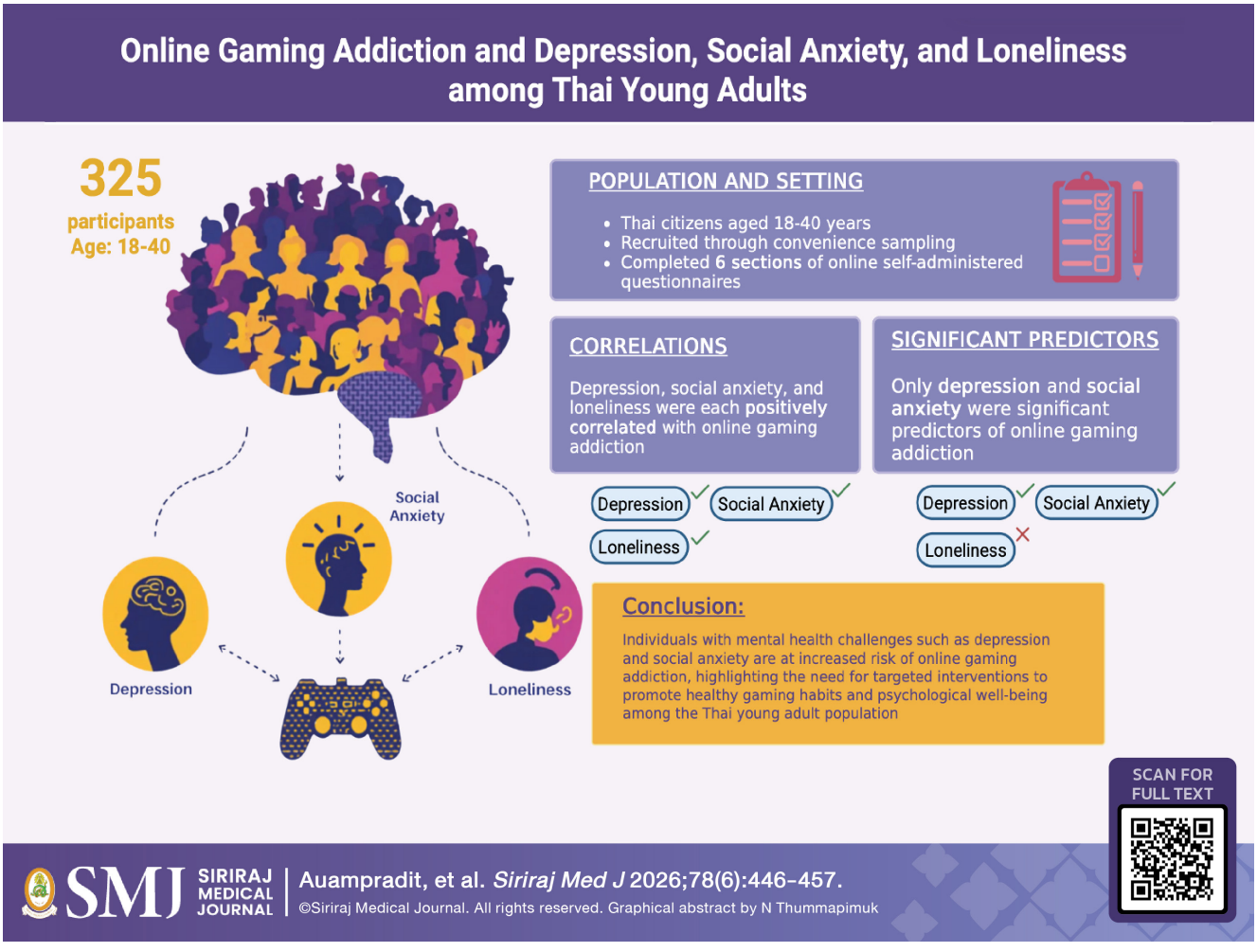
The Association Between Online Gaming Addiction and Depression, Social Anxiety, and Loneliness Among Thai Young Adults

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ABSTRACT

Objective: This study aimed to examine the association between online gaming addiction, depression, social anxiety, and, loneliness, as well as the predictive roles of these psychological factors in online gaming addiction among Thai young adults.

Materials and Methods: A cross-sectional study was employed to collect data from 325 Thai citizens aged 18 to 40 years using a convenience sampling method. Online questionnaires included: demographic data, online gaming behavior data, Internet Gaming Disorder Scale–Short Form (IGDS9-SF), Patient Health Questionnaire-9 (PHQ-9), Brief Form of the Social Phobia and Anxiety Inventory (SPAI-B) – Adult Version, and 6-item Revised UCLA Loneliness Scale (RULS-6) were employed. Pearson's correlation coefficient and stepwise multiple regression analyses were conducted to assess both the correlations and the predictive power of the variables.

Results: Pearson correlation analyses revealed significant positive associations between online gaming addiction and depression ($r = 0.575$, $p < 0.001$), social anxiety ($r = 0.519$, $p < 0.001$), and loneliness ($r = 0.377$, $p < 0.001$). Further regression analyses demonstrated that depression ($\beta = 0.416$, $p < 0.001$) and social anxiety ($\beta = 0.228$, $p < 0.001$) were significant predictors of online gaming addiction, whereas loneliness was not.

Conclusion: Individuals with mental health challenges such as depression and social anxiety face a higher risk of online gaming addiction. Clinicians should systematically screen for these conditions and implement targeted, evidence-based interventions, including cognitive-behavioral therapy, emotional regulation training, and social skills development, to effectively mitigate problematic gaming behaviors and enhance psychological well-being among the young adult population in Thailand.

Keywords: Depression; loneliness; online gaming addiction; social anxiety (Siriraj Med J 2026;78(6):446-457)

INTRODUCTION

Online gaming has gained significant popularity due to its engaging features, such as multiplayer components, which encourage users to spend extended periods playing. Although the responsible use of online games and the Internet is recognized as a beneficial form of recreation — offering valuable opportunities for social interaction and adaptive engagement that can support personal growth — an inability to regulate online gaming behavior can lead to addiction. This addictive behavior is frequently associated with psychological distress.[1]

According to the literature, psychological distress, including depression, social anxiety, and loneliness, has been linked to online gaming addiction, with studies consistently reporting significant positive relationships.[2–10] Prior research suggests that many young individuals use gaming as a means of temporarily relieving psychopathological symptoms or negative emotions, often functioning as a maladaptive coping mechanism for managing stress or challenging life situations.[2] People with social phobia typically have smaller social networks and lower-quality friendships and are more likely to experience social isolation compared to those with other anxiety disorders.[11] Moreover, disruptions in social connections can lead to feelings of loneliness, which may drive individuals to engage in excessive gaming to fulfill unmet social needs.[12] Both loneliness and social anxiety have been identified as strong predictors of gaming addiction.[10] Furthermore, a strong positive correlation has been observed between Internet Gaming Disorder (IGD) and depression, with depression also serving as a significant predictor of IGD.[13] Collectively, these findings highlight a clear connection between Internet Gaming Disorder (IGD) and psychological distress, particularly in relation to depression, social anxiety, and loneliness.

Despite the substantial body of research conducted in this field, most prior studies in Thailand have primarily focused on children and adolescents because of their psychological and developmental vulnerabilities.[14,15] Although young adulthood is often regarded as a life stage during which emotional development peaks and emotional stability is firmly established, emerging evidence suggests otherwise. Previous research has identified mean age and study population as significant moderators of gaming disorder, with older samples tending to demonstrate a higher prevalence of problematic gaming.[16] This trend suggests that older individuals, such as college students and working adults, may be at a greater risk of developing gaming disorders due to increased autonomy, greater technological proficiency, and reduced external supervision. These factors may provide more opportunities for prolonged gaming engagement, thereby contributing to the higher

prevalence of online gaming disorder observed in these groups. Moreover, approximately 68% of the gaming population is over the age of 18, aligning with reports from the Entertainment Software Association indicating that the average age of gamers is approximately 30 years. This suggests that a substantial portion of the gaming community consists of adults who continue to engage in gaming well into later adulthood. These patterns reflect how increased digital accessibility has broadened the age range of individuals potentially vulnerable to gaming-related disorders.[17,18]

Consequently, young adults represent another important at-risk group, alongside adolescents and children, that could be affected by Online Gaming Addiction, particularly within the Thai population. Moreover, differences in social and cultural contexts between Thailand and other countries limit the direct application of international research findings to the Thai setting. Addressing this gap, the present study aims to examine the association between online gaming addiction, depression, social anxiety, and loneliness, as well as the predictive roles of these psychological factors in online gaming addiction among Thai young adults. A clearer understanding of these psychological factors may facilitate early assessment, prevention, and intervention strategies to reduce the risk of online gaming addiction in this population.

MATERIALS AND METHODS

Study design and sample

The study included 325 Thai young adults aged 18-40 years, who were recruited using a convenience sampling method via an online survey. Inclusion criteria required participants to hold Thai citizenship, reside in Thailand, demonstrate fluency in the Thai language, and provide voluntary informed consent. Participants who did not provide consent, submitted incomplete responses, or exhibited response patterns indicative of random answering, such as repeatedly selecting the same option across consecutive items, were excluded from the analysis. The required sample size was determined using G*Power version 3.1 for multiple linear regression analysis, with an additional 50% added to account for potential attrition.

Procedures

Ethical approval was obtained from the Institutional Review Board (IRB) of the Faculty of Medicine Siriraj Hospital, Mahidol University (SIRB), under Certificate of Approval (COA) number Si 003/2025. Eligible participants were then recruited to complete a Thai-language, self-administered online questionnaire comprising six sections. The first two sections collected demographic information and online gaming behaviors, while the remaining four sections assessed psychological variables, including online gaming addiction, depression, social anxiety, and loneliness. The questionnaire was distributed through social media platforms such as Facebook, Line, Instagram, and Twitter, and shared via the Department of Psychiatry's official Facebook pages. Data collection occurred between January 10 and January 20, 2025.

Measures

The Demographic Data Questionnaire consists of seven items, including sex, age, highest level of education, marital status, occupation, income, and domicile.

The Online Gaming Behavior Questionnaire was developed based on items from the relevant literature. It assessed the frequency of online gaming per month, average duration of a gaming session, average expenditure per gaming session, preferred gaming devices, and the online game genre most frequently played

The Internet Gaming Disorder Scale–Short-Form (IGDS9-SF) is a standardized tool designed to assess Internet Gaming Disorder (IGD) in the general population based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). It consists of nine items rated on a five-point Likert scale from 1 (never) to 5 (very often), yielding total scores ranging from 9 to 45, with higher scores indicating greater IGD severity. A cut-off score of 30 is recommended to distinguish disordered from non-disordered gamers in the Thai context. The Thai version of the IGDS9-SF has demonstrated strong reliability, with a Cronbach's alpha of 0.913, along with good criterion, convergent, and construct validity across multiple studies.[19]

The Patient Health Questionnaire-9 (PHQ-9) is a self-administered tool designed to assess the severity of depressive symptoms based on the DSM-5 criteria for Major Depressive Disorder (MDD). Participants rate the frequency of symptoms experienced over the past two weeks using a four-point Likert scale ranging from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0 to 27, where higher scores indicate greater depressive severity. The Thai version of the PHQ-9 has demonstrated strong psychometric properties, with a Cronbach's alpha of 0.79 and reported moderate convergent validity with the Hamilton Depression Rating Scale (HAM-D) ($r = 0.56$; $p < 0.001$), making the PHQ-9 a reliable and valid tool for assessing depression severity across populations, including Thai populations.[20]

The Brief Form of the Social Phobia and Anxiety Inventory (SPAI-B) is a psychometric tool designed to

assess social anxiety in adults based on DSM-5 criteria. It consists of 16 items rated on a five-point Likert scale from 1 (never) to 5 (always), with total scores ranging from 0 to 64, where higher scores indicate greater social anxiety severity. A cut-off score of 33 is recommended for the Thai population. The Thai version of the SPAI-B has demonstrated excellent reliability (Cronbach's alpha = 0.95) and good validity, as evidenced by a point-biserial correlation of 0.64 with clinical diagnoses of social anxiety disorder in a Thai adult sample, making both versions effective for screening social anxiety disorder.[21]

The 6-item Revised UCLA Loneliness Scale (RULS-6) is a psychometric instrument designed to assess loneliness and is available in both Thai and English. It consists of six items rated on a four-point Likert scale from 1 (never) to 4 (always), with total scores ranging from 6 to 24, where higher scores indicate greater loneliness. The scale has demonstrated good internal consistency, with a Cronbach's alpha of 0.83, along with good convergent, discriminant, and concurrent validity, supporting its use in both clinical and general Thai populations.[22]

Statistical analyses

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 25 for macOS. Descriptive statistics were reported using means, standard deviations, and score ranges.

Pearson's product–moment correlation coefficients were calculated to examine the relationships among online gaming addiction, depression, social anxiety, and loneliness.

Multiple linear regression analysis was performed to assess the predictive effects of depression, social anxiety, and loneliness on online gaming addiction. Regression assumptions were examined prior to analysis. Residual normality was assessed using the Kolmogorov–Smirnov test. Linearity and homoscedasticity were examined through scatterplots and analysis of variance (ANOVA). Independence was determined using the Durbin–Watson statistic, where values close to 2 indicated no autocorrelation. Multicollinearity was assessed by calculating variance inflation factors (VIF < 10) and tolerance values (> 0.10), with no issues detected.

After confirming that all assumptions were satisfied, stepwise multiple regression analysis was performed to determine whether depression, social anxiety, and loneliness significantly predicted online gaming addiction among Thai young adults and to identify the relative contribution of each predictor based on standardized beta coefficients.

RESULTS

Descriptive statistics

As shown in Table 1, the sample consisted of 325 participants, with a nearly equal distribution of males (50.77%) and females (49.23%). The mean age was 26.86 years (SD = 5.15), with the largest age group between 24 and 29 years (50.15%). Most participants held a bachelor's degree (71.38%) and reported being single (89.85%). Company employees represented the largest occupational subgroup (36.62%). The most frequently reported monthly income was between 20,001 and 30,000 baht (28.92%). More than half of the participants resided in the Bangkok metropolitan region (52.00%)

Regarding online gaming behaviors, as shown in Table 2, most participants reported playing daily (32.92%). The most common duration per online gaming session was one to two hours (32.62%), and the majority reported spending less than 100 baht per session (66.46%). Mobile phones were the primary gaming device (60.31%), followed by personal computers (23.38%) and gaming laptops (7.38%). Real-time strategy games were the most frequently played genre (17.63%), followed by massively multiplayer online role-playing games (14.87%) and casual games (14.87%).

Descriptive analyses of psychological variables (Table 3) showed that 7.08% of participants reported severe depression, 28.92% met criteria for social anxiety disorder, and 13.23% reported high levels of loneliness. Additionally, 12.62% met criteria for problematic online gaming behavior, indicating potential online gaming addiction.

When considered collectively, the mean depression score was 9.18 (SD = 6.22), corresponding to mild to moderate depressive symptoms. The mean social anxiety score was 24.49 (SD = 14.25), suggesting that most participants did not meet the diagnostic threshold for social anxiety disorder. The mean loneliness score was 12.77 (SD = 5.07), reflecting a moderate level of loneliness. The mean online gaming addiction score was 19.18 (SD = 7.55), indicating that the majority of participants were classified as non-disordered gamers.

Correlation analysis

As presented in Table 4, Pearson correlation analysis revealed significant positive associations between online gaming addiction and depression ($r = 0.575$, $p < 0.001$), social anxiety ($r = 0.519$, $p < 0.001$), and loneliness ($r = 0.377$, $p < 0.001$). These results indicate that higher levels of depression, social anxiety, and loneliness were associated with higher levels of online gaming addiction

TABLE 1. Demographic data of participants (n=325).

Dimensions	Characteristics	*n*	%
Gender	Male	165	50.77
	Female	160	49.23
Age (years)	18-23	74	22.77
Mean = 26.86	24-29	163	50.15
SD = 5.15	30-35	63	19.38
	36-40	25	7.70
Education	Vocational certificate	4	1.23
	High vocational certificate	7	2.15
	Senior high school	22	6.78
	Bachelor's degree	232	71.38
	Master's degree	55	16.92
	Doctor's degree	5	1.54
Marital Status	Single	292	89.85
	Married/Lived together	32	9.85
	Divorced	1	0.30
Occupation	Merchant/Self-employed	27	8.30
	Company employee	119	36.62
	Government employee	55	16.92
	State enterprise employee	6	1.85
	Healthcare Professional	5	1.54
	Freelance	32	9.85
	Student	73	22.46
	Unemployed	8	2.46
Income (Baht)	Less than 10,000	54	16.62
	10,001 - 20,000	61	18.77
	20,001 - 30,000	94	28.92
	30,001 - 40,000	47	14.46
	40,001 - 50,000	24	7.38
	More than 50,000	45	13.85
Domicile	Bangkok Metropolitan Region	169	52.00
	Central region	49	15.08
	Eastern region	41	12.62
	Western region	4	1.23
	North-eastern region	17	5.22
	Northern region	22	6.77
	Southern region	23	7.08

TABLE 2. Online gaming behaviors of participants (n=325).

Dimensions	Characteristics	*n*	%
Frequency of online gaming within a month	Daily	107	32.92
	Three to six days a week	75	23.08
	Once or twice a week	64	19.69
	Once or twice a month	52	16.00
	Rarely	27	8.31
Average time spent on one session of online gaming	Less than an hour	71	21.85
	1 to 2 hours	106	32.62
	2 to 3 hours	77	23.69
	3 to 4 hours	42	12.92
	4 to 5 hours	9	2.77
	More than five hours	20	6.15
Average expenses on online games each time (Baht)	Less than 100	216	66.46
	101 - 300	28	8.62
	301 - 500	28	8.62
	501 - 800	13	4.00
	801 - 1,000	7	2.15
	1,001 - 1,500	12	3.69
	More than 1,500	21	6.46
Preferred devices for gaming	Mobile phone	196	60.31
	Personal computer	76	23.39
	Gaming laptop	24	7.38
	PlayStation consoles	8	2.46
	Xbox consoles	4	1.23
	Nintendo Switch	8	2.46
	Tablet / iPad	9	2.77
Online gaming categories*	Massively multiplayer online role-playing games / Role-playing games	124	14.87
	Real-time strategy games	147	17.63
	Casual games	124	14.87
	Simulation games	91	10.91
	Battle royale games	81	9.71
	Shooting games	72	8.62
	Survival games	59	7.07
	Sports games	40	4.80
	Racing games	36	4.32
	Action-adventure games	31	3.72
	Fighting games	29	3.48

*Respondents can choose more than one answer in a multiple-choice questionnaire.

TABLE 3. Classification of depression, social anxiety, loneliness, and online gaming addiction among participants in this study (n=325).

Variables	Level	*n*	%
Depression	Minimal	93	28.62
(*M* = 9.18, *SD* = 6.22)	Mild	85	26.15
	Moderate	81	24.92
	Moderately severe	43	13.23
	Severe	23	7.08
Social anxiety	Without social anxiety disorder	231	71.08
(*M* = 24.49, *SD* = 14.25)	With social anxiety disorder	94	28.92
Loneliness	Low	123	37.85
(*M* = 12.77, *SD* = 5.07)	Average	159	48.92
	High	43	13.23
Online gaming addiction	Non-disordered gamers	284	87.38
(*M* = 19.18, *SD* = 7.55)	Disordered gamers	41	12.62

TABLE 4. Correlation coefficients between depression, social anxiety, loneliness, and online gaming addiction.

Variables	OGA	DP	SA	LO
OGA	-			
DP	0.575**	-		
SA	0.519**	0.699**	-	
LO	0.377**	0.663**	0.634**	-

Abbreviations: OGA = Online gaming addiction scores from the Internet Gaming Disorder Scale–Short-Form (IGDS9-SF)
DP = Depression scores from the Patient Health Questionnaire-9 (PHQ-9)
SA = Social anxiety scores from the Social Phobia and Anxiety Inventory (SPAI-B)
LO = Loneliness scores from the 6-item Revised UCLA Loneliness Scale (RULS-6)

Multiple regression analysis

Given that all independent variables demonstrated significant correlations with online gaming addiction, depression, social anxiety, and loneliness, they were entered into a stepwise multiple regression analysis, as presented in Table 5. The overall regression model was statistically significant ($F = 89.580$, $p < 0.001$) and explained 35.7% of the variance in online gaming addiction ($R^2 = 0.357$). After adjustment, the model accounted for 35.3% of the variance (Adjusted $R^2 = 0.353$).

The final regression model retained two significant predictors. Depression emerged as the strongest predictor of online gaming addiction ($\beta = 0.416$), followed by social anxiety ($\beta = 0.228$). Loneliness was not retained in the final model, indicating that it did not significantly predict online gaming addiction when controlling for depression and social anxiety.

The predictive equation derived from raw scores was as follows:

Online gaming addiction = 1.066 + 0.505 (Depression) + 0.225 (Social anxiety)

This model indicates that, holding other variables

TABLE 5. Stepwise multiple regression analysis predicting online gaming addiction.

Predictor Variables	B	SE	β	95% CI for B	t	p-value
(Constant)	1.066	0.117	—	[0.837, 1.295]	9.078	<0.001**
Depression	0.505	0.076	0.416	[0.356, 0.654]	6.656	<0.001**
Social anxiety	0.225	0.062	0.228	[0.103, 0.347]	3.656	<0.001**

Model statistics: $R = 0.598$, $R^2 = 0.357$, adjusted $R^2 = 0.353$, SEE = 0.67464, Durbin–Watson = 1.915, $F = 89.580$, $p < 0.001$.
Abbreviations: B, unstandardized coefficient; SE, standard error; β, standardized coefficient; CI, confidence interval

constant, increases in depression and social anxiety were associated with corresponding increases in online gaming addiction scores.

DISCUSSION

This study examined the associations between depression, social anxiety, loneliness, and online gaming addiction among Thai young adults. While all three psychological factors were positively correlated with online gaming addiction, only depression and social anxiety emerged as significant predictors in regression analyses. These findings suggest that depression and social anxiety are more prominent psychological factors associated with online gaming addiction in this population, whereas loneliness may exert its effects indirectly. Given that the findings are predictive rather than causal, further research is necessary. Although the current study focused on young adults, the findings may offer preliminary insights for understanding adolescent populations, but should be interpreted with caution. For adolescents, online gaming behaviors are often shaped by parental and developmental influences, whereas among young adults, online gaming addiction appears to be more closely linked to internal psychological conditions, particularly depression and social anxiety.[23] This distinction underscores the importance of considering developmental context when interpreting these results.

The observed association between depression and online gaming addiction is consistent with previous research, which indicates that individuals experiencing low mood, loss of interest, and emotional distress are at increased risk for developing internet gaming disorder.[3,4,6,9,24–27] Empirical studies demonstrate that problematic internet use is linked with elevated depression, impulsivity, aggression, anger, hostility, and social anxiety.[4] Individuals with higher depression scores also tend to exhibit more severe gaming addiction and increased weekly gaming hours, even after controlling for age and education.[2] One plausible explanation is that online games provide immediate reinforcement and distraction, temporarily alleviating negative emotions and compensating for reduced motivation. Thus, gaming may serve as a maladaptive coping strategy for individuals with depressive symptoms. Furthermore, individuals with depression often demonstrate impaired emotional intelligence and coping abilities, increasing their vulnerability to uncontrolled gaming behavior.[28] Over time, excessive gaming may exacerbate depressive symptoms, resulting in a maladaptive cycle of psychological distress.[29] Accordingly, interventions should prioritize strengthening emotional regulation and adaptive coping capacities. For those at risk, approaches such as cognitive restructuring and behavioral activation can directly address depressive symptoms, with methods tailored to developmental stage: adolescents may benefit from family- or school-based interventions, while young adults may require individualized psychological support.

Social anxiety emerged as a significant predictor of online gaming addiction, consistent with earlier studies.[30,31] Individuals with social anxiety frequently experience fear of negative evaluation and avoid face-to-face interactions, often turning to online gaming for social interaction in a setting that preserves anonymity and a sense of control.[32,33] Those who feel socially unaccepted offline may seek acceptance in virtual spaces, while social appearance anxiety and smaller social networks further reinforce reliance on online environments.[11,34,35] These patterns suggest that online gaming may function as a compensatory social environment for individuals with heightened social anxiety. These findings underscore the importance of interventions targeting social anxiety—such as social skills training and exposure-based therapies—in reducing online gaming addiction. Both adolescents and

young adults may benefit from structured opportunities to practice these skills and address entrenched avoidance patterns in therapeutic settings.

Beyond psychological distress, the social features of online gaming may reinforce addictive behaviors. Online games promote real-time communication and social bonds, offering a sense of belonging for those who may struggle with offline relationships. While offline social support acts as a protective factor against psychological distress, individuals with depression or social anxiety may face challenges forming these ties, increasing reliance on gaming communities. However, excessive dependence on online social support can displace real-world relationships and reinforce maladaptive gaming patterns, as online social support correlates with internet addiction, whereas offline social support is linked to reduced risk.[36–40]

Preferences for specific game genres may also contribute to problematic gaming behaviors. Highly immersive genres, such as real-time strategy, role-playing, and massively multiplayer online role-playing games, have been more strongly associated with problematic gaming.[41–43] These genres are designed to promote prolonged engagement, social interdependence, and continuous progression, making disengagement increasingly difficult. Consistent with previous research, these genres were among the most frequently played by participants in the present study, suggesting that individuals who prefer such games, particularly those with pre-existing psychological distress, may be at increased risk of developing online gaming addiction.

In contrast to depression and social anxiety, loneliness, despite its positive correlation, did not emerge as a significant predictor of online gaming addiction. This finding aligns with several studies[6,7,44,45], yet contrasts with research identifying loneliness as a primary contributor to internet-related addictions.[10,46,47] Cultural differences may help explain this discrepancy. Individuals in collectivist societies generally report lower levels of loneliness than those in individualistic cultures[48,49], and collectivist orientations are typically associated with stronger social embeddedness and reduced perceptions of loneliness.[50] Within the Thai cultural context, strong familial and communal ties may serve as protective factors against persistent loneliness.[51] Participants in this study generally reported low to average levels of loneliness, which may account for the absence of an independent predictive effect of loneliness on online gaming addiction. Individuals with depression or social anxiety may avoid face-to-face interactions but still perceive their social needs as met through digital platforms. Therefore, gaming may primarily function as a coping mechanism for emotional distress rather than as a response to perceived social isolation.

Although loneliness did not emerge as a direct predictor, it may still play an indirect or interactive role. A bidirectional relationship has been identified between loneliness, internalizing symptoms, and maladaptive technology use.[12] Loneliness may amplify the effects of social anxiety or depression, thereby increasing vulnerability to online gaming addiction. Furthermore, its influence may be moderated or mediated by factors such as gender and age, coping styles, interpersonal competence and self-regulation, self-esteem, personal distress, and fear of missing out.[52–57] Taken together, these findings suggest that loneliness should be considered within a broader network of psychological factors rather than as an isolated predictor.

Collectively, these findings suggest that depression and social anxiety are more salient predictors of online gaming addiction than loneliness among Thai young adults, highlighting the role of internal emotional difficulties rather than social isolation alone. From an applied perspective, effective intervention requires strategies to enhance emotional regulation and coping, alongside targeted, evidence-based approaches addressing depressive symptoms and social anxiety, such as cognitive-behavioral and interpersonal interventions. Additionally, reducing avoidance behaviors and strengthening interpersonal functioning through structured skill-building may further support intervention outcomes. Interventions that are responsive to the cultural and psychosocial context of Thai society are likely to be most effective in reducing online gaming addiction.

Limitations

Several limitations of this study should be acknowledged. First, the use of convenience sampling may have introduced selection bias and reduced the representativeness of the sample. Second, data collection through an online self-report survey may have increased the risk of response bias, including social desirability and inaccurate reporting. Third, the cross-sectional design prevents inference of causal relationships between psychological factors and online gaming addiction. Fourth, the sample size and uneven geographic distribution of participants may limit the generalizability of the findings to the broader population of Thai young adults. Future research should employ longitudinal designs, utilize more rigorous sampling methods, and recruit larger and more geographically representative samples to provide a more comprehensive understanding of these relationships.

CONCLUSIONS

Depression and social anxiety play a prominent role in problematic online gaming among Thai young adults. Interventions should prioritize emotional regulation and adaptive coping. Future research should examine indirect pathways, cultural influences, and additional psychosocial factors to inform evidence-based interventions and policy.

Data Availability Statement

The data supporting the findings of this study are not publicly available due to ethical restrictions.

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DECLARATIONS

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Conflict of Interest

All authors declare no potential conflicts of interest.

Registration number of clinical trial

Not applicable.

Author Contributions

Conceptualization and methodology, N.A., N.T., S.I., and R.A. ; Investigation, N.A., N.T., S.I., and R.A. ; Formal Analysis, N.A. and N.T. ; Visualization and writing - original draft, N.A. and N.T. ; Writing - review and editing, N.A., N.T., and S.I. ; Funding acquisition, N.A. and N.T. ; Supervision, R.A. and S.P. All authors have read and agreed to the final version of the menuscript.

Use of Artificial Intelligence

Artificial Intelligence tools were not used in the preparation of this manuscript. All content, interpretation of results, and final revisions were performed by the authors, who take full responsibility for the manuscript's accuracy and integrity.

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