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ADOLESCENT MENTAL HEALTH IN THE DIGITAL AGE: THE ROLE OF DIGITAL PSYCHOLOGICAL CAPITAL, INTERNET USE, AND GENDER

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ABSTRACT

This study aims to examine the relationship between negative mental health aspects and digital psychological capital (resilience and self-efficacy) among adolescent internet users, and to explore the association between mental health and the amount of internet use. A descriptive, correlational, and comparative design was employed. The sample consisted of 200 male and female secondary school students in Riyadh, randomly selected during the second semester of the 2023–2024 academic year. Data were collected using three self-report instruments: a background information form, the Mental Health Scale, and the Digital Psychological Capital Scale. The findings indicated that there were no statistically significant differences based on hours of internet use in most negative mental health aspects, including psychotic behavior, paranoia, phobias, hostility, depression, reactive sensitivity, and somatic symptoms. However, significant differences were found in anxiety and obsessive-compulsive disorder in relation to internet use. Furthermore, no gender differences were found in overall negative mental health or digital self-efficacy, whereas females scored higher than males in digital resilience. These findings highlight the differential impact of internet use on specific mental health dimensions and emphasize the importance of digital psychological capital in promoting adolescent mental well-being in the digital age

KEYWORDS: Mental Health, Digital Psychological Capital, Internet Use, Gender, Adolescents.

1. INTRODUCTION

This study is situated within the broader field of contemporary psychological research concerned with the impact of digital transformation on mental health. In recent years, the rapid expansion of information and communication technologies has significantly reshaped patterns of human behavior, learning, and social interaction. As digital environments become increasingly integrated into everyday life, there is a growing need to understand their psychological implications, particularly among adolescents who represent one of the most active and vulnerable user groups in the digital era.

Over the past decade, rapid advancements in information and communication technologies have fundamentally reshaped daily human activities. Digital applications, mobile devices, and internet-based platforms have become deeply embedded in education, commerce, tourism, healthcare, and social interaction. Individuals increasingly rely on search engines, recommendation systems, digital media, and social networking platforms as essential tools for communication, information access, and decision-making (Sabillon *et al.*, 2021). Consequently, digital technologies such as smartphones, social media platforms, and online services have become integral components of modern life across all age groups (Bağcı, 2019), redefining patterns of interaction between individuals, institutions, and governments.

While information openness and digital connectivity have contributed significantly to improving access to knowledge and enhancing communication opportunities, they have also introduced emerging psychological challenges. On the one hand, digital technologies facilitate social support, online learning, and access to health-related information, thereby contributing positively to well-being. On the other hand, concerns have been raised regarding their potential association with social isolation, compulsive use, and adverse mental health outcomes, including anxiety, depression, and stress-related symptoms (Hayes, 2020; Health, 2022). This dual impact reflects the inherently ambivalent nature of digital environments, which function simultaneously as sources of opportunity and psychological risk.

Importantly, adolescents represent one of the most active and vulnerable populations in the digital era. Internet use has become deeply integrated into their developmental processes, offering opportunities for identity exploration, peer communication, and skill development. However, excessive or uncontrolled use has raised increasing concern among researchers and practitioners due to

its potential impact on psychological adjustment (Liu & Campbell, 2017). Recent reports indicate that the vast majority of adolescents are continuously engaged in digital platforms, with high daily exposure to online and social media environments. Such intensive use occurs during a critical developmental stage characterized by rapid cognitive, emotional, and social changes, where peer influence and identity formation are particularly salient (Uhls *et al.*, 2011; Zhou & Buehler, 2019).

Despite consistent evidence linking excessive internet use to negative mental health outcomes, existing research does not fully explain the variability in psychological impact across individuals. In other words, not all users exposed to high levels of internet use develop the same degree of psychological distress. This limitation has led researchers to investigate potential protective psychological factors that may buffer these negative effects.

Within this context, the concept of Psychological Capital—and more recently Digital Psychological Capital (DPC)—has emerged as a promising explanatory framework. DPC refers to a set of positive psychological resources that enable individuals to effectively manage digital environments and maintain psychological well-being. It is commonly conceptualized as comprising digital self-efficacy and digital resilience, which reflect individuals' perceived ability to competently engage with digital technologies and recover from digital stressors.

Empirical evidence suggests that psychological capital plays a protective role against maladaptive internet use and associated mental health problems. Individuals with higher levels of psychological resources tend to demonstrate better regulation of online behavior and lower vulnerability to anxiety, depression, and compulsive internet use (Daniel *et al.*, 2022). Conversely, low psychological capital has been associated with greater psychological distress and problematic internet use (Luthans *et al.*, 2007; Bi & Jin, 2021).

However, despite the growing international interest in psychological capital within digital contexts, there remains a notable gap in empirical research within Arab and particularly Saudi settings. Limited studies have examined how Digital Psychological Capital relates to mental health outcomes among adolescents in this cultural context, despite the high prevalence of internet use among youth populations.

Accordingly, the present study aims to address this gap by examining the relationship between Digital Psychological Capital and negative mental

health manifestations among adolescent internet users in Saudi Arabia. By integrating a positive psychological framework into the study of digital behavior, this research seeks to contribute to a more balanced understanding of adolescent mental health in the digital age and to extend existing literature within a culturally underrepresented context.

1.1. The Study Problem

The rapid expansion of digital technologies has fundamentally transformed contemporary patterns of communication, social interaction, and information access. In the current digital era, internet use has become an integral component of daily life, particularly among adolescents, who represent one of the most active user groups of digital platforms. While these technological developments have facilitated communication and access to resources, they have simultaneously raised growing concerns regarding their potential psychological consequences, particularly in relation to mental health.

At the global level, extensive research has highlighted associations between intensive internet use and a range of negative mental health outcomes, including depression, anxiety, stress, and emotional dysregulation. Adolescents, due to their developmental sensitivity and high engagement with digital environments, appear to be particularly vulnerable to these effects. However, despite the growing body of literature, findings remain inconsistent, and the mechanisms underlying individual differences in psychological outcomes are not yet fully understood.

At the national level, Saudi Arabia has witnessed a substantial increase in internet and social media usage, with recent reports indicating that approximately 79.3% of the population is active social media users, representing nearly 29.1 million individuals (Faqihi et al., 2024). A significant proportion of these users are adolescents and young adults. Reported motivations for engagement include maintaining social relationships, entertainment, and online shopping. However, this high level of digital engagement has raised increasing concern among parents, educators, and mental health professionals regarding its potential contribution to psychological distress, particularly depressive symptoms and maladaptive behaviors (DeAlmeida, 2024).

Empirical evidence from prior studies further supports the association between problematic internet use and deterioration in mental health outcomes (e.g., Adnan, 2001; Ornot, 2019; Bakai,

2019; Al-Qahtani, 2022; Abu Jarad, 2022; Daniel et al., 2022; Bai & Vahedian, 2023; Zhang et al., 2023; Tiwari et al., 2024). Collectively, these studies suggest that excessive or maladaptive patterns of internet use are consistently linked to increased psychological distress and negative mental health manifestations. Nevertheless, much of this literature has primarily focused on risk factors, with relatively limited attention given to protective psychological mechanisms that may buffer these adverse effects.

In parallel, global mental health initiatives, such as World Mental Health Day, have emphasized the urgent need to prioritize mental well-being and address emerging psychological challenges in the digital age. This global discourse further underscores the importance of examining how digital environments may contribute to both psychological risk and resilience.

Despite the increasing relevance of this issue, there remains a notable scarcity of empirical studies focusing on adolescent internet users in the Saudi context, particularly those investigating the role of positive psychological constructs such as Digital Psychological Capital. In response to this gap, the present study is designed to explore the relationship between negative mental health manifestations and Digital Psychological Capital among adolescent internet users. Specifically, it examines mental health outcomes in relation to two key dimensions of Digital Psychological Capital: digital self-efficacy and digital resilience.

Accordingly, the study addresses the following main research question:

What is the relationship between negative mental health manifestations and Digital Psychological Capital (digital self-efficacy and digital resilience) among adolescent internet users?

1.2. Research Questions

The main research question is further divided into the following specific sub-questions:

RQ1:

Are there statistically significant differences in the nine dimensions of negative mental health according to levels of daily internet use among adolescents?

RQ2:

Is there a statistically significant relationship between overall negative mental health (across its dimensions) and the two components of Digital Psychological Capital (digital self-efficacy and digital resilience) among adolescent internet users?

RQ3:

Are there statistically significant differences in overall negative mental health, digital self-efficacy,

and digital resilience based on gender among adolescent internet users?

1.3. Objective of the Study

The present study aims to examine the levels of negative mental health among Saudi adolescent internet users and to investigate its relationship with Digital Psychological Capital, particularly digital self-efficacy and digital resilience. In addition, the study seeks to explore differences in negative mental health, as well as in the components of Digital Psychological Capital, according to levels of internet use and gender. The study further aims to contribute to a better understanding of how positive psychological resources may relate to mental health outcomes in digital contexts.

2. THEORETICAL BACKGROUND

2.1. Mental Health: Conceptual Foundations

Mental health is a multidimensional construct that has been conceptualized differently across psychological schools of thought. Traditionally, it has been defined not merely as the absence of mental illness but as a dynamic state of psychological and social well-being, including the ability to maintain satisfying interpersonal relationships, adapt to stress, and achieve emotional stability.

From a positive psychology perspective, mental health is viewed as optimal psychological functioning and subjective well-being (Deci & Ryan, 2008; Keyes et al., 2002).

In contrast, the negative dimension of mental health refers to psychopathological symptoms such as anxiety, depression, stress, and behavioral dysfunctions that impair daily functioning and quality of life. Keyes' dual-continua model provides a strong theoretical foundation for understanding mental health as comprising two relatively independent dimensions: positive mental health (flourishing) and negative mental health (psychopathology). This distinction has been widely supported in empirical research, emphasizing that the absence of mental illness does not necessarily imply the presence of well-being. Within this framework, positive mental health is characterized by emotional regulation, social competence, self-confidence, and psychological resilience, whereas negative mental health is associated with distress, maladjustment, and functional impairment.

2.2. Digital Environment and Mental Health in Adolescence

The rapid expansion of digital technologies has

significantly reshaped adolescent developmental contexts, particularly through constant internet exposure and social media engagement. A growing body of empirical evidence suggests that problematic or excessive internet use is associated with increased psychological distress, including depression, anxiety, and suicidal ideation (Keyes et al., 2019; Burstein et al., 2019).

Recent epidemiological trends indicate a global increase in adolescent mental health problems coinciding with the rise of digital media use, particularly among females, who show higher vulnerability to depressive and anxiety-related symptoms (Hedegaard et al., 2018). From a theoretical standpoint, these associations can be explained through multiple mechanisms:

Social Comparison Theory, where exposure to idealized online representations leads to perceived inadequacy and reduced self-esteem.

Cognitive Overload Theory, where excessive information consumption increases stress and emotional fatigue.

The Behavioral Addiction Framework, which explains compulsive internet use patterns and their impact on sleep, attention, and emotional regulation.

Accordingly, internet use is not inherently harmful; rather, its psychological impact depends on intensity, purpose, and individual coping resources.

2.3. Negative Psychological Outcomes of Internet Use.

Within the digital mental health literature, four primary risk domains have been identified:

Social Media Exposure Effects Continuous exposure to curated online identities may contribute to negative self-evaluation, reduced self-worth, and depressive symptoms.

Cyberbullying and Online Victimization Digital anonymity increases exposure to harassment, which is strongly associated with anxiety, social withdrawal, and emotional distress.

Information Overload Excessive and unfiltered digital content increases cognitive burden, stress levels, and emotional instability.

Digital Addiction Behaviors Compulsive internet use disrupts sleep patterns, reduces academic performance, and weakens real-life social interactions.

These dimensions collectively contribute to what can be conceptualized as digital-induced psychological vulnerability among adolescents.

2.4. Digital Psychological Capital (DPC)

A Positive Psychological Framework.

Psychological Capital (PsyCap), originally developed within organizational psychology, refers to a higher-order construct comprising Hope, Self-Efficacy, Resilience, and Optimism (HERO model). It represents an individual's positive psychological state that enhances motivation, performance, and well-being (Avey et al., 2010; Luthans et al., conceptual tradition).

Recent research has extended this construct into digital environments, introducing the concept of Digital Psychological Capital (DPC). DPC reflects an individual's psychological resources in managing digital challenges and leveraging technological opportunities effectively.

DPC is particularly relevant in adolescence, where digital interaction is central to identity formation and social development. It functions as a protective psychological mechanism that buffers against the negative effects of digital stressors.

2.5. Dimensions of Digital Psychological Capital.

2.5.1. Digital Hope.

Represents the ability to set meaningful digital goals and identify multiple pathways to achieve them, even under technological constraints or digital stressors.

2.5.2. Digital Resilience

Refers to the capacity to recover from digital failures, adapt to online challenges, and maintain psychological stability in the face of cyber stressors.

2.5.3. Digital Self-Efficacy

Represents confidence in using digital tools effectively, solving technical problems, and mastering new technologies.

2.5.4. Digital Optimism

Reflects positive expectations regarding digital experiences and the belief that technology can provide opportunities for growth and success.

Collectively, these dimensions enable individuals to transform digital environments from sources of stress into platforms for psychological growth.

2.6. Integrative Theoretical Model

Based on the literature synthesis, this study is grounded in an integrative framework combining:

- Dual-Continua Model of Mental Health (Keyes)
- Stress-Coping Theory (Lazarus & Folkman tradition)

- Psychological Capital Theory (Luthans et al., 2007)
- Digital Well-being Frameworks in adolescent digital behavior

This integrated model proposes that:

- Excessive internet use increases negative mental health outcomes
- Digital Psychological Capital acts as a protective and buffering mechanism
- DPC moderates or mediates the relationship between digital exposure and mental health outcomes

Thus, the study positions DPC as a key psychological resource that mitigates the adverse effects of digital engagement among adolescents.

3. ORIGINALITY STATEMENT

This study provides a novel empirical contribution to digital psychology by examining the role of Digital Psychological Capital (DPC) as a protective factor against multidimensional negative mental health outcomes among Saudi adolescent internet users. Unlike prior research that has primarily focused on the risks of problematic internet use, the present study integrates a positive psychological framework within a digital context, emphasizing digital self-efficacy and digital resilience as key buffering mechanisms.

The originality of this work lies in its application of the DPC construct within a non-Western adolescent sample and its simultaneous analysis of nine clinically relevant dimensions of psychological distress. This multidimensional approach offers a more nuanced understanding of mental health variations associated with digital engagement.

By situating psychological capital within the digital environment, the study extends existing theoretical models and provides culturally grounded empirical evidence from the Saudi educational context, an area that remains underrepresented in international literature.

4. METHODOLOGICAL PROCEDURES

Study Methodology The descriptive correlational comparative approach was used.

Study population and sample The study population is all secondary school students in the city of Riyadh from Bin Khaldoun National School, Al-Itqan National School, and Riyadh Government Secondary School during the semester of the academic year 2023-2024. The study sample consisted of 200 male and female students, including 46 female students and 154 males aged 13 to 19 years with an average age of 16 years, with a standard

deviation of 1.9 years, and they were randomly selected from the original community for the study during the second semester of the year 2023-2024. Table 1 shows the characteristics of the sample, and Table 2 shows the Internet use. It is noticeable that 85.5% of the sample reported internet use of 4 or more hours per day, supporting the generalization in the literature that adolescents are high internet users. As shown in Table 1, the sample distribution reflects variation across grade levels and academic tracks.

Table 1: The Demographic Characteristics of the Sample (n=200).

Variable	N	Categories	%
High School Grades	105	First	52.5
	45	Second	22.5
	48	Third	24
Tracks	131	Natural Sciences	65.5
	69	Humanities	34.5

Table 2 The distribution of the study sample according to their reported hours of Internet use per day (n = 200).

Internet Usage Hours	N	%	description
Less than an hour	10	5	Low
2 to 3 hours	19	9.5	Medium
4 to 5 hours	81	40.5	High
More than 6 hours every day	90	45	Very high
Total	200	100	

5. MEASURES AND INSTRUMENTATION

Summary data form: This was prepared by the researcher to ascertain the demographic characteristics and the number of hours of Internet use.

Mental Health Scale: This is a 90-item self-report questionnaire by Diragutis (1977). It had been translated and validated in Arabic by Abu Bahin (1992) in the Palestinian environment. It is a psychological measurement tool to quantify negative mental health from reported psychological and physical symptoms, and the level of stress or negative reaction to the stress experienced by the individual.

The scale consists of 90 items responded to by participants on a 5-point scale of the Likert type (none/very little/average/very much/very severe). The scale has 9 sub-scales that reflect 9 different symptom groups (Table 3): physical symptoms, obsessive-compulsive disorder, personal reactive sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid thinking, and psychosis. The scale also produces three summary indicators, namely the general level of symptoms (GSI), total positive symptoms (PST) and level of positive symptoms

(PSDI), and there is an additional subscale consisting of elements assessing feelings of guilt, eating problems, and problems related to sleep.

Table 3: The dimensions of the mental health scale and the specific items for each dimension.

Dimensions	Items
Physical symptoms	1-4-11-29-40-42-48-49-52-56-58-71
OCD	3-9- 10- 28- 38- 45- 46- 51- 55- 65
Reactive sensitivity	6-21-34-36-37-41-61-69-73
Depression	2-5- 14-15-20-22-26-27-28-30-31-32-54
Anxiety	12-17-23-33-39-57-72-79-80-86
Enmity/Hostility	13-24-63-67-74-81
Phobias	25-47-50- 70-75-78-82
Paranoia	8-18-43-68-76-83
Psychotic symptoms	7-16-35-62-77-84-85-87-88-90
Other	19-44-53-59-60-64-66-89

The scale in its original and Arabized form has good psychometric properties in terms of honesty and stability, as the instrument had been previously subjected to statistical verification through exploratory factor analysis, and the validity of the scale had been verified using expert content judgment, and its stability was also verified by the internal consistency method using Cronbach's alpha. The instrument in the current study was assessed again in several ways to ascertain its validity and stability in the new context where it was being used, with a separate sample of 50 high school children.

Content Validity: Ten professors of psychology from the Faculty of Social Sciences, Department of Psychology, were consulted for the purpose of verifying the apparent honesty of the scale and hence its suitability for the current study sample and so its validity. After deliberation, the scale was approved, and no item was deleted. The coefficient of agreement (between the arbitrators) was calculated for each item, using the Cooper equation (number of agreements divided by (number of agreements plus number of disagreements) times 100). The rates of agreement between the arbitrators ranged from 80% to 100%, which indicates the appropriateness of the content of the scale items to measure what they are claimed to measure.

Internal consistency: Correlation coefficients between all items and their sub-component means were statistically significant at the level of $p = 0.001$, which indicates the consistency of the internal structure of the subscale. Cronbach's alpha internal consistency coefficients were also calculated, in addition to the split-half method. Values obtained were all very good, ranging from 0.67 to 0.90 (Table 4).

Table 4: The stability coefficients of the mental health scale survey sample (n=50).

Dimensions	Alpha stability coefficients	Split half stability coefficients after length correction
Physical symptoms	0.70	0.87
OCD	0.67	0.80
Reactive sensitivity	0.77	0.78
Depression	0.78	0.86
Anxiety	0.72	0.90
Enmity/Hostility	0.77	0.76
Phobias	0.67	0.73
Paranoia	0.76	0.87
Psychotic symptoms	0.70	0.75
Other	0.78	0.88

Digital Psychological Capital Scale: Prepared by Salem (2024), the scale consists of 40 items distributed on the four basic dimensions: digital self-efficacy, digital optimism, digital resilience/flexibility, digital hope (Table 5). The response scale is Likert-like but with three levels: 'not agree' corresponds to (1), 'agree to some extent' is degree (2), and 'agree' is degree (3).

Table 5: Distribution of the numbers of items of the digital psychological capital scale across the dimensions.

Dimensions	Numbers
Digital Self-Efficacy	1-2-3-4-5-6-7-8-9-10
Digital Optimism	11-12-13-14-15-16-17-18-19-20
Digital Resilience	21-22-23-24-25-26-27-28-29-30
Digital Hope	31-32-33-34-35-36-37-38-39-40

The psychometric properties of the scale had again been verified by its author using factor analysis to establish and confirm the correctness of the item classification into subscales. The internal consistency of the scale was confirmed by high correlation coefficients significant at the level of (0.01). The stability of the scale was also verified using the Cronbach alpha coefficient and the split-half method, and it was found that all relevant coefficients were high.

Furthermore, the researcher in the current study verified the psychometric characteristics of the scale as follows using a sample consisting of (50) male and female students from secondary schools in Riyadh.

Content Validity: The researcher again calculated the validity of the scale in the current study as described above using ten professors of psychology. The percentage agreement between the arbitrators on the items again ranged between 80% and 100%, which is an indicator of the accuracy of the content of the items in the current study.

Part-whole correlation check: The quality of the instrument was also calculated by the part-whole

correlations between the mean scores of each sub-component of the scale and the mean scores for the scale as a whole. As Table 6 shows, the correlations are substantial (between 0.51–0.61, $p < .001$) but not very high. That is consistent with each subscale belonging to the overall construct but measuring a different complementary aspect of it, as intended.

Table 6: Correlation coefficients of subcomponents with the total score of the digital psychological capital scale for an exploratory sample (n = 50).

Dimensions	Pearson correlation coefficient
Digital Self-Efficacy	0.591**
Digital optimism	0.602**
Digital Resilience	0.615**
Digital Hope	0.515**

Internal Consistency: The stability of the digital capital measure in the survey sample referred to above was calculated through the split half and Cronbach's alpha coefficients (Table 7). The values obtained were .70 or higher, which indicates very good internal reliability of each subset of items.

Table 7: Stability coefficients of the Digital Psychological Capital Scale.

Sample Scale dimensions		
	Cronbach's alpha coefficient	Split half coefficient after length correction
Digital Self-Efficacy	0.70	0.73
Digital Optimism	0.78	0.87
Digital Resilience	0.79	0.85
Digital Hope	0.77	0.87

Internet Use: Internet use was assessed based on self-reported daily duration, which was categorized into four levels: low (< 1 hour), medium (2–3 hours), high (4–5 hours), and very high (> 6 hours). This categorical operationalization enables the examination of differential effects associated with varying levels of digital exposure intensity. Such an approach is consistent with prior research investigating the psychological consequences of internet use among adolescents, particularly in relation to mental health outcomes and behavioral patterns (Gracia et al., 2023). This classification facilitates meaningful group comparisons and supports the analysis of dose-response relationships between internet use and psychological well-being.

Data Collection Procedure Data were collected during the second semester of the academic year 2023–2024 using structured self-report

questionnaires administered in classroom settings. Standardized administration procedures were implemented to ensure consistency in data collection across schools and to minimize potential sources of bias, particularly social desirability effects. Participants were briefed on the purpose of the study and provided with clear instructions before completion of the questionnaires. Ethical considerations were strictly observed throughout the data collection process, including voluntary participation, informed consent from participants (and institutional approval where required), and assurance of confidentiality and anonymity of responses. These procedures were designed to enhance the reliability and ethical rigor of the study.

Statistical Analysis: Data analysis followed a multi-stage approach. Descriptive statistics (means and standard deviations) and reliability analysis (Cronbach's alpha) were first computed. Assumptions of parametric testing, including normality and homogeneity of variance, were examined prior to analysis.

A one-way ANOVA was conducted to test differences in negative mental health across internet use levels (RQ1), with effect sizes reported using eta squared (η^2) and Tukey post hoc tests applied where

appropriate. Pearson correlation and multiple regression analyses were used to examine relationships and predictive effects between digital psychological capital and negative mental health (RQ2), reporting standardized beta coefficients (β) and R^2 . Independent samples t-tests were used to assess gender differences (RQ3), with effect sizes reported using Cohen's d .

6. RESULTS AND DISCUSSION

The first research question: Are there statistically significant differences in the nine dimensions of negative mental health according to levels of daily internet use among adolescents? To answer this question, the sample was treated as four groups according to the daily hours of Internet use that they reported (less than an hour per day, from two to 3 hours, from 4 to 5 hours, and more than 6 hours). Differences between those groups in negative mental health were then tested for significance for each of the nine manifestations of negative mental health that were measured. The Kruskal-Wallis test was used to make these comparisons, with results as shown in Table 8.

Table 8 *Kruskal Wallis test results for differences in average ranks of negative mental health manifestations by frequency of daily internet use.*

Negative Mental Health Subscale	Groups based on Internet Use Frequency	N	Average ranks	Chi sq	df	Sig
Physical symptoms	Less than an hour	9	71.83	2.960	3	.398
	2 to 3 hours	19	101.61			
	4 to 5 hours	81	98.14			
	More than 6 hours every day	91	105.20			
Obsessive-compulsive behavior	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	73.78	16.090	3	.001
	2 to 3 hours	19	85.16			
	4 to 5 hours	81	87.19			
	More than 6 hours every day	91	118.19			
Reactive sensitivity	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	76.50	4.414	3	.220
	2 to 3 hours	19	111.42			
	4 to 5 hours	81	92.32			
	More than 6 hours every day	91	105.55			
Depression	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	77.39	2.307	3	.511
	2 to 3 hours	19	110.61			
	4 to 5 hours	81	97.08			

	More than 6 hours every day	91	101.47			
Anxiety	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	63.28	11.295	3	.010
	2 to 3 hours	19	94.50			
	4 to 5 hours	81	90.74			
	More than 6 hours every day	91	114.12			
Hostility	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	102.67	.849	3	.838
	2 to 3 hours	19	95.53			
	4 to 5 hours	81	95.19			
	More than 6 hours every day	91	102.71			
Phobias	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	84.89	1.603	3	.659
	2 to 3 hours	19	92.34			
	4 to 5 hours	81	96.73			
	More than 6 hours every day	91	103.89			
Paranoia	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	59.88	5.601	3	.133
	2 to 3 hours	19	101.94			
	4 to 5 hours	81	95.27			
	More than 6 hours every day	91	106.26			
Psychotic behavior	Groups	Number	Average ranks	Chi sq	df	Sig
	Less than an hour	9	71.38	3.967	3	.265
	2 to 3 hours	19	104.53			
	4 to 5 hours	81	92.77			
	More than 6 hours every day	91	104.66			

There were no statistically significant differences between the average ranks of the four internet frequency of use groups in the reported manifestations of seven of the negative mental health subtypes (psychotic behavior, paranoia, phobia, hostility, depression, reactive sensitivity, and physical symptoms). However, there are statistically significant differences between the average ranks of those four groups in two manifestations of negative mental health, which are anxiety and, most prominently, obsessive-compulsive disorder. In each of those cases, the greatest level of negative mental health was reported by the group that used the Internet the most – i.e., more than 6 hours a day.

The result can be understood as showing that

excessive use of the Internet leads to increased isolation from society, which may lead to many psychological disorders, including anxiety and obsessive-compulsive disorder. Therefore, internet use is what makes the individual live in conflict with themselves and with the environment around them.

However, the existence of significant differences in both anxiety and obsessive-compulsive disorder, due to relatively higher occurrence in groups with very high daily hours of internet use, need not be explained as showing that use of the internet causes mental illness. It can be explained as due to a natural trend of individuals and a belief that going on the Internet will be a safe way to express their feelings without the need to show their true personality or

advertise it. Thus high internet use may be an indicator of the prior presence of psychological problems they suffer without disclosing them in their real world. It could be that some adolescents find that some of the symptoms of disorders in their behavior, which make them unable to face reality, including the problems and pressures of "adolescence", tempt them to use the Internet, where they find refuge for love, friendship, and non-conflicted interaction with others.

Thus, an important question can be asked her whether excessive use of the Internet leads to the emergence of anxiety and obsessive-compulsive behavior or vice versa. The Kruskal-Wallis test modeled the relationship between frequency of internet use and negative mental health, with the former as a predictor of the latter, but does not itself throw any light on what causes what. That is down to the researcher's interpretation and other evidence. Regardless of the answer to the question, the results of the current study indicated that there is a positive relation between the two variables and that the answer to the question just posed needs more in-depth research.

This result is also consistent with the results of previous studies that revealed differences in anxiety among adolescent Internet users as related to daily usage hours and differences in favor of those with excessive daily usage hours that exceed normal usage rates (e.g. Alavi, Alavi et al., 2011; Alinejad-Tilaki, et al., 2025; Keyvanpour, et al., 2025).

Similarly, this result is consistent with the results of previous studies that revealed differences in obsessive-compulsive disorder among adolescent Internet users as related to the hours of daily use and differences in favor of those with excessive daily use hours, which exceed the rates of normal use (e.g. Latifian et al., 2024; Shokri et al., 2024). Such studies also match the present study in that they evidence the absence of statistically significant relationships between hours of daily internet use and the other manifestations of negative mental health, which are: psychotic behavior, paranoia, phobias, hostility, depression, reactive sensitivity, and physical symptoms. Non-significant differences in the occurrence of these may be due simply to the nature of the sampling process, which can yield small differences between groups based on frequency of internet use.

Overall, the results related to RQ1 match those of the general literature that suggests that higher internet use is associated with a greater mental health problem of certain types. They therefore suggest no great difference in those respects between Saudi

Arabia and Western countries, where most of the previous research has been conducted. The issue of causality, however, remains unresolved in both cases.

The second research question, RQ2 is: Is there a statistically significant relationship between overall negative mental health (across its dimensions) and the two components of Digital Psychological Capital (digital self-efficacy and digital resilience) among adolescent internet users? To answer this question, the Pearson correlation test was used between the scores of the sample members on the overall negative mental health scale and the scores on the DPC dimensions of digital self-efficacy and digital resilience/flexibility. The results are shown in Table 9.

Table 9: Correlation coefficients between negative mental health and both digital self-efficacy and digital resilience.

DPC component Variables	Correlation with negative mental health score
Digital Self-Efficacy	-.163*
Digital Resilience	-.383**

The results indicate statistically significant negative associations between negative mental health manifestations and both digital resilience and digital self-efficacy, suggesting that higher levels of these positive psychological resources are associated with lower levels of psychological distress among adolescents. This pattern can be interpreted within the framework of digital psychological capital, which represents a set of protective psychological resources that facilitate coping with stressors in digital environments and mitigate the adverse effects of excessive internet use on mental health, thereby functioning as an important protective factor against the psychological risks associated with heavy digital engagement.

The findings further reveal that digital resilience exerts a stronger effect than digital self-efficacy, indicating that the capacity to adapt positively and restore psychological balance following exposure to digital stressors and challenges plays a more central protective role than perceived competence in digital skills alone. Adolescents with higher levels of digital resilience are better equipped to manage digital frustrations and regulate their internet use effectively, thereby reducing the likelihood of negative psychological outcomes. In contrast, digital self-efficacy reflects individuals' confidence in their digital abilities and skills, which facilitates effective technology use; however, its protective influence may be comparatively limited in the presence of

emotional and behavioral pressures associated with excessive or problematic internet use.

These findings are consistent with the psychological capital literature, which emphasizes the preventive role of positive psychological resources in promoting psychological adjustment and reducing mental health problems (Keyes et al., 2002; Bai & Vahedian, 2023). In particular, they support prior evidence suggesting that the ability to recover from and adapt to stress is a more powerful protective mechanism than perceived competence alone (Zewude et al., 2024; Salem, 2024). Adolescents with high digital resilience are therefore more capable of coping with digital frustrations and regulating their online behavior effectively, leading to improved psychological outcomes (Salem, 2024).

By contrast, digital self-efficacy is associated with individuals' confidence in their digital capabilities, which enhances effective technology use; however, its buffering effect may be weaker in the context of

emotional strain and behavioral dysregulation linked to excessive internet use (Bandura, 1997; Luthans et al., 2007). Overall, these findings align with the broader psychological capital literature, which highlights the protective function of resilience and self-efficacy in fostering adaptive functioning in digital environments and reducing the negative consequences of intensive internet use (Luthans et al., 2007; Bi & Jin, 2021; Daniel et al., 2022).

The third research question, RQ3 is: Are there statistically significant differences in overall negative mental health, digital self-efficacy, and digital resilience based on gender among adolescent internet users? This addresses the role of a key demographic in Saudi Arabia, which might well also have an impact. To answer this question, the independent sample t-test was used to compare the scores of males and females on overall negative mental health, and the two DPC component variables used above (Table 10).

Table 10: Gender differences in negative mental health, digital self-efficacy, and digital resilience.

Variable	Gender	N	Mean	Std. Deviation	t	Sig
Digital Self-Efficacy	male	154	19.7143	6.31806	-1.454	.164
	female	46	21.1739	5.87009		
Digital Resilience	male	154	17.3831	5.80646	-2.493	.014
	female	46	19.3696	4.37345		
Negative mental health	male	154	75.8377	62.45934	-.080	.936
	female	45	76.6444	58.34270		

The results indicate that there are no differences between adolescent Internet users, male and female, in overall negative mental health. Within DPC, digital self-efficacy is also not significantly different, while there are differences between the sexes in digital flexibility/resilience, where females score higher.

With respect to mental health differences between genders, the evidence of other studies is that there are differences, but the studies are not exactly comparable with the present one. For example Rajab et al. (2021) in a study not related to internet use found Saudi adolescent females generally had worse mental health than males (based on measures of stress and depression only). Saquib et al. (2025) in a wider study of internet use by Saudi adolescents found that female adolescents exhibited more psychosomatic symptoms than males. However, such symptoms were things like irritability, difficulty sleeping, and stomach ache, which are not exactly mental health problems although they could be related to them. Clearly there is room for more research on gender in these areas in the Saudi situation.

With respect to DPC and its components, again it is hard to find comparable studies. However Alenezi et al. (2024) is interesting in that, although its population was different (Saudi mental health nurses) and its concern was not with digital matters, it too found a significant gender difference for resilience, and not self-efficacy. However the difference was in favour of higher male scores, not higher female ones as in the present study. By contrast AlSultan et al. (2023) studying Saudi university students found no significant relation between gender and psychological capital overall. Other studies of psychological capital in general (not specifically digital) provide a variety of results for gender that differ from those of the present study in various ways (Hilal and Ali, 2023; Hassanein et al., 2020; Ba Amer, 2019; Al-Jadawa, 2024).

Again, therefore the present study provides a new result in a neglected area. As for explaining the existence of differences in digital resilience/flexibility between the sexes in favor of females, this study does not provide evidence that helps us with that. It is something that needs further exploration.

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

This study examined the relationship between digital psychological capital (DPC), internet use, and negative mental health manifestations among adolescents in the Saudi context. The findings indicate that both digital resilience and digital self-efficacy are significantly and negatively associated with psychological distress. These results suggest that higher levels of digital psychological resources are associated with lower levels of mental health problems among adolescents.

Moreover, digital resilience demonstrated a stronger association with mental health outcomes compared to digital self-efficacy. This finding highlights the critical role of adaptive coping and recovery capacities in buffering the adverse psychological effects of excessive internet use. In contrast, digital self-efficacy, while important for effective technology use, appears to have a comparatively weaker protective effect against emotional and behavioral difficulties associated with problematic internet use.

Overall, the findings support the conceptualization of digital psychological capital as a protective psychological construct that contributes to adolescents' adaptive functioning in digital environments and mitigates the negative impact of excessive internet use.

7.2. Practical Implications

Family-level implications: The findings underscore the importance of strengthening parental involvement in guiding adolescents' internet use. Enhancing communication within the family system and promoting balanced digital engagement may foster the development of digital psychological capital and reduce the risk of problematic internet use.

School-level implications: Secondary schools should implement structured psychoeducational programs aimed at increasing awareness of healthy internet use. Particular emphasis should be placed on enhancing digital self-efficacy and digital resilience

as protective psychological factors. In addition, school counselors and mental health professionals should be trained to address digital-related behavioral and psychological problems.

Higher education implications: Clinical psychology and related academic programs should integrate content addressing internet-related psychological disorders, prevention strategies, and intervention models. This integration is essential for preparing graduates to respond effectively to emerging digital mental health challenges.

Policy implications: Governmental bodies are encouraged to conduct periodic national surveillance of adolescent mental health and internet use patterns. Such monitoring would support the development of evidence-based prevention strategies and targeted mental health interventions.

7.3. Limitations of the Study

This study is subject to several limitations. First, the reliance on self-report measures may introduce response bias. Second, the cross-sectional design precludes causal inferences among the studied variables. Third, the sample was limited to secondary school students in Riyadh, which may restrict the generalizability of the findings to other regions or populations.

7.4. Future Research Directions

Future research should employ longitudinal and experimental designs to establish causal relationships between digital psychological capital and mental health outcomes. Further studies are also needed to examine the role of additional psychological constructs, including self-regulation, emotional intelligence, inhibitory control, and personality traits, in the context of problematic internet use.

Moreover, intervention-based research is recommended to develop and evaluate programs aimed at enhancing digital resilience and reducing maladaptive internet use among adolescents. Cross-cultural studies are also encouraged to examine the generalizability of these findings across different sociocultural contexts.

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