Examining The Influence Of Perceived Social Support On Internet Gaming Disorder; The Mediating Role Of Social Connectedness Among Emerging Adults In Malaysia

Abstract:

Aims: Internet Gaming Disorder is a growing global concern; however, further research is needed to deepen understanding of the disorder in order to develop more effective treatment strategies. The research aimed to examine the mediating role of social connectedness in the relationship between perceived social support and internet gaming disorder among emerging adults in Malaysia.

Material and Method: This study used a quantitative survey design to examine the mediating role of SC between PSS and IGD among emerging adults aged 18 to 29 years in Malaysia. The study was conducted between July 2023 and May 2024. The study took place in Malaysia, and participants were evenly distributed across various states. The selection criteria included non-professional gamers, had a minimum score of 32 on the IGDS9-SF, and had at least 12 months of gaming experience. Respondent-driven sampling was implemented, commencing with 20 seeds and ultimately resulting in 389 participants.

Findings: The results revealed that social connectedness served as a full mediator in the relationship between perceived social support and internet gaming disorder, indicating that perceived social support affects internet gaming disorder indirectly through social connectedness. Then, linear regression analysis also suggested that higher perceived social support predict lower internet gaming disorder (β=-.192), higher perceived social support predict higher social connectedness (β=-.458), and higher social connectedness predict lower internet gaming disorder (β=.323).

Conclusion: Social Connectedness significantly mediated the relationship between perceived social support and internet gaming disorder, providing insights for a better understanding of the disorder.

Keywords: Internet Gaming Disorder, Mediation, Mental Health, Social Connectedness, Perceived Social Support

Introduction

Internet gaming disorder (IGD) is characterised by "persistent, recurrent, and excessive involvement with computer or video games that is uncontrollable, despite the presence of associated problems" [1]. As society becomes increasingly reliant on the internet for daily activities, this disorder has become more severe in the current society. Research has identified numerous adverse consequences linked to internet gaming disorder, including social withdrawal, academic decline, physical health problems [2], sleep deprivation [3], depression [4], cybercrimes, suicide ideation [5], family conflict, interpersonal relationship problems, and impulsivity [6].

Gaming may provide individuals with leisure and potential advantages [6]; however, excessive gaming may result in addiction, which may cause them to neglect critical life responsibilities [7]. Prior to the COVID-19 pandemic, the recognition of Internet Gaming Disorder (IGD) acquired momentum, as it was included in Section 3 of the DSM-5 and classified as a gaming disorder in the ICD-11 by the World Health Organisation [8]. In 2020, the occurrence of pandemic further exacerbated the condition of internet gaming disorder, especially among adolescents and young adults. It was reported that the reason of this was the increased reliance on the internet for education and limited real-life social interactions [9].

The issue of internet gaming has also impacted youths in Malaysia. Despite the lack of precise data regarding the country's prevalence of internet gaming disorder, statistics from the Malaysia Communications and Multimedia Commission (MCMC) indicates an increase in the number of internet gamers. MCMC reported that the percentage of online gamers in Malaysia rose from 35.2% in 2018 to 42.8% in 2020 [10]. Compared to adolescents, emerging adults' internet gaming disorders are comparatively understudied [11,12,13,14]. Emerging adults aged between 18 to 29 years old remain the age range where they are more particularly susceptible to internet gaming disorder due to life stage characteristics and tendency to be more tech-savvy [15].

The DSM-5 has listed internet gaming disorder under Section 3 as a condition that requires additional research. However, up until today, there are significant gaps that remain in understanding the disorder. For example, there are no standardised diagnostic criteria or universally accepted tools to distinguish between individuals with disordered gaming and those without [16,17]. To address the gap, Pontes and Griffiths incorporated nine diagnostic criteria from the DSM-5 to create the Internet Gaming Disorder Scale-Short Form (IGDS9-SF) in 2015. Since then, the questionnaire has been universally validated [18,19,20]. In 2020, Qin et al. [21] also proposed a cut-off score of 32 out of 45 as being sufficient to differentiate between individuals with disordered gaming and those without. Nevertheless, further research is required to verify the threshold.

The next gap pertains to the fact that although most research thus far have predominantly focused on its prevalence, with far less emphasis on discovering protective or intervention strategies for internet gaming disorder. Treatment approaches for internet gaming disorder include cognitive behavioural therapy [22,23], multi-level counselling [24], family, and group-based interventions [25;26]. While many of these approaches emphasise societal support to mitigate internet gaming disorder, the underlying mechanisms remain unexplored.

According to Self-Determination Theory [27], individuals may resort to unhealthy behaviour as a means of compensation when basic psychological needs are not satisfied.

They may excessively engage in internet gaming when these needs remain unmet in daily life, using online gaming as a form of escapism. While perceived social support may help mitigate this tendency [26], Relationship Motivation Theory [27] further explains that the quality of relationships and a sense of social connectedness may be more crucial than general societal support in reducing internet gaming disorder. This claim is also supported by Williams and Galliher [28] whose research provided a distinctive definition between social connectedness and perceived social support, mentioning that social connectedness encompasses not only in receiving support but also having a sense of connection and contributing to the society. However, this viewpoint has yet to be examined in the existing body of research. Therefore, investigating the underlying connection between perceived social support and internet gaming disorder may yield significant insights for improving treatment models for individuals with internet gaming disorder, while also deepening the overall understanding of the disorder.

To address the problems mentioned above, this research has focused on emerging adults with internet gaming disorder. The diagnostic cut-off point of IGDS9-SF proposed by Qin [21] was also utilised to further validate the claim. Additionally, this study aimed to examine the underlying mechanism by which perceived social support could mitigate Internet gaming disorder, by proposing social connectedness as a mediating variable.

Methodology

Research Design

In this study, a quantitative research approach was utilised, employing a cross-sectional design and a survey method as the most appropriate strategy. The cross-sectional design enables the collection of data at a specific point in time, whereas the survey method provides a comprehensive understanding of the issue under investigation through the use of structured questionnaires [29].

Sampling Method

The present research involved Malaysian emerging adults. The population of emerging adults has been insufficiently studied in relation to internet gaming disorder compared to adolescents [11,12,13]. Emerging adults, often aged 18 to 29 years [30], are at an increased risk of developing internet gaming disorder. Emerging adulthood is a developmental stage marked by heightened independence from parental supervision, in contrast to adolescence, yet individuals do not assume the complete responsibilities of adulthood. Then, having grown up in a digital era, emerging adults are generally more tech-savvy compared with adults who are in their 30s and 40s. This phase is also categorised as the age of feeling in-between and experiencing instability in various aspects of life, including career, relationships and identity, resulting in increased negative emotions such as anxiety and stress [30]. Consequently, they may seek escapism through digital entertainment and higher tendency to develop online-specific addictions such as internet gaming addictions [15].

Henceforth, the inclusion criteria comprise Malaysian emergent adults aged 18 to 29, a minimum of 12 months of gaming experience, and non-professional gamers with a

minimum score of 32 on the Internet Gaming Disorder Scale–Short Form (IGDS9-SF). As individuals with internet gaming disorder are hard to reach in addition to the absence of formal documentation on IGD cases in Malaysia [31], respondent-driven sampling – a variant of snowball sampling was utilised. G*Power analysis recommended a minimum sample size of 76 for regression analysis [32], while structural equation modelling (SEM) recommended a minimum of 200 participants [33,34]. A total of 389 participants were recruited via respondent-driven sampling. After removing participants who did not meet the research criteria and filtering additional cases through preliminary analysis procedures, a total of 259 participants remained in the study.

Research Procedures

Upon receiving approval from the Ethics Committee for Research Involving Human Subjects at Universiti Putra Malaysia (JKEUPM), the researchers commenced data collection in July 2023. The data collection period ranged from July 2023 to May 2024. The study took place in Malaysia, and participants were recruited evenly across different states, including Kuala Lumpur, Malacca, Negeri Sembilan, Johor, Penang, Kedah, and Sarawak. The researcher recruited 20 peoples, also known as "seeds" as the first batch of participants. Among these participants, gender and racial distribution were evenly distributed. After the seeds completed the questionnaire, they were then instructed to each recommend three peers who fulfilled the research criteria to participate in the study. Participants were given incentives for both their participation and referrals. Online questionnaire was created for the ease of administration. As the researcher aimed to recruit members who could potentially be categorised as disordered gamers, screening questions were included. The screening questions consisted of the following; "For the last 12 months, do you consider yourself as someone that spends a lot of time on either online or offline gaming?", "Are you aged between 18 to 29 years old?", and "Are you not a professional gamer?" Participants that answered "No" to any of the screening questions were directed to the end of questionnaire.

Instruments

The Multidimensional Scale of Perceived Social Support Scale

Zimet et al. [35] developed the Multidimensional Scale of Perceived Social Support (MSPSS) to evaluate people's perception of social support from different resources including friends, family, and significant others. The questionnaire has three subscales, each containing four items, which make up to a total of 12 items. A higher mean score on the questionnaire indicates a better level of perceived social support. The questionnaire has good internal consistency, was translated into other languages, and has been used extensively in a range of studies [35,36,37].

Social Connectedness Scale- Revised

Lee et al. [38] created the Social Connectedness Scale-Revised (SCS-R) to assess how connected a person feels in their social surroundings. It had 20 items in total, ten items with reversed scores. The questionnaire was calculated using total scores where higher scores indicate lesser degrees of social connectedness. The questionnaire was translated into multiple languages, and showed strong internal consistency and validity [39,40].

Internet Gaming Disorder Scale- Short Form (IGDS9-SF)

Pontes and Griffiths [41] created the Internet Gaming Disorder Scale – short form (IGDS9-SF) to evaluate the extend of internet gaming disorder for the past year. The questionnaire consisted of nine items, each align with the nine criteria established by the American Psychiatric Association (APA) in the DSM-5 for the diagnosis of internet gaming disorder. The questionnaire utilised a five-point Likert scale ranging from 1 (never) to 5 (very often), resulting in a maximum score of 45, with higher scores indicating increased severity of internet gaming disorder. In 2020, Qin et al. [21] suggested that a cut-off score of 32 out of 45 successfully differentiates between disordered and non-disordered gamers and this claim has been verified by the original author of the questionnaire. The questionnaire has shown high criterion validity and robust internal consistency and has been translated into over 15 languages [18,19,42].

Preliminary Analysis

A preliminary analysis was conducted to guarantee that the necessary assumptions were satisfied, thereby increasing the reliability and significance of the results. The primary assumptions for linear regression analysis and mediation analysis are the absence of outliers, linearity, homoscedasticity or independence of errors, normality, and the absence of multicollinearity. 259 participants remained in the study following a succession of preliminary analysis procedures. Table 1 shows the demographic profile of participants in the study.

Table 1

Demographic Profile of Participants' Gender, Age, and Ethnicity in the Study (N=259)

	N	*%*	*M*	*SD*
Age				
18-29	259	100	23.79	2.94
Gender				
Male	229	88.4		
Female	30	11.6		
Ethnicity				
Chinese	209	80.7		
Malay	26	10.0		
Indian	24	9.3		

Note: N= number of observations; *M* = mean; *SD* = standard deviation.

Findings

Linear Regression between Variables

Prior to mediation analysis, simple linear regression was implemented to investigate the predictive relationship between perceived social support and internet gaming disorder, perceived social support and social connectedness, and social connectedness and internet gaming disorder. For the regression model between perceived social support and internet gaming disorder, the model was significant ($p < .01$, $\beta = -.192$), with perceived social support negatively predicting internet gaming disorder. This indicated that higher perceived social support was associated with lower level of internet gaming disorder. Similarly, the regression model examining perceived social support as a predictor of social connectedness was significant ($p < .01$, $\beta = -.458$), with perceived social support negatively predicting social connectedness. This means that higher perceived social support was associated with participants being more socially connected. Lastly, the regression model evaluating social connectedness as a predictor of internet gaming disorder was also significant ($p < .01$, $\beta = .323$), with social connectedness positively predicting internet gaming disorder. This means that higher social connectedness was associated with lower level of internet gaming disorder. The regression models are presented in Table 2.

Table 2
Linear Regression Model

Path	Standardised Beta	Coefficien F		R²	Sig.
PSS → IGD	-.192		9.83	.037	.002
PSS → SC	-.458		68.27	.210	.000
SC → IGD	.323		29.89	.104	.002

Note:PSS- Perceived Social Support, SC- Social Connectedness, IGD- Internet Gaming Disorder

Mediation Analysis

Mediation analysis showed that the direct effect of perceived social support on internet gaming disorder was non-significant when all variables were incorporated into the model (refer to figure 1). However, the indirect pathways from perceived social support to social connectedness and from social connectedness to internet gaming disorder remained significant, resulting in a significant indirect effect ($\beta = -0.136$, $p < .05$). Bootstrapping further confirmed this indirect pathway (95% CI [-0.206, -0.067]). These results suggest that the relationship between perceived social support and internet gaming disorder is fully mediated by social connectedness. In other words, the direct effect of perceived social

support on internet gaming disorder is only possible in the presence of social connectedness.

Figure 1

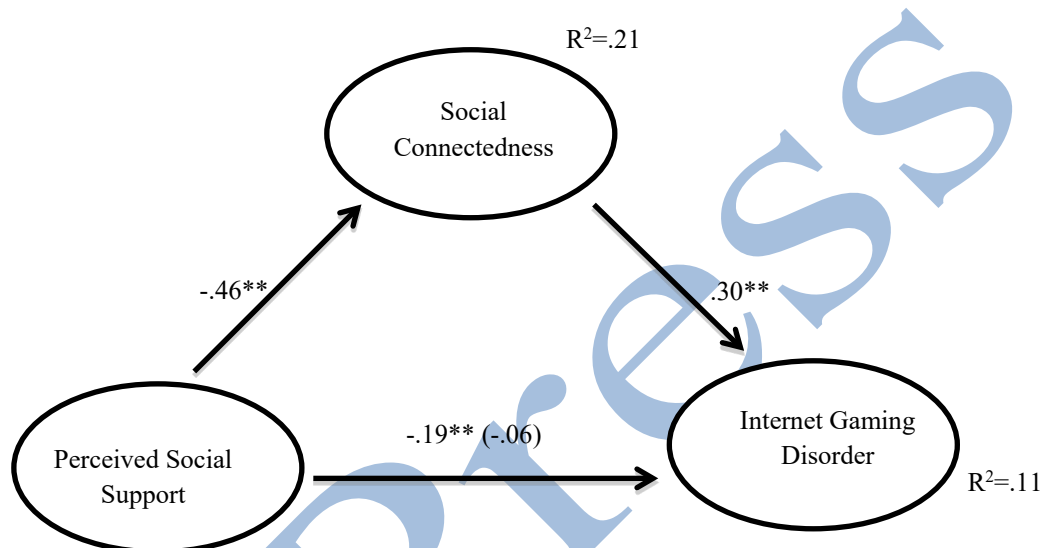*The Mediation Model of Social Connectedness in the relationship between Perceived Social Support and Internet Gaming Disorder*

Table 3

Mediation Analysis

Path	Estimate	SE	Critical Ratio	P Value
PSS → SC	-.641	.077	-8.279	.000
PSS → IGD	-.020	.024	-.842	.400
SC → IGD	.076	.017	4.490	.000

Note: PSS- Perceived Social Support, SC- Social Connectedness, IGD- Internet Gaming Disorder

Table 4

The Bootstrap Result of Mediation Test

	Bootstrapping (95% CI)		
	Upper Bound	Lower	Two	Tailed

		Bound	Significance
Standardised Direct Effect	.061	-.193	.400
Standardised Indirect Effect	-.067	-.206	.000
Standardised Total Effect	-.305	-.305	.000

Discussion

The results suggest that the relationship between perceived social support and internet gaming disorder among emerging adults in Malaysia is fully mediated by social connectedness. One plausible explanation for this result is that, although no study has simultaneously examined all three variables within a mediation model, the indirect link between perceived social support and social connectedness, as well as between social connectedness and internet gaming disorder, was clear. For instance, individuals who perceive strong social support are frequently associated with higher social connectedness [43]. Additionally, maintaining strong social connections with family members and peers may mitigate the risk of internet gaming disorder [44,45].

Another potential explanation is the fundamental distinction between perceived social support and social connectedness. Social connectedness encompasses a more comprehensive sense of integration and belonging within a community, in contrast to perceived social support, which pertains to the assistance and assurance one receives from others [28,46]. People develop strong social connectedness when they feel valued, have opportunities to contribute, and engage in meaningful interactions with others. In this regard, perceived social support is merely one component of social connectedness. To experience a genuine sense of belonging, it is necessary to not only receive support but also to be able to offer assistance, feel appreciated, and make meaningful contributions to society. Thus, although perceived social support may help with the severity of internet gaming disorder, social connectedness may be more influential, as a profound sense of belonging to society may be the primary factor in preventing problematic gaming behaviours.

Then, the robust theoretical framework that underpins the mediated model could be the next reason. Current study applied Relationship Motivation Theory and Self-Determination Theory [27], both of which emphasizes that the quality of social connection is a key determinant in fulfilling basic psychological needs, including autonomy, relatedness, and competence in daily life. When individuals experience a profound sense of integration within their social environment, they are less inclined to resort to problematic gaming as a means of fulfilling unmet psychological needs. Rather, they derive satisfaction and validation from meaningful engagements and real-world interactions. When integrating the theories with emerging adults, instability and challenges in life make them vulnerable to online entertainment as an escape, yet it is not a permanent fix [15]. Emerging adults should instead actively build and maintain real-world relationships to foster a sense of belonging and social connection. Seeking professional help from counsellors could also be a way to increase real-world connections and identify more effective methods to enhance their social connection with the world.

While this study has uncovered key findings and drawn significant conclusions, it is essential to acknowledge its limitations. Firstly, there is still no official or formal diagnostic criteria for internet gaming disorder to date. Even though Pontes and Griffiths [41] as the questionnaire's original developers of IGDS9-SF have validated the diagnostic cut-off score proposed by Qin et al. [21], it continues to be an informal diagnostic measure. Given the severity of the internet gaming disorder, it would be imperative for mental health practitioners to establish formal diagnostic criteria in the future.

Subsequently, the potential for social desirability bias must be assessed, as certain participants have expressed feelings of embarrassment regarding their internet gaming disorder [47,48]. Individuals who are afflicted by this disorder may be hesitant to overtly discuss their excessive gaming behaviours for fear of stigma or judgement from others. As a result, they may underreport or deny their problematic behaviours which could lead to the actual prevalence of the disorder. This condition is even more pronounced in cultures where gaming is being stigmatized [49].

Moving forward, future research is recommended to investigate further into different online game genres, such as Role-Playing Games (RPG), and Multiplayer Online Battle Arena (MOBA) and their connections with internet gaming disorder. It has been mentioned by T'ng et al. [31] that addiction levels may fluctuate depending on the game type, however there is still very limited research that compare its addictiveness and intervention strategies that could be effective in mitigating internet gaming disorder.

In terms of implications, current research may contribute to the body of research on internet gaming disorder and professional bodies such as the American Psychiatric Association as it provides further evidence for its classification under the DSM-5-TR as a condition requiring further study, with the hope that it may one day be officially recognized as a formal disorder. Other than that, the study could help counsellors to improve their therapeutic strategies by emphasizing strengthening real-life connections among clients with internet gaming disorder. Additionally, individuals with internet gaming disorder may develop a deeper understanding of their condition, seek appropriate assistance when needed, and recognize that they are not alone in facing these challenges.

Conclusions

In summary, this study demonstrated that social connectedness fully mediates the relationship between perceived social support and internet gaming disorder among emerging adults in Malaysia. These findings highlight the importance of enhancing social connectedness as a potential strategy to mitigate internet gaming disorder.