


Loneliness, Internet Addiction, and Mental Health Among Adolescents: A Mediation Model

Aliaa Ragab Mohammed, Assist. Prof. Dr, University of Sadat City, aliaaelsehamie@gmail.com

 0009-0000-0779-6564

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Abstract

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. This cross-sectional study was conducted with feedback from self-reported questionnaires completed by adolescents. Adolescents are students in secondary school in Sadat City. Convenience sampling, which is a non-random sampling method, was used as the sampling method in the study. Within the scope of the study, the scale forms were applied to 440 adolescents. 20 forms were excluded from the study as a result of irregularly filled and extreme values that emerged as a result of the calculation. In total, analyzes were made on 420 data. As indicated by the findings, there are positive and significant relationships between loneliness and Internet addiction. While there is a negative significant relationship with Mental Health. This study highlights the Importance of investigating the mediating role of loneliness between internet addiction and mental health among adolescents.

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INTRODUCTION

As a result of the tremendous and rapid technological development that the individual is unable to keep up with, adolescents are suffering from many psychological, social, economic, and professional problems in all societies. One of these psychological problems is the problem of feeling psychological loneliness, as the feeling of loneliness is a state in which a person is unique from other living creatures because of his possession of a social system, which is affected by and influences it, and any defect that may occur in the bonds that connect a person with other members of his species or any change that occurs (Beneito-Montagut et al., 2018).

In the social system, it is reflected on the individual, and results in a disturbance in the acquired social character of individuals, which creates in them a feeling of alienation, isolation, or the suffering of psychological loneliness. It also leaves effects on the individual that affect his overall activities, and it is also considered the nucleus of other problems (Koç & Arslan, 2022).

The teenager experiences a number of continuous and overlapping conflicts in order to achieve balance and stability. If he is unable to achieve his desires, he experiences isolation and loses communication and a sense of belonging with others. He lives in isolation and distance from others, and this is an indicator of the beginning of a psychological problem, which is a feeling of psychological loneliness. Psychological loneliness is a painful feeling, and the result of a subjective experience of intense sensitivity, and the individual's feeling that he is unwanted and separated from others (Cacioppo, Fowler & Christakis, 2009).

This feeling results from the perceived absence of fulfilling social relationships, and it is a feeling accompanied by symptoms of psychological stress. Behaviorists explain the feeling of psychological loneliness by linking it to the occurrence of a conflict between the processes leading to activity and the processes leading to desistance as a result of the individual's inability to abandon the old conditional responses that he learned since his childhood as a result of the inappropriate experiences that he went through in his environment (Ditommaso, Brannen & Best, 2004), which leads to the formation of inappropriate habits for him. It does not help him to live an effective and successful life with others, and it also prevents him from learning more appropriate responses or behavioral patterns in his relationship with others (Cacioppo et al., 2009).

The feeling of loneliness can also be viewed as a weakness in personal relationships that leads to dissatisfaction with social relationships. Loneliness is a type of negative feelings that result from communication conflicts, or the lack of personal relationships. Psychological loneliness is also defined as an individual awareness of the weakness of relationships between components. The individual's perceived personality and social personality, which leads to feelings of sadness, a sense of the futility of life, or feelings of remorse. Loneliness also includes a feeling of discomfort in the event that the individual isolates himself, and there are several hypothetical causes of loneliness. Loneliness resulting from the lack of perceptions of relationships between people. Loneliness is a psychological state, not an objective state, and loneliness is an annoying and sad experience (Stoeckli, 2010).

The feeling of loneliness differs qualitatively from the individual's voluntary social withdrawal, without being associated with conflicts with others. The feeling of psychological loneliness is linked to the individual's feeling of lack of personal intimacy towards those around him. When the individual isolates, avoids others, and does not get along with them, this condition causes disability and inability to carry out the assigned duties. Like studying and the normal functioning of life, this can lead to negative consequences (emotional, social and physical), and loneliness and isolation in this case become a mental health problem that threatens the mental health and psychosocial functions of the individual (Heinrich & Gullone, 2006).

The feeling of psychological loneliness is a basic fact in life that all people suffer from, but to varying degrees in some periods of their lives. The feeling of psychological loneliness is not limited to age, sexual, racial, economic, or group boundaries. As a result, people who feel psychological loneliness fail to... They enter into conversations with others because of their negative expectations, and because of their lack of necessary communication skills. They also fail to establish and maintain close friendships. These people are sensitive to social relationships, suffer from anxiety, are self-centered, and hesitate to establish friendly relationships with others for fear of rejection. Not to mention that they consider themselves to be negative and lower than others, which has a negative impact on their low self-esteem (Salimi et al., 2009).

Multiple names have emerged for this new emergency problem, such as the problem of using the Internet, misuse of the Internet, compulsive use of the Internet, and finally disorder. The addictive behavior of the student on the Internet is summarized by his inability to refrain from using it, due to his inability to tolerate feelings of pressure and discomfort, and it may affect his compatibility due to spending long hours on the Internet and social networking sites, and browsing the sites to which he has become addicted. Which puts him in social isolation. As a result of the student's presence on Internet communication platforms (which does not require direct contact (face-to-face), some studies found a significant positive correlation between feelings of loneliness and Internet use among university students (Gu et al., 2023).

The correlation coefficients were higher for men than for women, and the more Internet use, the greater the feeling of psychological loneliness, and that excessive use of the Internet is linked, even if slightly, to loneliness compared to those who have a moderate level of use of the Internet, and spending useful hours on the Internet did not affect the feeling of loneliness over time, but this developed in them what is known as Internet addiction or psychological dependence on the Internet, although the Internet in itself is not harmful, but rather may be due to the state of coercion and coercion and the strict requirements associated with the Internet world, has become for the individual who suffers from feelings of loneliness an escape route and self-deception that he is connected with others while his reality is separate and isolated (Whitty & McLaughlin, 2007).

In the case of Internet addiction, when the individual is offline, we cannot predict his specific problems, in addition to the existence of social interaction on the Internet. A study found that the individuals who achieved the largest number of views on their sites on the Internet resulted from their extensive use of the Internet to entertain their suffering, and by accessing the Internet and virtual communication, the individual feels that he is not alone and that there are other individuals present on the Internet (Al-Khawaja, 2017).

Excessive use of the Internet leads to people being distanced from society and real social communication, and causes the elimination of real social interactions. It also affects people's lives. Excessive use of the Internet can lead to feelings of loneliness and depression in the end. Feeling lonely is one of the outcomes of the increasing use of the Internet because users often evaluate real-life relationships through their evaluation of inauthentic and weak online relationships, and excessive Internet use results in reduced social activity, preferring virtual rather than physical communication (Gu et al., 2023).

A technical report issued by Chassiakos, Redsky, and Christakis identified the benefits and concerns about adolescent mental health and their association with the use of social networking sites. The report showed that the amount of time people spends using social networking sites is not the important factor, but rather how they spend this time is more important. It was found that Older teens who use social media sites unconsciously have lower levels of well-being and life satisfaction, unlike those who actively participate in social media sites (Gunay et al., 2018).

The report also showed that there is a U-shaped relationship between the time we spend using digital media and the risk of depression. At both the high and low ends of Internet use, a person can observe the amount of time he spends using social networking sites to know whether he is suffering from an addiction or not. Addictions are an impulse control disorder, which can lead a person to lose his or her sense of humor (Bakioğlu, 2020).

With time during their use of social networking sites, for example, a person’s psychological clock can run slower than usual and their self-awareness may be lost. Therefore, people can use social media platforms unconsciously and for long periods of time. It is also common for teenagers in the digital age to use... They use their smartphones for entertainment, educational, news, and managing their daily lives, so teens are more likely to engage in addictive behaviors and habits (Kaur, 2018).

Since adolescents are, as the other human beings, sociable by nature, they are obliged by their nature to socialize with others and thus they are not able to make use of their spare time. This will lead them to become more addicted to internet (Bakioğlu,2020). Therefore, it is important to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents.

Despite the importance of the Internet as a means of communication, obtaining information, training in skills, marketing products, etc., the matter does not stop there, but may develop to an extent that leads to Internet addiction in a sick way that affects the individual and society. Given the modernity of the Internet, the process of studying, monitoring and following up on its impact is still a complex and thorny process, and scientific research and experimental studies are still in their infancy.

HYPOTHESES

H1: Internet addiction has a negative effect in Mental Health.

H2: Internet addiction has a negative effect in Loneliness.

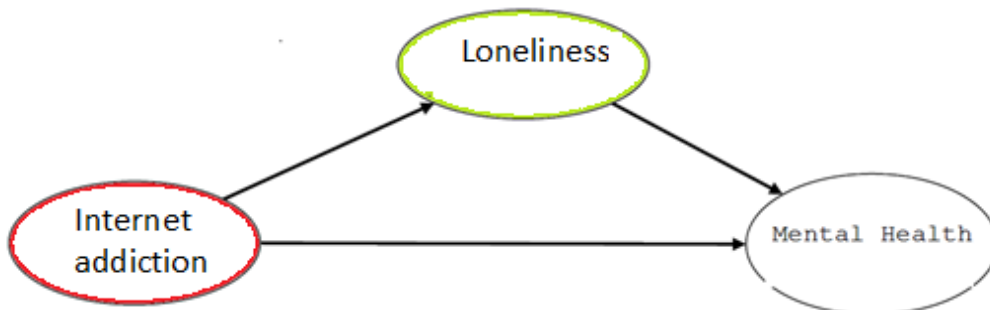
H3: Loneliness has a mediating role in the relationship between Internet addiction and Mental Health.

METHOD

RESEARCH MODEL

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. The hypotheses model of this research is presented in Figure 1.

Figure 1. *The Hypothesized Structural Model.*



POPULATION AND SAMPLE OF THE RESEARCH

This cross-sectional study was conducted with feedback from self-reported questionnaires completed by adolescents from 6th April 2023 to 1st June 2023. Adolescents are students in secondary school in Sadat City. Convenience sampling, which is a non-random sampling method, was used as the sampling method in the study. Appropriate sampling is applied when the individuals who want to

participate in the study consist of easily accessible volunteers. Within the scope of the study, the scale forms were applied to 440 adolescents. 20 forms were excluded from the study as a result of irregularly filled and extreme values that emerged as a result of the calculation. In total, analyzes were made on 420 data.

MEASUREMENTS

INTERNET ADDICTION TEST

IAT-7: The IAT-7 developed by Valenti et al. (2023). It is a 7-item version with an ESEM structure and two domain-specific factors (F1: Interpersonal, Emotional and Obsessive Conflict; F2: Online Time Management). The IAT-7 showed excellent fit-indices [$\chi^2 = 13.373$; $df = 8$; CFI = .994; TLI = .983; RMSEA = .030 (.000–.073); SRMR = .016; AIC = 9,276.944; BIC = 9,388.662; aBIC = 9,302.971] and an adequate level of internal consistency (alpha and omega > .752). The Arabic adaptation of the scale was created by the author. According to this adaptation, the internal consistency coefficients in the " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management " subscales were determined as .88 and .90, respectively. The two-factor structure of this scale was examined with confirmatory factor analysis. Goodness of fit indices were determined as AGFI = 0.91, GFI = 0.94, CFI = 0.97, NFI = 0.95 and RMSEA = 0.49. Regarding criterion-related validity, it was stated that the correlation between " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management " and The Six-item Version of the Internet Addiction Test (Ali et al.,2021) was .79 ($p < .001$) and .75 ($p < .001$). In this study, Cronbach's alpha internal consistency coefficients associated with the " Interpersonal, Emotional and Obsessive Conflict " and " Online Time Management " subscales were found to be .88 and .90, respectively.

UCLA LONELINESS SCALE (VERSION 3)

This scale was developed by Russell (1996). A 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. Participants rate each item as either O ("I often feel this way"), S ("I sometimes feel this way"), R ("I rarely feel this way"), N ("I never feel this way"). The measure has been revised two times since its first publication; once to create reverse scored items, and once to simplify the wording. The total score of the UCLA-20 is the sum of the 20 items ranging from 20 to 80 with higher scores indicating a higher loneliness level. UCLA-20 was translated into Arabic by the author. In this study, Cronbach's alpha internal consistency coefficient associated with the scale was found to be .91

STUDENTS' LIFE SATISFACTION SCALE (SLSS; Huebner, 1991)

It is a 7-items scale, targeting the global life satisfaction of children in grades 3-12. Participants rate the extent to which they agree with statements about the quality of their life on a scale ranging from 1 (strongly disagree) to 6 (strongly agree). After reverse scoring two items, a mean score is calculated to represent the participant's overall life satisfaction, with higher scores indicating greater satisfaction with life. In this study, Cronbach's alpha internal consistency coefficient associated with the scale was found to be .89

DATA COLLECTION

The questionnaires were delivered and distributed through a pen-and-paper form.

STATISTICAL APPROACH

IBM SPSS Statistics 26.0 was used to analyze the data obtained from this study. The normality of the three main variables was tested with the SPSS program. Descriptive statistics for all study variables and correlations were calculated. Pearson's bivariate correlation analysis was conducted to analyze the associations between measures. After that, a series of structural equation models (SEMs) to investigate the relationships among study variables were applied. The bootstrap method was applied

to estimate the indirect effects. A good model fit with the following criteria: CFI > 0.93, RMSEA < 0.05, and SRMR < 0.07 was defined.

RESULTS

CORRELATION ANALYSIS

Table 1 presents the mean, standard deviations (SD), and Pearson correlation coefficients between the major variables. According to Table 1, there are positive and significant relationships between loneliness and Internet addiction ($r = .29$; $p < 0.01$). While there is a negative significant relationship with Mental Health ($r = -.34$; $p < 0.01$).

Table 1. Mean, Standard Deviation (SD), and Correlations for Study Variables (N = 420).

Variables	Mean ± SD	Range	1	2	3
1. Loneliness	60.29 ± 0.93	0-4	-	.29**	-.34**
2. Internet addiction	30.20 ± 0.91	1-5		-	-.35**
3. Mental Health	33.10 ± 0.89	1-6			-

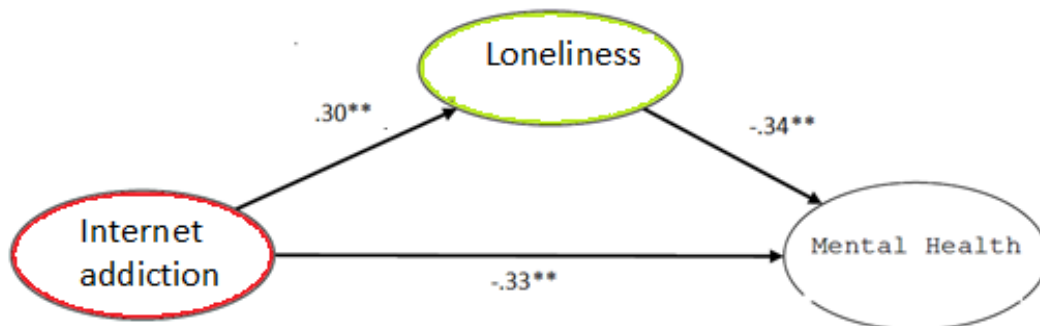
THE MEDIATION

A 95% confidence interval (CI) of the chain mediation effect of loneliness on Internet addiction and child Mental Health was evaluated, and the chain mediation model was established as shown in Figure 2. The bootstrapping method was used to resample 5,000 times to calculate for a 95% CI. As shown in Table 2, the results showed that loneliness plays an intermediary role between Internet addiction and Mental Health, and the total mediating effect was 0.361 (95% CI = (0.323, 0.489), accounting for 49.39% of the total effect.

Table 2. The Chain Mediating Effect of Loneliness on Internet Addiction and Child Mental Health

Model Pathways	Effect	Boot SE	95% CI		Relative Mediation Effect %
			Lower	Upper	
Direct effect	0.522	0.052	0.318	0.551	59.17%
loneliness → Internet addiction → Mental Health	0.433	0.050	0.321	0.479	50.12%
Total mediation effect	0.361	0.045	0.323	0.489	49.39%

Figure 2. The Chain Mediation Effect of Loneliness on Internet Addiction and Child Mental Health



DISCUSSION

The aim of this research was to investigate the mediating role of loneliness between Internet addiction and Mental Health among adolescents. As indicated by the findings, there are positive and significant relationships between loneliness and Internet addiction ($r = .29$; $p < 0.01$). While there is a negative significant relationship with Mental Health ($r = -.34$; $p < 0.01$).

This results are in congruent with those of Chen et al. (2007) on the mental health of Internet addiction disorder among university students, on a sample of 360 university students, using measures of depression and social support. The results of the study showed that there are differences between Internet addicts and non-addicts in depression, anxiety, and weak social support in favor of Internet addicts, and that the percentage of males who use the Internet is greater than the percentage of females. The study concluded that Internet addiction seriously affects the mental health of students.

Internet addiction is considered a psychological disorder associated with many psychological problems and disorders, which are: anxiety, depression, psychological loneliness, low self-confidence, and poor social interaction. Internet addiction has symptoms that include: obsessive thoughts about the Internet, decreased impulse control, and inability to stop using the Internet, all of which indicate unhealthy use of the Internet. Some believe that excessive Internet users suffer from social disorders and psychological problems, such as feelings of psychological loneliness, poor social support, social isolation, and depression, especially among young people.

Adolescents need to be healthy and sound in their academic achievement to fulfill society's expectations. Hoyt et al. (2012) opine that adolescent psychological well-being contributes to academic achievement, better teenage behaviours, and physical health during adolescence and adulthood. Another study conducted by Waters (2011) found that psychological well-being is a protective factor against adolescent depression and promotes creativity, social cohesion, and civic citizenship. Hasmujaj (2016) showed that individuals with high use of the Internet had a low level of feelings of psychological loneliness, and this may be because using the Internet satisfies their social need. While Whitty & McLaughlin (2007) indicated that the level High Internet use is associated with an increase in emotional loneliness, perhaps because people who spend a lot of time with friends online will no longer have the time or resources.

The results of Alkhawaja (2020) showed that there was a negative correlation ($\alpha \geq 0.05$) between the level of Internet addiction among students and their level of psychological loneliness, and the presence of statistically significant differences in the study sample's estimates of Internet addiction according to the sex variable (male, female) in favor of males, and the absence of statistically significant differences in the study sample's estimates of psychological loneliness according to the sex variable (male, female), The arithmetic average for the level of Internet addiction among the study sample was (1.55), and the arithmetic average for the level of psychological loneliness was (2.90).

While, Hasmujaj (2016) indicate that here is a moderate negative relationship between loneliness and Internet addiction. On the other hand, there are no differences between genders in terms of Internet addiction and the level of loneliness. They also showed that students who are addicted to the Internet have much lower rates of psychological loneliness.

CONCLUSION

The Internet is the most prominent result of the use of computer and communications technology in the service of humanity. The Internet represents an essential part of the daily life of many. Information technology and the Internet in the current century represent a strong challenge to the individual and society alike, as they are considered one of the most important manifestations of globalization, which requires confronting the challenges of globalization. Among them is Internet addiction.

The feeling of psychological loneliness leads to excessive use of the Internet without objective justification and on an ongoing basis, which helps in increasing indicators of Internet addiction. Students feel distressed and stressed as a result of their feeling of psychological loneliness, which makes them more likely to use the Internet excessively. They also feel bored as a result of a lack of acceptance, friendliness and love, and the presence of a psychological gap separating them from the people in the surrounding environment.

This is what drives them to hate others and then the level of feeling of loneliness increases. Their psychological deterioration, which leads to their addiction to the Internet, especially with the ease of using computers and accessing the Internet, which brings them personal pleasure, a sense of self, escape from social problems, and compensates for their lack of social skills necessary to engage in successful relationships with others. That is, Internet addicts among students feel psychologically lonely and isolated from those around them, and they prefer the Internet to social activities that satisfy their social motives. The reason for their Internet addiction is their feeling of psychological loneliness and the reluctance of others to care about them, which prompts them to withdraw and isolate themselves, using the Internet over other activities and human relations.

Despite the applications and facilities provided by Internet technology, it has also been linked to many problems, including Internet addiction and the many psychological, social, and physical problems and disorders that accompany it. Psychological well-being does not spontaneously grow in the side-work cracks of time between class assignments and teacher meetings. If more attention is not put on teaching and fostering psychological well-being, students will grow up without knowing psychological well-being is within their internal view of control.

LIMITATIONS

Due to the cross-sectional design of the study, it is not possible to establish causality between variables. Although the cross-sectional study cannot be used to determine causal relationships a cross-sectional study can provide clues that will serve as a useful tool to guide further experimental studies.

COMPLIANCE WITH ETHICAL STANDARDS

FUNDING

This study does not contain any external funding sources.

ETHICAL APPROVAL

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

INFORMED CONSENT

Informed consent was obtained from all individual participants included in the study.

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