

Digital addiction and anti-mattering: the serial mediation role of state hope and flourishing

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ABSTRACT

This study examines the serial mediating roles of state hope and flourishing in the relationship between digital addiction (DA) and anti-mattering (AntiM). Using a cross-sectional correlational design, data were collected from 461 university students in Turkey. Participants completed the digital addiction scale (DAS), anti-mattering scale (AntiMs), flourishing scale (FS), and state hope scale (SHS). The hypothesized model was tested using partial least squares structural equation modeling (PLS-SEM). Measurement and structural models were evaluated in terms of reliability, validity, path coefficients, and predictive relevance. Bootstrapping procedures were applied to test the significance of direct and indirect effects. The findings indicate that state hope and flourishing significantly mediate the relationship between DA and AntiM. Specifically, higher levels of DA are associated with lower state hope and reduced well-being, which in turn increase feelings of AntiM. These results reveal important psychological mechanisms underlying the negative effects of DA and highlight the protective role of positive psychological resources. The study offers valuable implications for future research and intervention programs aimed at reducing DA and promoting well-being.

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1. INTRODUCTION

In today's digital age, dependence on technology is constantly increasing. Digital addiction (DA) leads to disruptions in individuals' physical, psychological, and social functioning as a result of excessive and uncontrolled use of digital devices [1]. In this context, the adverse effects of DA on individuals' well-being have been widely studied [2]. One of the significant psychosocial concepts regarding DA is the 'feeling of anti-mattering', which can be defined as individuals perceiving themselves as worthless, unseen, and disregarded in their social environment [3]. It is known that the feeling of anti-mattering (AntiM) has adverse effects on individuals' mental health and flourishing levels. Research also indicates that DA can diminish individuals' social connections, thereby increasing feelings of AntiM [4]. This study makes a unique contribution by being one of the first to investigate the relationship between DA and AntiM through a

serial mediation model involving both state hope and flourishing. Unlike prior research, which has mainly examined the direct effects of DA on psychological outcomes, this study reveals the sequential psychological processes through which reduced state hope and well-being contribute to increased feelings of AntiM.

The ever-increasing access to technology has undeniable effects on various aspects of life. It has been suggested that the amount of information circulating on the internet within the next years will surpass the total information accumulated throughout human history. It is not surprising that this information flood has a series of cognitive consequences [5]. This digital world is creating a new culture in our lives by transforming how individuals access, process, and share information. The widespread availability of internet access has become common in almost all nations, leading to a deep increase in smartphone usage and online interactions [6], [7]. The internet and other digital tools have become increasingly widespread among youth and children due to technological advancements [8].

When digital technologies are abused, people are meant to control them, but instead, the machines start controlling the people. Certain triggering sounds can cause people to get distracted when working on any endeavor [9]. DA is seen as a behavioral issue in which people struggle to control their impulses and persist in using digital technologies excessively in spite of any drawbacks. The key realms of DA in this context are the internet, online gaming, mobile devices, digital applications, and social media platforms [10], [11]. DA is becoming a force that has a deeper impact on both individuals and civilizations. It can be regarded as a notion that isolates people and has an impact on many facets of life [12]. DA is a broad concept encompassing internet, computer, gaming, smartphone, social network addictions, and similar dependencies related to social media [13].

A person's positive expectation and drive toward a particular scenario is known as state hope [14]. While people with low levels of hope may find it harder to solve problems, those with high levels of hope are more robust to obstacles [15]. High levels of DA have been linked to psychological problems like sadness, anxiety, and hopelessness in people, according to studies on the subject [2]. Excessive computer use lowers people's hopes for the future, according to research on the connection between state hope and DA [16]. Particularly among young people, social media addiction can increase the pursuit of instant gratification while decreasing motivation towards long-term goals. However, the conscious and controlled use of digital tools can increase individuals' hope levels and support their positive cognitive framing [17]. The first hypothesis (H1) of the study proposes that DA is significantly and negatively associated with state hope.

According to modern positive psychology, flourishing—a condition marked by meaningful relationships, engagement, and a distinct sense of purpose—is included in the multifaceted concept of well-being [18]. According to this theory, hope—particularly as Snyder defined it—has been connected to improved wellbeing in a variety of demographics [19], [20]. Higher levels of hope, as defined by Snyder's paradigm, are consistently linked to better psychological, social, and physical well-being, according to empirical research [20]–[22]. Snyder's hope theory states that people with elevated hope take a proactive, goal-oriented approach by finding several ways to accomplish their objectives and maintaining motivation in the face of setbacks, which in turn predicts favorable outcomes like psychological health and life satisfaction [19], [20]. In contemporary settings, this unwavering attitude supports and maintains optimistic thinking. Additionally, positive self-perceptions and adaptive coping strategies are closely associated with hope levels [23]. Higher life satisfaction and a deeper sense of purpose are typically reported by those who express more hope [24]. Aljaier *et al.* [25] found that people who have more optimism and hope are more resilient in the face of hardship, which supports their conclusions. Altogether, these findings reinforce the view that hope acts as a motivational and protective mechanism that enhances psychological and social aspects of well-being and flourishing over time [18]–[20], [22]. The second hypothesis (H2) of the study proposes that state hope is significantly and positively associated with flourishing.

Valuing is conceptualized as an optimal psychological state that emerges from the integration of two interrelated experiences: perceiving oneself as valued and contributing value. Individuals may experience a sense of being valued by themselves, by others, or by the broader society, while simultaneously having the capacity to create or contribute value within these exact domains. To ensure that the need for valuing is met, a balance must be established between feeling valued and adding value [26], [27].

Feeling valuable (mattering) is a significant psychological construct and draws on positive psychological literature [28]. Being valuable refers to the perception of being important or making a difference for others. Feeling valuable is the sense of being important to others and the feeling that other people care about them. The feeling of being unimportant to others is referred to as “AntiM” [28]. AntiM refers to feelings of insignificance, exclusion by others, and a sense of not being important [3]. The feeling of not being valuable to others is a prominent experience for anyone who chronically feels unseen, unheard, or unappreciated. Flett [3] also argues that this construct is not merely the opposite of positive feelings of importance. The feeling of being unimportant is qualitatively distinct from being important to others and represents a unique and specific vulnerability, unlike any other risk factor [3].

This feeling of being worthless and insignificant can become a cognitive preoccupation, leading to self-harm and a lack of self-care, or a reluctance to engage in self-care behaviors [28]. Most research focuses on the feelings of unimportance as precursors to depressive symptoms [29]. When people perceive themselves as worthless and do not evoke feelings of attention and affection from others, they are likely to internalize these messages and attribute their lack of importance to a flawed self-image [3].

The literature shows that feeling valuable reflects a tendency toward self-development, whereas AntiM reflects a defensive tendency and a desire to protect oneself from negative interactions [4]. One of the most detrimental social experiences associated with the emergence of AntiM is emotional neglect. Experiences of neglect are fundamentally opposed to feeling valued and receiving consistent, unconditional care. Empirical evidence indicates that individuals with a history of emotional neglect are more likely to report diminished feelings of personal significance and importance [4]–[27].

Individuals' feelings of AntiM have a significant impact on their flourishing. Feelings of AntiM are often associated with cognitive and emotional processes such as low self-esteem, feelings of inadequacy, and self-rejection. Flourishing, on the other hand, is a multidimensional concept that encompasses an individual's life satisfaction, positive affect, and overall psychological health. Research shows that feelings of AntiM are directly related to levels of depression, anxiety, and stress, and negatively affect individuals' overall life satisfaction. Individuals with high self-worth perception experience higher levels of flourishing [26]. On the other hand, feeling AntiM is associated with loneliness, social isolation, and low self-efficacy, and can prevent individuals from benefiting from positive psychological resources. Additionally, low self-worth can lead individuals to experience difficulties in their social relationships and to reduce their capacity to receive support from their environment [30]. The third hypothesis (H3) of the study proposes that AntiM is significantly and negatively associated with flourishing.

People are commonly familiar with both the experience of feeling diminished, ignored, or emotionally neglected and the experience of being made to feel important and cherished by others. Many people's sense of self-worth and social belonging is shaped by the consistent and pervasive experience of feeling unimportant to others. "AntiM" is the term used to describe the sense that one is not being taken care of by others [28]. People may internalize these experiences and interpret their apparent lack of relevance as the result of personal shortcomings when they believe they are unworthy and receive little attention or emotional response from others [3]. The fourth hypothesis (H4) of the study proposes that the relationship between DA and flourishing is serially mediated by AntiM and state hope.

This paper aims to examine the effect of DA on AntiM and to evaluate the serial mediating role of state hope and well-being in this process. DA is characterized by excessive dependence on digital technologies that can lead to negative consequences in individuals' daily lives [1]. Previous research has shown that DA can diminish individuals' social interactions and negatively affect their psychological well-being [2]. In the literature, the adverse effects of AntiM on individuals' psychological health have been emphasized [4]. In particular, individuals feeling worthless and unnoticed in their social environments have been associated with low self-esteem and depressive symptoms [3]. Given that DA can increase AntiM by weakening individuals' social relationships, examining the underlying mechanisms of this relationship emerges as an important research area. In this study, it is predicted that state hope and well-being may play a mediating role in the relationship between DA and AntiM. State hope refers to individuals' positive expectations about the future and feeling competent in achieving their goals. Hope has been shown to strengthen individuals' psychological resilience by enhancing their stress-coping skills [15].

On the other hand, well-being is a broad concept encompassing both psychological and social health, including positive emotions, life satisfaction, and psychological resilience. This research aims to contribute to the literature by examining the relationships between DA, AntiM, state hope, and well-being. In the present study, a serial mediation model will be tested to examine how the effect of DA on AntiM is mediated by state hope and well-being. The findings to be obtained can help develop a deeper understanding of the psychological consequences of DA, as well as contribute to the development of possible intervention strategies for individuals to cope with DA.

2. METHOD

This quantitative study adopted a cross-sectional correlational design and utilized partial least squares structural equation modeling (PLS-SEM) to examine the hypothesized relationships and serial mediation effects among the study variables.

2.1. Participant and procedure

In this paper, the researchers used convenience sampling. Accordingly, they used Google Forms for data collection. At the very beginning of data collection, participants were informed that they could withdraw from the study at any time. Since the form did not allow missing data, 461 volunteer participants from

various universities in Turkey completed it. The participants were undergraduate tertiary students: 99 males and 362 females, from various departments. During sample selection, undergraduate students over the age of 40 and graduate students were excluded from the study since the psychological implications may differ substantially between younger adults and older individuals. Accordingly, the average for their age was 21.00 (SD: 2.55; range 17-40). The majority of participants were second graders ($n=179$; 38.8%), followed by third graders ($n=133$; 28.9%), fourth graders ($n=95$; 20.6%), and first graders ($n=54$; 11.7%). The top three departments the participants studied at are classroom teaching education ($n=116$), pre-school education ($n=75$), and guidance and counselling ($n=57$). Sample size adequacy was assessed using G*Power 3.1 [31]. An effect size of $f^2=0.03$, $\alpha=0.05$ significance level, and 0.80 statistical power required a sample of 368 participants (AntiM; 3 predictors). The study's sample of 461 participants significantly exceeds this threshold and is deemed sufficient [32].

2.2. Measures

2.2.1. Digital addiction scale (DAS)

The digital addiction scale (DAS), consisting of 10 items, was developed by Seema *et al.* [33] and adapted into Turkish by Arslan [34]. The 7-point single-factor Likert-type scale has response options ranging from “never” to “always” and has no reverse-coded items. The adaptation studies indicated that item-total correlations ranged between 0.45 and 0.71, and the scale explained 70.9% of the variance. It is also highly reliable, with an alpha value of 0.87. Fit values (normed fit index (NFI)=0.87; non-normed fit index (NNFI)=0.84; comparative fit index (CFI)=0.88; incremental fit index (IFI)=0.88; standardized root mean square residual (SRMR)=0.09; relative fit index (RFI)=0.83) indicate that the adapted version is appropriate for the Turkish sample.

2.2.2. Anti-mattering scale (AntiMs)

The anti-mattering scale (AntiMs) was developed by Flett *et al.* [28]. To study the reliability of the AntiMs, Flett *et al.* [28] used multiple participant groups and found high reliability coefficients ($\alpha=0.86$, 0.91, 0.92, 0.85, 0.77). Uylas [35] adapted the scale into Turkish, and the five-point Likert-type adapted version has response options ranging from “never” to “always”. The final scale, consisting of five items in a single factor, is highly reliable ($\alpha=0.89$) and accounts for 70% of the scale variance. Fit values (NFI=1.00; NNFI=0.99; CFI=1.00; IFI=1.00; SRMR=0.013; RFI=0.99) also indicate that the adapted scale is appropriate for the Turkish sample.

2.2.3. State hope scale (SHS)

The state hope scale (SHS) developed by Akin *et al.* [36] consists of six items in one factor. The 8-point Likert-type SHS has no reverse-coded items and response options ranging from “totally wrong” to “totally true”. The internal consistency value for the scale is 0.74, and fit values are: $\chi^2=13.44$; $df=9$; $p=0.14378$; root mean square error of approximation (RMSEA)=0.035; NFI=0.98; CFI=0.99; IFI=0.99; RFI=0.96; goodness-of-fit index (GFI)=0.99; and SRMR=0.027).

2.2.4. Flourishing scale (FS)

The flourishing scale (FS) by Akin and Fidan [37] consists of 8 items, all loading on a single factor. The 7-point Likert-type FS has no reverse-coded items and response options ranging from “strongly agree” to “strongly disagree”. The internal consistency value for the scale is 0.83, and fit values are $\chi^2=48.80$, $df=18$, $p=0.000$, RMSEA=0.06, NFI=0.97, CFI=0.98, IFI=0.98, RFI=0.96, GFI=0.97, and SRMR=0.038.

2.3. Data analysis

During the analyses, the researchers employed IBM SPSS Statistics 23 [38] for descriptive statistics and correlations, and SmartPLS 3 [39] for structural equation modelling (SEM). The researchers tested the hypothesized model using PLS-SEM, which is a variance-based method, suitable for complex models having multiple constructs and relationships, and is also suitable even for small sample sizes and non-normally distributed data [40]. Unlike covariance-based SEM, PLS-SEM focuses on predictive accuracy and is well-suited to exploratory research. Consequently, the data were analyzed using SmartPLS 3 [41]. The evaluation followed a two-step approach: first, the measurement model was assessed for reliability and validity, followed by evaluation of the structural model to test the hypothesized relationships, as proposed by Anderson and Gerbing [42]. Accordingly, this paper studied the correlations among DA, AntiM, state hope (SH), and flourishing. It has also been designed to reveal the serial mediating role of “state hope” and “flourishing” between “digital addiction” and “anti-mattering”. Serial mediation is simply a sequential mediation or a causal chain linking the mediators, in which the independent variable affects the dependent variable through the mediators [43].

3. RESULTS

3.1. Preliminary analysis and measurement model

The preliminary analysis outputs indicate that DA has a mean score of 4.09 (± 1.12), AntiM has a mean score of 2.47 (± 0.88), flourishing has a mean score of 5.06 (± 1.02), and SH has a mean score of 5.46 (± 1.29), as shown in Table 1. The results also indicate that the variables have a normal distribution, with skewness values ranging from -0.38 to 0.52 and kurtosis values ranging from -0.31 to 0.00, which are within the acceptable range (-2, +2) [44]. Table 1 has the correlations, means (M), and standard deviations (SD).

Table 1. Correlations and descriptives

No.	Variables	1	2	3	4	M	SD
1	DA	-				4.09	1.12
2	AntiM	0.25*	-			2.47	0.88
3	Flourishing	-0.12*	-0.44*	-		5.06	1.02
4	SH	-0.12*	-0.40*	0.78*	-	5.46	1.29

* $p < 0.01$

There are significant positive and negative correlations among the variables. The highest correlation is between SH and flourishing ($r = 0.78$). Conversely, the weakest correlation is between flourishing and AntiM ($r = -0.44$). Using the correlation results, the researchers created the model and tested the research hypotheses.

Furthermore, data collection tools used in any research must be valid and reliable. They must produce consistent results and measure what they are intended to measure. Accordingly, although the developers of the scales have already checked the validity and reliability outputs of the scales, the researchers in this paper did a final check using SmartPLS 3 [41]. Accordingly, internal consistency (α), variance inflation factor (VIF), and heterotrait-monotrait (HTMT) outputs are available in Table 2.

Table 2. Validity and reliability

The measure		HTMT				
VIF	α	AntiM	DA	F	SH	
1.90-2.51	0.87	AntiM				
1.37-2.51	0.87	DA	0.29			
1.47-2.29	0.88	F	0.50	0.17		
1.88-2.76	0.89	SH	0.45	0.15	0.88	

Cronbach's alpha is a reliability coefficient ranging from 0 to 1 indicates the internal consistency of a measurement instrument and evaluates whether the items measure the same underlying construct [40]–[45]. Although there are no strict rules on interpreting alpha values, by convention, values above 0.65 are acceptable [46], [47]. Multicollinearity refers to high correlation among explanatory variables and VIF is commonly utilized to test collinearity [48]. Although there are different recommendations, values below 5 are acceptable [49]. Moreover, discriminant validity is indispensable for the hypothesized model in research with unobservable variables [43]. To test discriminant validity, the researchers used the HTMT ratio. Smaller values are better; however, values below 0.90 are acceptable [39]–[50]. Considering the criteria, the data collection tools are valid and reliable.

3.2. The structural model

The researchers analyzed the data using SmartPLS3 [41]. They hypothesize that “state hope” and “flourishing” serially mediate the relationship between “digital addiction” and “anti-mattering”. They also hypothesize that DA has a direct effect on AntiM. There are significant effects among the variables; SH and flourishing mediate the relationship between DA and AntiM.

Using the 5000-subsample bootstrapping method, the structural model has been evaluated using confidence intervals (CIs), R^2 , Q^2 , and β values. The researchers tested the hypotheses using a 95% CI. Path coefficient (β) indicates “the influence of the causal variable on the dependent variable” [51]. The coefficient of determination (R^2) shows how much the independent variable(s) predict(s) the dependent variable, regarding the percentage of variance explained [52]. Q^2 indicates the predictive relevance of the model and should be above 0 [53].

According to the literature, at the beginning, the researchers had all the direct paths in the analysis, and the results indicated that the direct path from DA to AntiM was significant ($\beta = 0.22$, $p < .05$), suggesting a partially mediated model. The fit indices for the partially mediated model are SRMR=0.063 and NFI=0.807.

The SRMR ranges from 0 to 1, with values below 0.08 generally indicating an acceptable model fit [40]. Similarly, the NFI ranges from 0 to 1. Values closer to 1 indicate a good fit. However, NFI values between $0.80 < \text{NFI} < 0.90$ are considered a marginal fit, and values below 0.80 are not favored [54].

R^2 and Q^2 outputs indicate that the model has predictive relevance. R^2 values, ranging from 0 to 1, indicate the model's goodness-of-fit. Although higher values are preferred, lower values may be acceptable in some cases [55]. Setting the limit to 5000 subsamples, the model's significance was assessed using bootstrapping. Table 3 indicates the direct, indirect, and total effects between the variables. Consequently, the effect of DA on AntiM is significant ($\beta=0.22$, $p<0.05$), the effect of DA on flourishing is insignificant ($\beta=-0.04$, $p>0.05$), the effect of DA on SH is significant ($\beta=-0.14$, $p<0.05$), the effect of flourishing on AntiM is significant ($\beta=-0.32$, $p<0.05$), the effect of SH on AntiM is insignificant ($\beta=-0.12$, $p>0.05$), the effect of SH on flourishing is significant ($\beta=-0.77$, $p<0.05$). Furthermore, the serial mediating effect of SH and flourishing between DA and AntiM is significant ($\beta=0.03$, $p<0.05$). The indirect effect accounted for 21% of the total effect (indirect effect/total effect). The path model is available in Figure 1.

Table 3. Relationships and mediation

Type of effect	Path	β	SD	t	p	CI
Direct effect	DA->AntiM	0.22	0.04	4.53	0.00	0.12/0.31
Specific indirect effects	DA->F->AntiM	0.01	0.01	1.38	0.16	-0.00/0.03
	DA->SH->F->AntiM	0.03	0.01	2.12	0.03	0.00/0.07
	DA->SH->AntiM	0.01	0.01	1.31	0.19	-0.00/0.04
	DA->AntiM	0.06	0.02	2.64	0.00	0.01/0.11
Total indirect effects	DA->F	-0.11	0.04	2.69	0.00	-0.18/-0.01
	SH->AntiM	-0.25	0.05	4.82	0.00	-0.35/-0.15
	DA->AntiM	0.28	0.04	6.75	0.00	0.19-0.36
Total effect		R^2	Q^2			
	AntiM	0.26	0.17			
	SH	0.02	0.01			
	F	0.61	0.33			

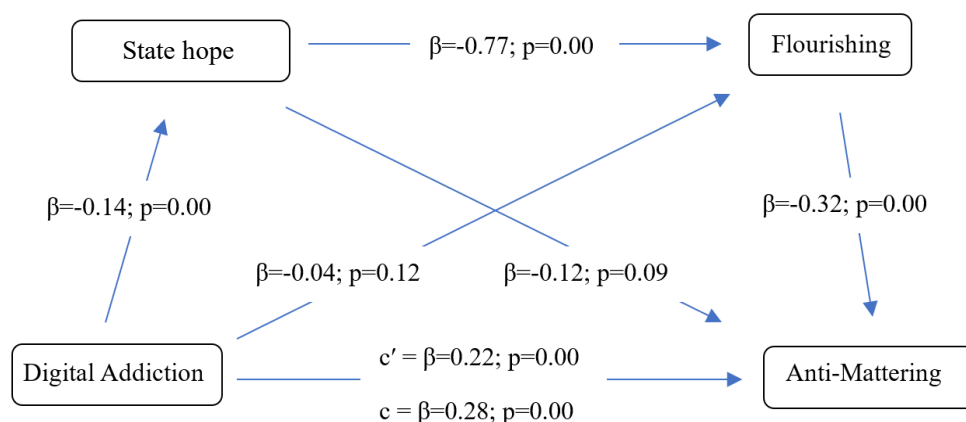


Figure 1. The path model

4. DISCUSSION

This study aimed to examine the relationship between DA and AntiM and to determine whether SH and flourishing play a serial mediating role in this relationship. The findings clearly address the research objectives. First, DA was found to have a significant positive direct effect on AntiM, indicating that higher levels of DA are associated with increased feelings of insignificance. Regarding the mediation hypotheses, the results revealed that SH and flourishing function as serial mediators in the relationship between DA and AntiM. Specifically, higher levels of DA were associated with lower levels of SH, which in turn negatively affected flourishing, ultimately leading to higher levels of AntiM.

The first hypothesis (H1) posited that DA predicted state hope. Previous research has consistently highlighted the association between digital game addiction and indicators of positive psychological functioning. Hastürk and Akyıldız-Munusturlar [56] reported that individuals exhibiting higher levels of digital game addiction also demonstrated lower levels of hope. Similarly, studies focusing on adolescents have revealed inverse relationships between digital game addiction and positive psychological outcomes,

such as happiness and a sense of meaning in life [57]. In addition, Yıldırım and Zeren [58] found that adolescents whose basic psychological needs were unmet and who perceived limited social support were more likely to display elevated levels of game addiction.

Evidence further suggests that increases in hope are associated with reduced susceptibility to the adverse consequences of internet use. In this regard, a modest negative relationship has been observed between dispositional hope and adverse outcomes associated with problematic internet use [59]. A study by Błachnio *et al.* [60] found that problematic Facebook use was negatively associated with hope. Current research has found a positive relationship between problematic internet use and sleep disorders. This situation can also negatively affect hope levels [61], [62]. In this context, it can be assumed that there is a negative relationship between problematic internet use and hope. In positive psychology, hope is viewed as a factor that connects a person to their goals and is described as the determined pursuit of these goals while believing that there are multiple pathways to achieve them. In the addiction recovery process, hope serves a dual purpose: first, it fosters an appreciation that recovery is person-centered and achievable, a dual principle observed in recovery-oriented systems of care in mental health; and second, it provides motivation to engage in growth-oriented behaviors that better align future outcomes with personal aspirations [63].

Research by Çiçek [64] reveals a significant and negative relationship between digital game addiction and psychological resilience. These findings indicate that digital game addiction has a psychological resilience-reducing effect. Gezer's study [65] examined the relationship between students' psychological flourishing and DA levels, and the findings revealed a significant and negative relationship between these two variables. Kaya *et al.* [66] indicated that students' flourishing levels were moderate and their DA levels were low, as indicated by their grade point averages. Derin and Bilge [67] examined the relationship between internet addiction and subjective flourishing in adolescents, and the findings revealed that as life satisfaction increased, internet addiction increased. In contrast, as subjective flourishing increased, DA decreased. Paş [68] stated in his study that there is a positive relationship between the increase in adolescents' DA levels and the decrease in their self-esteem levels. Wong *et al.* [69] emphasized that internet addiction indirectly hurts academic expectations by reducing self-esteem levels. Ning *et al.* [70] found that Internet addiction decreases individuals' SH and increases their perceived stress, which in turn has significant effects on burnout. The findings further indicated that individuals' levels of SH are negatively associated with their perceived stress. Moreover, Chen and Shi [71] found that internet addiction was positively associated with depressive symptoms and negatively associated with both psychological resilience and hope. In addition, psychological resilience partially mediated the relationship between Internet addiction and depressive symptoms, and resilience and hope together constituted a significant chain mediation pathway.

The second hypothesis (H2) stated that SH predicted flourishing. The findings of the present study support this hypothesis. Within the framework of hope theory, hope is conceptualized as a positive motivational state based on individuals' perceived capacity to generate pathways toward goals and sustain agency in pursuing them [14]. Hope serves as a dynamic psychological resource that fosters adaptive functioning and psychological development, according to recent study [72]. Additionally, research shows that hope and thriving are significantly positively correlated, meaning that those who have higher levels of hope also report higher levels of psychological well-being and life satisfaction [73]. The impact of people's dread of happiness on their levels of flourishing and hope was investigated by Chakraborty and Pandey [74]. The analysis results indicated that participants exhibited higher levels of flourishing and hope compared to their fear of happiness.

Furthermore, the correlation between fear of happiness and flourishing was found to be significant using both methods. The correlation between fear of happiness and hope showed moderate significance in Pearson correlation and higher significance in Spearman rho. Based on these findings, the hypotheses were accepted, suggesting that fear of happiness has a negative impact on individuals' levels of flourishing and hope. In the study conducted by Belen *et al.* [75], correlation analysis provided initial evidence supporting the relationship between fear of happiness, hope, and flourishing. The findings indicated that hope is linked to fear of happiness, suggesting that experiencing less fear of engaging in happiness-related beliefs increases motivation for achieving goals (agency) and the perceived capacity to generate pathways toward life goals (pathways), which in turn indirectly enhances levels of flourishing. In the study by Aydın [76], it was shown that dispositional hope had significant direct effects on both career engagement and flourishing. Additionally, the direct effect of career engagement on flourishing was also found to be significant. Furthermore, the total and indirect effects of dispositional hope on flourishing were demonstrated to be significant as well. In this context, SH may enhance flourishing by strengthening individuals' motivational resources and their ability to cope effectively with challenges. Consistent with this literature, the structural model revealed that SH had a significant positive direct effect on flourishing.

The third hypothesis (H3) stated that flourishing predicted AntiM. This notion is supported by the current study's findings. Flourishing is strongly associated with essential components of psychological well-being and self-evaluation, according to recent positive psychology studies. For instance, research indicates

that flourishing is linked to more personal resources, good affect, and a deeper sense of purpose in life, all of which strengthen one's sense of value and self-worth and are likely to lessen feelings of AntiM or insignificance [77]. In line with this, Chen *et al.* [78] observed that participants with higher flourishing demonstrated greater meaning and personal accomplishments alongside lower negative emotions, reduced loneliness, and less psychological distress. Furthermore, studies with young adults have found that flourishing is positively related to optimism, hope, and love of life-psychological strengths that support positive self-views and resilience [73]. Consistent with these findings, network analyses have shown that psychological distress is negatively associated with all domains of flourishing, indicating that higher flourishing corresponds to lower distress and more positive psychological functioning [79]. Flourishing, as an integrative indicator of positive mental health, reflects individuals' capacity for self-acceptance, positive relationships, and resilience, all of which are inversely related to AntiM experiences.

Furthermore, we observed that state hope and flourishing play a sequential mediating role in the relationship between DA and AntiM (H4). Various studies support that the adverse effect of DA on AntiM is indirectly transmitted through state hope and flourishing. DA is considered an important factor that negatively affects individuals' psychological flourishing and self-worth perception [1]. Excessive digital use, especially among young people, weakens individuals' social relationships, increases feelings of loneliness, and can create a mechanism that feeds AntiM [16]. Regarding the indirect effects of this process, state hope is considered an important mediating variable. Recent research further demonstrates that higher levels of situational hope and flourishing can mitigate the negative psychological consequences of DA. Studies show that hope acts as a psychological resource that strengthens coping abilities and resilience, reducing the impact of problematic digital use on self-worth and well-being [73]. Flourishing also functions as a protective factor, enhancing positive affect, social connectedness, and adaptive functioning, thereby lowering the likelihood of AntiM experiences even in the context of excessive digital engagement [80], [81]. Taken together, these findings suggest that state hope and flourishing sequentially mediate the relationship between DA and AntiM, highlighting their importance as buffers against the harmful psychological effects of digital overuse.

Several limitations of this study should be acknowledged. First, the data were collected using self-report measures, which may be subject to response biases. Future studies may benefit from employing multiple data collection methods to obtain a more comprehensive understanding of the study variables. Second, the present study focused on general DA, without distinguishing between specific types of digital or online behaviors.

5. CONCLUSION

Although DA directly increases AntiM, this effect is indirectly reduced through state hope and flourishing, as constructive psychological resources serve as defenses against the negative consequences of problematic online behavior. From a pragmatic perspective, the results indicate that treatments to lessen DA should emphasize state hope and psychological flourishing in addition to behavioral control. Counseling programs at schools or universities may include goal-setting techniques, hope-enhancement techniques, and positive psychology activities to mitigate the detrimental psychological effects of excessive computer use. Future research should employ longitudinal or experimental designs to better establish causal relationships among digital addiction, state hope, flourishing, and anti-mattering. The validity of the suggested serial mediation model in various sociocultural contexts may also be confirmed with the aid of cross-cultural research. Other mediating or moderating factors including resilience, self-compassion, or perceived social support should be investigated in future studies.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

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C : Conceptualization

M : Methodology

So : Software

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest.

INFORMED CONSENT

Written informed consent was obtained from all participants prior to their participation in the study.

ETHICAL APPROVAL

The studies involving human participants were reviewed and approved by the Necmettin Erbakan University Social and Behavioral Sciences Scientific Research Ethics Committee (Decision No: 2025/115, Meeting No: 04, Date: 21 February 2025).

DATA AVAILABILITY

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

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