresci and C. M. Rotella, "Motivational readiness to change in lifestyle modification programs," *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, vol. 14, no. 2-3, pp. e158–e162, 2009.
- [91] J. O. Prochaska and C. C. DiClemente, "Stages and processes of self-change of smoking: toward an integrative model of change," *Journal of Consulting and Clinical Psychology*, vol. 51, no. 3, pp. 390–395, 1983.
- [92] J. Ksiksou, L. Maskour, and S. Alaoui, "Effects of cognitive-behavioral group therapy on reducing levels of Internet addiction, depression, anxiety, and stress among nursing students in Morocco," *Iranian Journal of Psychiatry and Behavioral Sciences*, vol. 17, no. 3, 2023.
- [93] M. Y. Lee and J. Yu, "A scoping review on adolescent smart-phone addiction: focusing on intervention programs," *International Journal of Advanced Culture Technology*, vol. 12, no. 4, pp. 46–54, 2024.

- [94] J. S. Donath, "Identity and deception in the virtual community," in *Communities in Cyberspace*, pp. 37–68, Routledge, London, 2002.
- [95] S. Casale, C. Primi, and G. Fioravanti, "Generalized problematic Internet use Scale 2: update on the psychometric properties among Italian young adults," in *The Psychology of Social Networking. Identity and Relationships in Online Communities*, vol. 2, pp. 202–216, De Gruyter Open, 2016.
- [96] C. De Pasquale, F. Sciacca, and Z. Hichy, "Italian validation of smartphone addiction scale short version for adolescents and young adults (SAS-SV)," *Psychology*, vol. 8, no. 10, pp. 1513–1518, 2017.
- [97] F. J. Elgar, A. Napoletano, G. Saul et al., "This month in Archives of pediatrics & adolescent medicine," *Archives of Pediatrics & Adolescent Medicine*, vol. 165, no. 8, pp. 687–1023, 2011.
- [98] J. G. Lu, J. J. Lee, F. Gino, and A. D. Galinsky, "Polluted morality: air pollution predicts criminal activity and unethical behavior," *Psychological Science*, vol. 29, no. 3, pp. 340–355, 2018.
- [99] V. Ashley, P. Regier, and M. McKay, "Personality variables as predictors of early non-metastatic colorectal cancer patients' psychological distress and health-related quality of life: a one-year prospective study," *Journal of Psychosomatic Research*, vol. 70, no. 5, pp. 411–421, 2011.
- [100] N. Hisli Şahin, M. Güler, and N. Basim, "The relationship between cognitive intelligence, emotional intelligence, coping and stress symptoms in the context of type A personality pattern," *Turkish Journal of Psychiatry*, vol. 20, no. 3, pp. 243–254, 2009, <https://shorturl.at/lkGh3>.
- [101] Z. K. Nekouei, H. T. N. Doost, A. Yousefy, G. Manshaee, and M. Sadeghei, "The relationship of Alexithymia with anxiety-depression-stress, quality of life, and social support in Coronary Heart Disease (A psychological model)," *Journal of Education and Health Promotion*, vol. 3, no. 1, p. 68, 2014, https://journals.lww.com/jehp/fulltext/2014/03000/the_relationship_of_alexithymia_with.68.aspx.
- [102] Z. W. Lee, C. M. Cheung, and D. R. Thadani, "An investigation into the problematic use of Facebook," *Cyberpsychology, Behavior, and Social Networking*, vol. 21, no. 2, pp. 107–114, 2018.
- [103] J. Billieux and M. Van der Linden, "Problematic use of the internet and self-regulation: a review of the initial studies," *The Open Addiction Journal*, vol. 5, no. 1, pp. 24–29, 2012, https://serval.unil.ch/resource/serval:BIB_A4E45B1FC097.P001/REF.pdf.
- [104] F. A. Mahamid and D. Z. Berte, "Social media addiction in geopolitically at-risk youth," *International Journal of Mental Health and Addiction*, vol. 17, no. 1, pp. 102–111, 2019.
- [105] A. Blachnio, A. Przepiorka, and I. Pantic, "Structural and metabolic differentiation between bipolar disorder with psychosis and substance-induced psychosis: an integrated MRI/PET study," *European Psychiatry*, vol. 41, no. 1, pp. 85–94, 2017.
- [106] T. M'erele, A. Bertholomey, and S. Decuyper, "Social media and addiction: exploring the relationship between Facebook use and problem-solving skills," *Computers in Human Behavior*, vol. 73, pp. 181–188, 2017.
- [107] L. Marciano, A. L. Camerini, and P. J. Schulz, "Neuroticism in the digital age: a meta-analysis," *Computers in Human Behavior Reports*, vol. 2, Article ID 100026, 2020.