



INTERNATIONAL JOURNAL OF  
MODERN EDUCATION  
(IJMOE)  
[www.ijmoe.com](http://www.ijmoe.com)



## DIGITAL TIES AND TANGLES: THE INTERPLAY BETWEEN INTERNET ADDICTION, MENTAL WELL-BEING, AND ACADEMIC OUTCOMES IN THE MODERN AGE

Sharunizam Shari<sup>1</sup>, Salasiah M Said<sup>2\*</sup>, Siti Nur Arni Abdullah<sup>3</sup>, Abd Latif Abdul Rahman<sup>4</sup>

<sup>1</sup> Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Cawangan Kedah, Malaysia

Email: nizam057@uitm.edu.my

<sup>2</sup> Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Cawangan Kedah, Malaysia

Email: salasiah@uitm.edu.my

<sup>3</sup> Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Cawangan Kedah, Malaysia

Email: 2020819384@student.uitm.edu.my

<sup>4</sup> Information Science Studies, College of Computing, Informatics and Mathematics, Universiti Teknologi MARA Cawangan Kedah, Malaysia

Email: ablatif@uitm.edu.my

\* Corresponding Author

### Article Info:

#### Article history:

Received date: 20.11.2023

Revised date: 24.12.2023

Accepted date: 02.01.2024

Published date: 05.03.2024

#### To cite this document:

Shari, S., Said, S. M., Abdullah, S. N. A., & Abdul Rahman, A. L. (2024). Digital Ties and Tangles: The Interplay Between Internet Addiction, Mental Well-Being, and Academic Outcomes in the Modern Ages. *International Journal of Modern Education*, 6 (20), 01-17.

DOI: 10.35631/IJMOE.620001

### Abstract:

This conceptual analysis investigates the interrelation between internet addiction, specifically through online gaming and social media, mental health, and academic performance. As digital platforms have permeated 21st-century lifestyles, a rise in internet addiction resembling traditional substance abuse has become increasingly visible, bringing with it implications for mental well-being and scholastic outcomes. This research presents a foundational framework that originally portrays mental health and internet addiction as individual influencers of academic achievement. However, deeper examination posits mental health as both an intervening (mediating) and moderating factor, elucidating the sequence and varying strength of these relationships. Grounded in a rich literary backdrop, the article emphasizes the direct influence of mental health on academic endeavors and the potential effects resulting from its interactions with internet addiction. The theoretical backbone of the study leans into cognitive-behavioral and resilience perspectives, deciphering the placement of mental health within the research paradigm. The study concludes with the imperative to understand and address the complexities of internet addiction and mental health in the context of academic performance. It underscores the pressing need for recognizing and managing emerging digital addictive behaviors and the consequential impact on mental health and

This work is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)



academics. The continuous integration of technology in our lives demands a nuanced comprehension to ensure students' holistic well-being in the digital age.

**Keywords:**

Academic Outcomes, Cognitive-Behavioral Impacts, Digital Addiction, Digital Era Challenges, Holistic Well-being, Mental Health Implications, Online Gaming Effects, Social Media Dynamics

## Introduction

In the annals of human advancement, the internet stands as a monumental testament to our capacity for innovation; it is a refined matrix of electronic communications, elegantly weaving together diverse computer networks and institutional resources from every corner of the world. This vast digital tapestry facilitates communication, information dissemination, and collaboration on an unprecedented scale. However, while the advantages of the internet are manifold, its omnipresence has raised pertinent questions about its influence on human behavior. Delving into the realm of behavioral health, the American Society of Addiction Medicine (2019) offers a nuanced understanding of addiction. They describe it as a treatable, yet chronic health affliction that emerges from a confluence of intricate neural activities in the brain, genetic predispositions, environmental factors, and a myriad of individual life experiences. Those ensnared in the grip of addiction often grapple with an overwhelming inability to regulate their behaviors. This lack of control, more often than not, fosters a profound sense of despair, propelling them deeper into the quagmire of their addictive tendencies.

Recent scholarly endeavors have thrown light on a concerning trend: a rising incidence of internet addiction across the global populace. A study spearheaded by Zenebe et al. (2021) alarmingly suggests that university students, often at a crucial juncture in their lives, stand out as a particularly vulnerable cohort. Dissecting the nature of this digital dependency further, we identify two primary categories: generalized and specific internet addiction (Starcevic et al., 2021). Generalized internet addiction paints a picture of a broad behavioral pattern where individuals excessively rely on smartphones and the internet. Such over-reliance is frequently correlated with a spectrum of detrimental effects, ranging from strained familial relationships, challenges in social interactions, a palpable decline in life satisfaction, emotional disturbances, to even a discernible dip in academic achievements (Younes et al., 2016; Lachmann et al., 2018; Sun et al., 2020; Zarei et al., 2021; Shi & Wang, 2023). Conversely, specific internet addiction zooms in on an overindulgence in particular online activities or platforms, be it social media, immersive gaming, or online gambling. While it echoes many characteristics of its generalized counterpart, this form of addiction has unique repercussions, including adverse health outcomes, susceptibility to cyberstalking, and heightened feelings of envy, especially in the realm of social media (Kawabe et al., 2016; Balakrishnan & Griffiths, 2017; Starcevic et al., 2021).

The study by Chia et al. (2020) examined the prevalence of internet addiction and gaming disorders in Southeast Asia. The study found varying prevalence rates across different countries in the region, indicating the presence of internet addiction among the youth population. The findings revealed a pooled prevalence rate of 20.0% (95% confidence interval: 14.5%-27.0%)

for internet addiction and 10.1% (95% confidence interval: 7.3%-13.8%) for gaming disorders. These numbers highlight the significant prevalence of internet addiction and gaming disorders in Southeast Asia, emphasizing the need for further research and intervention strategies to address this issue.

The aim of this paper is not to present new empirical findings, but rather to develop a conceptual understanding of the interplay between internet addiction, mental well-being, and academic performance. Drawing from a wide range of existing literature, this paper seeks to build a theoretical framework that can inform future research in this field. As a conceptual piece, it contributes to the academic discussion by offering a new perspective on how these elements interact and influence each other. As the digital age continues to evolve, it becomes paramount to delve deep into the multifaceted impacts of online platforms, specifically online gaming and social media, on university students. This paper endeavors to highlight the potential risks and implications of prolonged internet engagement, especially concerning its influence on mental well-being and subsequent academic outcomes. By distinguishing between mental health as both an intervening (mediating) and moderating variable, the paper aims to offer clarity on how and to what extent internet addiction can shape academic trajectories. Furthermore, the paper seeks to provide a foundation upon which educators, parents, mental health professionals, and policymakers can develop informed strategies and interventions to ensure holistic well-being and academic success for students in today's digitally-driven environment.

### **Internet Addiction: A Comprehensive Overview**

Navigating the complex landscape of human behavior, addiction stands out as one of the most profound and multifaceted challenges. At its core, addiction represents an overwhelming, enduring, and often inescapable physiological or psychological compulsion towards certain substances, behaviors, or activities (Yaojun et al., 2018; Naseem et al., 2021; Demenech et al., 2023). What makes these tendencies particularly concerning is their propensity to induce an array of detrimental effects across physical, psychological, and social domains. Those afflicted by addiction commonly manifest a spectrum of distinct and pronounced symptoms when attempting to abstain or withdraw from the addictive entity. These symptoms can span from psychological distresses like anxiety and irritability to physical manifestations such as tremors or nausea, all unequivocally indicating the entrenched state of addiction (Yaojun et al., 2018; Naseem et al., 2021; Demenech et al., 2023).

Delving deeper into the realm of internet addiction, Tarrahi & Zhaleh (2022) provide invaluable insights. They underscore that students, a demographic increasingly intertwined with digital platforms for both academic and recreational pursuits, are particularly susceptible. A recurring observation is the deterioration of sleep quality among student populations who exhibit excessive internet usage patterns. Sleep, being a fundamental pillar of overall well-being, when compromised, can cascade into a host of other issues. Chief among these is mental instability, which invariably translates to sub-optimal academic and social performance.

Furthermore, the very nature of addiction often manifests in the inability to recognize or heed the adverse consequences of one's actions. Individuals entrenched in addictive behaviors tend to persistently indulge in substance use or compulsive activities, even when confronted with palpably negative outcomes (Verdejo-Garcia et al., 2018). This observation aligns with the

broader understanding of addiction, where the compulsive drive often overshadows rational decision-making.

The rise of social networks has added another layer to this intricate issue. Research by Younes et al. (2016) and Alimoradi et al. (2019) accentuates the pivotal role of these platforms in modern communication. However, the very interconnectedness and instant gratification offered by these platforms can inadvertently pave the way for internet addiction. Kircaburun et al. (2020) posit that the immersive nature of these networks, coupled with the human inclination for social interaction, can culminate in patterns of behavior that mirror classic addictive tendencies.

### **Online Gaming and its Multifaceted Impacts**

The realm of online gaming, traditionally perceived as a recreational domain, is increasingly revealing its intricate layers of impact, meriting a deeper academic probe. As it melds cognitive enhancement with evolving social dynamics, online gaming emerges as both a beneficial tool and a subject warranting nuanced analysis.

On the cognitive front, strategy-centric games and intricate puzzles present intriguing avenues for exploration. Research findings from Choi et al. (2020) and Martinez et al. (2023) suggest that these gaming variants stimulate critical thinking, foster foresight, and promote expedited decision-making processes. However, while these potential enhancements are promising, it's imperative to consider the broader context. The extent of cognitive improvement might vary based on individual differences, such as age, baseline cognitive ability, and prior gaming experience.

Shifting focus to the social ramifications within Massively Multiplayer Online (MMO) games, the landscape becomes even more multifaceted. As highlighted by Kaye et al. (2017) and Jin et al. (2017), MMO platforms sculpt a globalized social framework. They promote interactions that bridge geographical and cultural chasms. Yet, the nature of such digital camaraderie remains multi-dimensional. While some interactions might forge profound connections, others could be ephemeral, anchored solely in the context of the game. Additionally, the collaborative dynamics in MMOs, underscored by the need for articulate communication and synchronized teamwork, also entails considerations of power hierarchies and potential exclusionary practices.

Further, the application of online gaming in fostering real-world skills represents another layer of this multifaceted tapestry. The potential of action-oriented games to hone hand-eye coordination is evidenced by Franceschini et al. (2017), while the utility of strategy games in refining resource management aptitudes is documented by Benoit et al. (2020). Yet, the broader implication here revolves around the transferability of such skills. Enhancements within the virtual realm must be critically appraised for their relevance and applicability in tangible real-world contexts.

Beneath the captivating veneer of online gaming lies a series of challenges that warrant meticulous academic examination. The acknowledgment of Internet Gaming Disorder by the World Health Organization lends credence to concerns surrounding excessive online gaming (King et al., 2020; Zhang et al., 2022). Overcommitment to such virtual engagements can lead

to the sidelining of real-world obligations, fostering a landscape ripe for the development of addictive behaviors (Király et al., 2017; Rudolf et al., 2020).

Mental health implications further add layers of complexity. Whereas certain demographics may employ gaming as a therapeutic modality, there exists a considerable cohort for whom extensive gaming becomes a catalyst for mental health adversities. Symptoms range from heightened anxiety and onset of depressive symptoms to an ironic intensification of feelings of social detachment, as highlighted by Darvesh et al. (2020). The intrinsically competitive environment prevalent in many gaming arenas could potentiate stressors, potentially leading to mood destabilization (Chen et al., 2020; Ko & Yen, 2020).

The academic realm is not immune to the ramifications of gaming overindulgence. Observations indicate a concerning inverse relationship between prolonged gaming durations and academic performance, particularly among student populations (Heiden et al., 2019; Wang et al., 2019). The tangible manifestations of this relationship include reduced academic engagement, deteriorating grades, and diminished scholarly motivation, as evidenced by Saunders et al. (2017) and Zhu et al. (2021).

Beyond cognitive and academic outcomes, physical health remains at risk. Extended sedentary periods, a hallmark of protracted gaming sessions, have been linked to a plethora of health concerns. These encompass obesity, postural disorders, and visual strain, underpinned by study from Kim et al. (2023).

### **Social Media: A Deep Dive into Its Impact on Academic Performance and Mental Health**

The advent of social media has undeniably reshaped communication, recreation, and information consumption in contemporary society. Social media platforms have revolutionized the way people connect and maintain relationships, regardless of geographical barriers. This facet of social media holds particular significance in our globalized world, where friends and family members may reside far apart. The positive aspects of social connection through social media encompass maintaining long-distance relationships, serving as a bridge for individuals separated by physical distances, allowing them to stay connected through messaging, video calls, and sharing life updates, thus fostering a sense of closeness despite the miles apart (Park et al., 2017). Additionally, social media often acts as a facilitator for reigniting relationships with old friends or acquaintances, offering opportunities to reconnect and rebuild connections that may have faded over time (Pennington, 2021). Moreover, those facing challenges or going through difficult times can find solace in social media communities and support groups. These online communities offer a sense of belonging and understanding, providing particular comfort during times of need (Lin et al., 2020).

Social media platforms provide individuals with a creative space to express themselves, share their achievements, and promote their interests. These positive aspects of self-expression and self-promotion encompass a creative outlet that social media offers. It allows individuals to showcase their creativity through visual arts, photography, writing, and various forms of content creation. This creative outlet can be fulfilling and even therapeutic for many (Naslund et al., 2020). Furthermore, individuals can utilize social media to construct and promote their personal brand, whether for personal or professional purposes. This can enhance one's self-esteem and reputation, helping them stand out in a competitive landscape (Putri, 2021). Additionally, by sharing their talents and achievements on social media, individuals may attract

opportunities for collaboration, job offers, or recognition in their chosen fields, ultimately boosting their confidence and sense of accomplishment (Putri, 2021).

Social media serves as a powerful tool for social and political activism, empowering individuals and groups to advocate for causes they believe in. The positive aspects of social and political activism on social media encompass the ability to amplify voices. Social media platforms provide a platform for marginalized groups and activists to amplify their voices and reach a global audience. This inclusivity can lead to greater awareness and support for important social issues (Neff, 2022). Additionally, during times of crises or urgent social movements, social media enables the swift dissemination of information, facilitating the mobilization of support and resources more efficiently (Neff, 2022). Moreover, activists can leverage social media to create online communities and networks of like-minded individuals, fostering a sense of solidarity and shared purpose (Neff, 2022). Social media's role in activism has played a significant part in movements such as #BlackLivesMatter, #MeToo, and climate change awareness campaigns, underscoring the positive potential of social media in driving social change and raising awareness about critical issues.

While social media offers certain educational benefits, it also poses a significant distraction for students, impacting their academic performance. This academic distraction can be broken down into specific challenges. Social media platforms often inundate users with notifications, pulling their attention away from their studies. The constant ding of incoming messages or updates can disrupt concentration and focus (Kuss & Griffiths, 2017). Scrolling through social media news feeds can be an addictive behavior in itself. Students may find themselves mindlessly scrolling for hours, thereby wasting valuable study time (Lee et al., 2018). The allure of online social interactions can be particularly powerful, especially for individuals who are seeking a break from the demands of academic work. It's easy to get drawn into online conversations and lose track of time (Abbas et al., 2019). The cumulative effect of these distractions can lead to decreased academic productivity. Students may struggle to complete assignments, prepare for exams, or meet deadlines due to their social media use (Radovic et al., 2016).

Social media platforms often encourage users to present curated and idealized versions of their lives. This presentation can lead to social comparison and competition, which have several negative consequences. People tend to showcase the highlights of their lives on social media, creating an unrealistic image of their achievements and happiness. Others may compare themselves unfavorably to these idealized versions, leading to feelings of inadequacy and low self-esteem (Throuvala et al., 2019). The constant exposure to the seemingly perfect lives of peers on social media can increase stress levels. Students, in particular, may feel pressured to excel academically, socially, and personally, contributing to higher stress levels (Naslund et al., 2020). Comparing oneself to others on social media can erode self-esteem. Individuals may start doubting their worth or abilities when they perceive that others are more successful or happier (Weinstein, 2018).

Fear of missing out (FOMO) is a psychological phenomenon driven by social media, where users fear missing out on exciting events or experiences others are sharing. This fear can have several negative effects. Individuals experiencing FOMO may constantly check their social media feeds to ensure they are not missing out on anything. This preoccupation can be anxiety-inducing and lead to decreased focus on academic tasks (Bariguna et al., 2021). FOMO can lead to procrastination as individuals postpone important tasks to stay connected online. This

procrastination can harm academic performance and lead to increased stress as deadlines approach (Kim et al., 2022). The constant need to stay connected and updated with what others are doing can be distracting, making it challenging to concentrate on academic work (O'Reilly, 2020).

### **Academic Performance: A Multifaceted Exploration**

Academic performance, often regarded as the cornerstone of the higher education system, serves as a barometer of a student's proficiency, diligence, and comprehension of educational content. It encapsulates a myriad of dimensions, ranging from the mastery of subject-specific knowledge to the evolution of holistic personal and professional skills. Studies have emphasized various facets of academic performance to provide a comprehensive understanding of its intricacies.

A noteworthy dimension of academic performance is emotional intelligence, as illuminated by Iqbal et al. (2021). Emotional intelligence, encompassing the ability to recognize, understand, and manage one's emotions while also being adept at interacting with others, has increasingly been identified as pivotal in determining a student's success within the academic sphere.

Another vital aspect of academic performance is the continuous acquisition of knowledge, paired with the nurturing of self-growth and the honing of varied skills. MacCann et al. (2020) underscore this dynamic interplay between knowledge assimilation and personal development as integral to a student's progression in higher education.

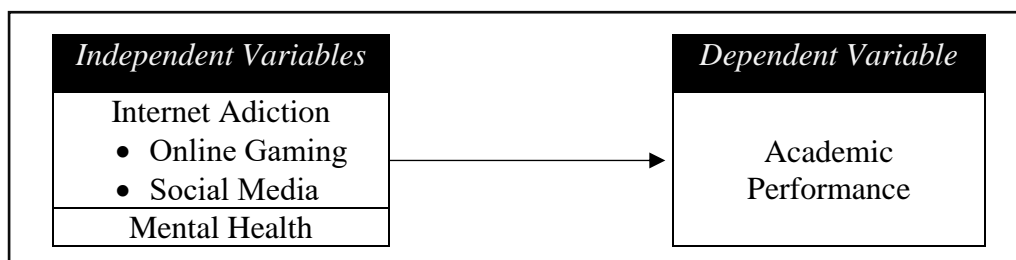
Traditional metrics, such as academic grades, remain at the forefront of performance indicators, as highlighted by MacCann et al. (2020). However, the modern educational paradigm also acknowledges the importance of life skills, cognitive abilities, and effective study habits in shaping a student's academic trajectory. Mammadov (2021) has delved into these components, emphasizing their critical role in complementing academic learning and fostering a well-rounded educational experience.

In the contemporary digital age, the influence of external factors on academic performance cannot be overlooked. A significant area of interest has been the role of social media in shaping academic outcomes. Lau (2017) have pinpointed the duration and nature of engagement on social media platforms as potent predictors of academic performance among university students. Their findings suggest that while these platforms offer avenues for relaxation and social engagement, excessive or inappropriate use can detract from a student's academic focus and commitment, emphasizing the need for a balanced approach to digital interactions.

### ***Conceptual Framework: Impact of Internet Addiction and Mental Health on Academic Performance***

In the modern digital landscape, university students find themselves deeply immersed in various online platforms, notably online gaming and social media. These platforms, while brimming with opportunities for connectivity and learning, present a double-edged sword. As students continue to embed these digital realms into their daily lives, concerns regarding the addictive tendencies of such platforms have arisen, alongside their potential ripple effects on mental health and, subsequently, academic performance. This conceptual framework aims to demystify and delineate the intricate dynamics between these pivotal elements.

Central to this discourse are key variables. "Internet Addiction" stands at the forefront, with two primary dimensions. "Online Gaming" is not just a recreational activity; it has evolved into a digital phenomenon. As its reach extends, there emerges a user subset displaying marked symptoms of Gaming Disorder (GD). Parallely, "Social Media", while functioning as a cornerstone for modern-day communication and leisure, poses the risk of addiction when its consumption remains unchecked, introducing a host of challenges. Complementing this is the variable of "Mental Health", which encapsulates an individual's psychological equilibrium, emotional resonance, and overall mental state. Anchoring these variables is "Academic Performance", gauged not solely by conventional benchmarks like grades but augmented by facets like emotional intelligence, fervor for perpetual learning, adept cognitive abilities, and entrenched academic behaviors. The conceptual framework is illustrated in Diagram 1.



**Diagram 1: Conceptual Framework**

Diving deeper unveils associations between these variables. The link between "Internet Addiction" and "Academic Performance" is multifaceted. Directly, an amplified engagement with digital platforms, be it gaming or social media, can eat into the dedicated time for academic pursuits, subsequently hampering academic outputs. Indirectly, the mental saturation stemming from prolonged digital consumption can impede cognitive faculties, posing challenges to academic assimilation and retention. Similarly, "Mental Health" exerts a profound influence on "Academic Performance". Students grappling with mental health nuances might experience hurdles in academic concentration, assimilation, and the inherent drive to excel, directly impinging on their performance. On a subtler note, deteriorating mental health could engender sporadic academic participation, task overlook, and dwindling classroom involvement. Further, the interplay between "Internet Addiction" and "Mental Health" is undeniable. Direct implications reveal mental health challenges like anxiety, stress, and disrupted sleep patterns emanating from excessive online engagements. In the shadows, an over-reliance on the digital realm can intensify feelings of desolation and deepen depressive states.

Conceptually, a triad of propositions emerges from this framework. Firstly, there's an inverse relationship between the duration spent on online platforms, notably gaming and social media, and academic outcomes; as digital hours surge, academic outcomes might wane. Secondly, the nuances of mental health, irrespective of its genesis, resonate inversely with academic outcomes, often acting as potential deterrents to academic success. Lastly, overwhelming consumption of the digital world, especially gaming and social media, surfaces as a formidable force driving mental health decline among student populations.

Conclusively, the intricate mosaic of internet addiction, mental health, and academic outcomes beckons for profound understanding and proactive interventions. This framework, by shedding light on these associations, proffers an invaluable foundation for stakeholders - educators,

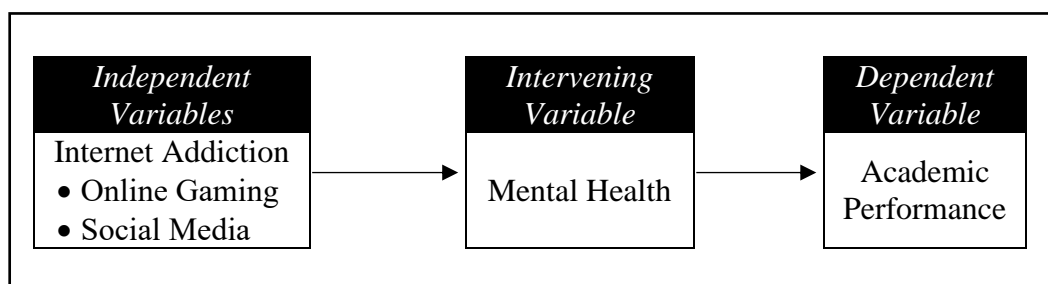


guardians, and mental health professionals. It underscores the dire need for strategic measures, ensuring students' holistic well-being and academic prowess in an ever-evolving digital epoch. Embracing and acting upon these synergies will be instrumental in curating holistic solutions that address both the challenges and opportunities presented by our digital age while championing mental fortitude's quintessential essence.

In the foundational conceptual framework presented, mental health is delineated as an independent variable, juxtaposed with internet addiction, both presumed to exert distinct influences on academic performance. However, a deeper foray into the literature and the intricate dynamics between these constructs propels us to contemplate positioning mental health as an intervening (mediating) or moderating variable, facilitating a more sophisticated understanding of these interrelationships.

The burgeoning literature corroborates that prolonged and unbridled engagement with online platforms can precipitate an array of mental health challenges (Bányai et al., 2017). The manifestation of such challenges, including anxiety, disrupted sleep, and heightened stress, signal the repercussions of internet addiction on mental well-being. This sequential pathway, wherein internet addiction precipitates mental health disturbances that subsequently impact academic outcomes, underscores the rationale for envisaging mental health as a mediating construct. By adopting this perspective, we can encapsulate the chronological chain of influences, illuminating how internet addiction translates into academic ramifications through the mediating lens of mental health.

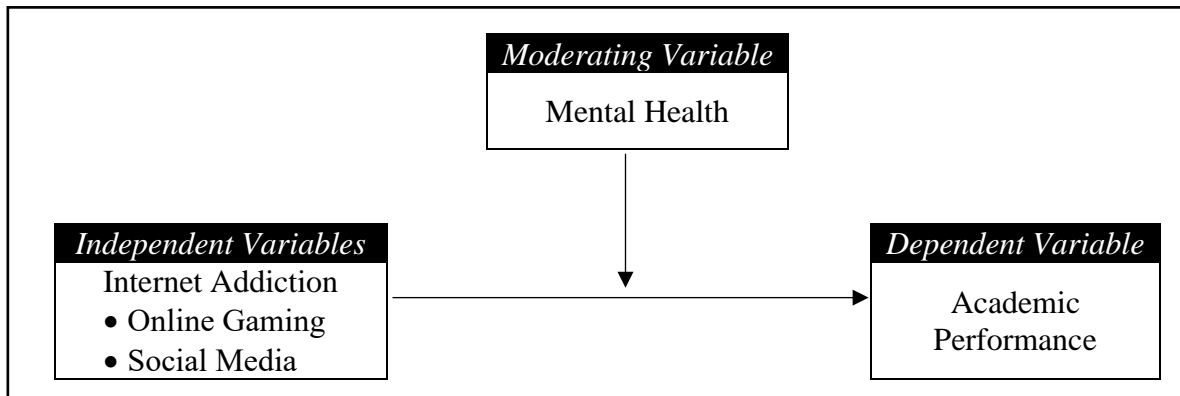
Additionally, mental health, as mirrored in the literature, has a profound bearing on academic processes and outcomes. Studies indicate that students contending with mental health issues, such as anxiety or depression, grapple with diminished concentration, dwindling motivation, and hindered task execution (Jiang, 2021; Kubo et al., 2023). Such impediments materialize as sporadic academic engagements, overlooked responsibilities, and diminished classroom contributions. By endorsing mental health as an intervening factor, we transition from a simplistic linear perspective to a more layered understanding, elucidating the continuum from internet addiction, through mental health perturbations, to academic setbacks.



**Diagram 2: Mental Health As An Intervening Variable**

Furthermore, mental health's potential role as a moderator is also intriguing. This stems from literature insights suggesting that the magnitude and direction of the relationship between internet addiction and academic outcomes may vary contingent on an individual's mental health state (Lu et al., 2017; Ergün et al., 2023). For instance, students with resilient mental health might display a weaker (or non-existent) negative relationship between their online

engagements and academic performance, whereas their counterparts with mental health challenges might experience a magnified negative linkage.



**Diagram 3: Mental Health As A Moderating Variable**

Positioning mental health within a research framework is paramount, as its conceptualization can significantly influence research outcomes, methodological choices, and the interpretation of findings. The role mental health assumes—be it as an independent variable, mediator, or moderator—is undergirded by the research's theoretical underpinnings, as well as the specific research questions at hand.

### **Mental Health as an Independent Variable**

When mental health is viewed as an independent variable, it is posited to exert a direct influence on a dependent variable—be it academic performance, social interactions, or any other outcome of interest. Here, the premise is that fluctuations or changes in mental health can result in observable variations in the dependent variable. The research might focus on how different levels or states of mental health impact academic achievements or social behaviors. For instance, a study might investigate how students with anxiety (an aspect of mental health) perform academically compared to those without. Here, mental health is the primary predictor, and its potential effects are directly assessed.

### **Mental Health as a Mediator (Intervening Variable)**

When mental health is conceptualized as a mediator, the research seeks to understand the mechanism or process that underlies an observed relationship between an independent variable (e.g., internet addiction) and a dependent variable (e.g., academic performance). A mediational perspective posits that internet addiction influences mental health (e.g., increases anxiety or depressive symptoms), which in turn affects academic performance. The mediation suggests a process or a chain of events—internet addiction leads to deteriorated mental health, which subsequently leads to poor academic outcomes. By exploring mental health as a mediator, researchers can unearth the "how" or "why" behind observed relationships, providing a deeper understanding of the underlying dynamics.

### **Mental Health as a Moderator**

As a moderating variable, mental health influences the strength or direction of the relationship between an independent variable and a dependent variable. Here, the research question might be: Does the relationship between internet addiction and academic performance differ based on an individual's mental health status? For instance, the negative impact of internet addiction

on academic performance might be more pronounced for individuals with pre-existing mental health challenges than for those without. By examining mental health as a moderator, research can identify for whom or under what conditions an effect is most pronounced.

### **The Theoretical and Hypothetical Backbone**

The decision to position mental health in one of these roles is inextricably linked to the study's theoretical framework. For example, a cognitive-behavioral framework might posit that behaviors (internet addiction) influence thoughts and feelings (mental health), which in turn influence other behaviors or outcomes (academic performance)—suggesting a mediational role. On the other hand, a resilience framework might suggest that despite the presence of risk factors (internet addiction), some individuals might not exhibit expected negative outcomes due to protective factors (good mental health)—indicating a moderating role.

Moreover, the researcher's specific inquiries or hypotheses also play a pivotal role. If the core question is about the mechanism by which internet addiction impacts academic performance, a mediational role for mental health might be appropriate. Conversely, if the question pertains to the conditions under which internet addiction affects academic performance, a moderating role for mental health would be apt.

In light of the above considerations, the positioning of mental health within a research design—be it as an independent variable, mediator, or moderator—reflects the study's theoretical anchors and the specific nuances the researcher aims to uncover. Each conceptualization offers unique insights, elucidating different facets of the complex interplay between mental health and other pivotal constructs.

### **Conclusion**

The rapid technological advancements of the 21st century have led to profound shifts in human behavior, particularly in the realm of digital interactions. Among these, the phenomena of online gaming and social media have emerged as dominant digital activities, particularly among the younger demographic, such as university students. However, while these platforms offer avenues for entertainment, connectivity, and even education, they also come with potential pitfalls, notably internet addiction and its subsequent repercussions on mental health and academic performance.

Our exploration into the domain of internet addiction, encompassing both online gaming and social media, has unveiled significant findings. Notably, an excessive engagement with these platforms can morph from benign pastime activities into full-fledged addictions. The symptoms of such addictions mirror those of conventional substance abuse, leading to psychological and physical adverse effects. This revelation brings to light the pressing need to address and manage these emerging forms of addictive behaviors.

Equally crucial is the intricate relationship between mental health and internet addiction. As posited in the conceptual framework, mental health can either mediate or moderate the relationship between internet addiction and academic performance. This dynamic implies that not only can internet addiction directly influence academic outcomes, but its impact can also be channelled or magnified through its effects on mental health. The consequences of poor mental health—ranging from anxiety to severe depressive states—can hinder academic performance, both directly and indirectly.

Academic performance, a paramount concern in the higher education system, serves as an indicator of students' competencies, future potentials, and overall well-being. Hence, understanding its determinants and influencers is imperative. From our investigation, it's evident that both internet addiction and mental health play pivotal roles in shaping academic outcomes. While the digital age offers unparalleled opportunities for learning and growth, it also presents unique challenges that can hinder academic success.

To address these challenges, a multi-faceted approach is needed. Awareness campaigns should inform students, educators, and parents about the risks of excessive online engagement. Universities should integrate mental health and digital well-being programs into their curriculum. Importantly, future research should focus on:

1. Longitudinal studies to track the progression of internet addiction over time and its long-term effects on mental health and academic performance.
2. Exploration of intervention strategies and their effectiveness in different educational and cultural contexts.
3. Investigating the role of emerging digital technologies and social media platforms in shaping user behavior and addiction patterns.
4. Quantitative studies to establish causal relationships between internet usage patterns, mental health outcomes, and academic achievements.

Continuously updating and refining our understanding of these dynamics is crucial as technology and societal norms evolve. Recognizing the interdependencies between internet addiction, mental health, and academic performance is essential for stakeholders in the educational and mental health sectors to develop strategies for holistic well-being. In an era increasingly intertwined with technology, balancing its benefits against potential detriments is key to harmonious digital coexistence.

### Acknowledgment

We would like to extend our heartfelt gratitude to the Research Management Unit (RMU) of Universiti Teknologi MARA (UiTM) Cawangan Kedah for their unwavering encouragement and support throughout the research writing process. Their dedication to fostering a research-centric environment and their commitment to promoting scholarly endeavors have been instrumental in motivating us to pursue this research article. Their guidance and resources have not only enriched our academic journey but also inspired us to contribute to the body of knowledge in our respective fields. We are sincerely thankful for the invaluable assistance provided by RMU UiTM Cawangan Kedah, which has played a pivotal role in the realization of this journal article.

### References

- Abbas, J., Aman, J., Nurunnabi, M., & Bano, S. (2019). The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan. *Sustainability*, *11*(6), 1683. doi:10.3390/su11061683
- Alimoradi, Z., Lin, C.Y., Broström, A., Bülow, P. H., & Bajalan, Z. (2019). Internet addiction and sleep problems: A systematic review and meta-analysis. *Sleep Medicine Reviews*, *47*, 51-61. doi:10.1016/j.smr.2019.06.004
- American Society of Addiction Medicine. (2019). Definition of addiction. Retrieved from <https://www.asam.org/quality-care/definition-of-addiction>

- Balakrishnan, J., & Griffiths, M. D. (2017). Social Media Addiction: What is the role of content in Youtube?. *Journal of Behavioral Addictions*, 6(3), 364-377. doi: 10.1556/2006.6.2017.058
- Bányai F., Zsila Á., Király O., Maraz A., Elekes Z., & Griffiths MD. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE*, 12(1): e0169839. doi:10.1371/journal.pone.0169839
- Bariguna, F. P., Sulaeman, A., & Darmawan, W. B. (2021). Electoral behavior in the electability of presidential and vice presidential candidates in the 2019 elections. *JIP (Jurnal Ilmu Pemerintahan): Kajian Ilmu Pemerintahan Dan Politik Daerah*, 6(1), 13-22. doi:10.24905/jip.6.1.2021.13-22
- Benoit, J. J., Roudaia, E., Johnson, T., Love, T., & Faubert, J. (2020). The neuropsychological profile of professional action video game players. *PeerJ*, 8, e10211. doi:10.7717/peerj.10211
- Chen, I., Strong, C., Lin, Y., Tsai, M., Leung, H., Lin, C., ... Griffiths, M. D. (2020). Time invariance of three ultra-brief internet-related instruments: Smartphone Application-based Addiction Scale (SABAS), Bergen Social Media Addiction Scale (BSMAS), and the nine-item Internet Gaming Disorder Scale-Short Form (IGDS-SF9) (Study Part B). *Addictive Behaviors*, 101, 105960. doi:10.1016/j.addbeh.2019.04.018
- Chia, D. X., Ng, C. W., Kandasami, G., Seow, M. Y., Choo, C. C., Chew, P. K., ... Zhang, M. W. (2020). Prevalence of Internet addiction and gaming disorders in Southeast Asia: A meta-analysis. *International journal of environmental research and public health*, 17(7), 2582. doi:10.3390/ijerph17072582
- Choi, E., Shin, S., Ryu, J., Jung, K., Kim, S., & Park, M. H. (2020). Commercial video games and cognitive functions: Video game genres and modulating factors of cognitive enhancement. *Behavioral and Brain Functions*, 16(1), 1-14. doi:10.1186/s12993-020-0165-z
- Darvesh, N., Radhakrishnan, A., Lachance, C. C., Nincic, V., Sharpe, J. P., Ghassemi, M., ... Tricco, A. C. (2020). Exploring the prevalence of gaming disorder and Internet gaming disorder: A rapid scoping review. *Systematic Reviews*, 9(1), 1-10. doi:10.1186/s13643-020-01329-2
- Demenech, L. M., Domingues, M. R., Levien, V. R., & Dumith, S. C. (2023). Internet addiction and depressive symptoms: A dose-response effect mediated by levels of physical activity. *Trends in Psychiatry and Psychotherapy*. 45, 1-9. doi:10.47626/2237-6089-2021-0279
- Ergün, N., Özkan, Z., & Griffiths, M. D. (2023). Social media addiction and poor mental health: Examining the mediating roles of Internet addiction and phubbing. *Psychological Reports*. doi:10.1177/0033294123116666
- Franceschini, S., Trevisan, P., Ronconi, L., Bertoni, S., Colmar, S., Double, K. S., ... Gori, S. (2017). Action video games improve reading abilities and visual-to-auditory attentional shifting in English-speaking children with dyslexia. *Scientific Reports*, 7(1). doi:10.1038/s41598-017-05826-8
- Heiden, J. M. V. D., Braun, B., Müller, K., & Egloff, B. (2019). The association between video gaming and psychological functioning. *Frontiers in Psychology*, 10. doi:10.3389/fpsyg.2019.01731
- Iqbal, J., Qureshi, N., Ashraf, M. A., Rasool, S. F., & Asghar, M. Z. (2021). The effect of emotional intelligence and academic social networking sites on academic performance during the COVID-19 pandemic. *Psychology Research and Behavior Management*, 14, 905-920. doi:10.2147/prbm.s316664

- Jiang, Y. (2021). Problematic social media usage and anxiety among university students during the COVID-19 pandemic: The mediating role of psychological capital and the moderating role of academic burnout. *Frontiers in psychology*, 12, 76. doi:10.3389/fpsyg.2021.612007
- Jin, W., Sun, Y., Wang, N., & Zhang, X. (2017). Why users purchase virtual products in MMORPG? An integrative perspective of social presence and user engagement. *Internet Research*, 27(2), 408-427. doi:10.1108/intr-04-2016-0091
- Kawabe, K., Horiuchi, F., Ochi, M., Oka, Y., & Ueno, S. (2016). Internet addiction: Prevalence and relation with mental states in adolescents. *Psychiatry and Clinical Neurosciences*, 70(9), 405-412. doi:10.1111/pcn.12402
- Kaye, L., Kowert, R., & Quinn, S. (2017). The role of social identity and online social capital on psychosocial outcomes in MMO players. *Computers in Human Behavior*, 74, 215-223. doi:10.1016/j.chb.2017.04.030
- Kim, S., Jeong, S. H., Kim, H. S., & Jeong, Y. J. (2022). Academic success of online learning in undergraduate nursing education programs in the COVID-19 pandemic era. *Journal of Professional Nursing*, 38, 6-16. doi: 10.1016/j.profnurs.2021.10.005.
- Kim, Y., Lee, C. S., & Kang, S. (2023). Increased adolescent game usage and health-related risk behaviors during the COVID-19 pandemic. *Current Psychology*. doi:10.1007/s12144-023-04466-8
- King, D. L., Delfabbro, P., Billieux, J., & Potenza, M. N. (2020). Problematic online gaming and the COVID-19 pandemic. *Journal of Behavioral Addictions*, 9(2), 184-186. doi:10.1556/2006.2020.00016
- Király, O., Slezcka, P., Pontes, H. M., Urbán, R., Griffiths, M. D., & Demetrovics, Z. (2017). Validation of the ten-item Internet Gaming Disorder Test (IGDT-10) and evaluation of the nine DSM-5 Internet gaming disorder criteria. *Addictive Behaviors*, 64, 253-260. doi:10.1016/j.addbeh.2015.11.005
- Kircaburun, K., Alhabash, S., Tosuntaş, Ş. B., & Griffiths, M. D. (2020). Uses and gratifications of problematic social media use among university students: A simultaneous examination of the Big Five of personality traits, social media platforms, and social media use motives. *International Journal of Mental Health and Addiction*, 18, 525-547. doi:10.1007/s11469-018-9940-6
- Ko, C. & Yen, J. (2020). Impact of COVID-19 on gaming disorder: Monitoring and prevention. *Journal of Behavioral Addictions*, 9(2), 187-189. doi:10.1556/2006.2020.00040
- Kubo, T., Masuyama, A., & Sugawara, D. (2023). Role of innate and acquired resilience in behavioral system, mental health, and Internet addiction among Japanese adolescents in the COVID-19 pandemic. *PeerJ*, 11, e14643. doi:10.7717/peerj.14643
- Kuss, D., & Griffiths, M. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. doi:10.3390/ijerph14030311
- Lachmann, B., Sindermann, C., Sariyska, R., Luo, R., Melchers, M., Becker, B., & Montag, C. (2018). The role of empathy and life satisfaction in Internet and smartphone use disorder. *Frontiers in Psychology*, 9. doi:10.3389/fpsyg.2018.00398
- Lau, W. W. F. (2017). Effects of social media usage and social media multitasking on the academic performance of university students. *Computers in Human Behavior*, 68, 286-291. doi:10.1016/j.chb.2016.11.043
- Lee, C., Shin, J., & Hong, A. (2018). Does social media use really make people politically polarized? Direct and indirect effects of social media use on political polarization in

- South Korea. *Telematics and Informatics*, 35(1), 245-254. doi:10.1016/j.tele.2017.11.005
- Lin, C., Namdar, P., Griffiths, M. D., & Pakpour, A. H. (2020). Mediated roles of generalized trust and perceived social support in the effects of problematic social media use on mental health: A cross-sectional study. *Health Expectations*, 24(1), 165-173. doi:10.1111/hex.13169
- Lu, W. H., Lee, K. H., Ko, C. H., Hsiao, R. C., Hu, H. F., & Yen, C. F. (2017). Relationship between borderline personality symptoms and Internet addiction: The mediating effects of mental health problems. *Journal of behavioral addictions*, 6(3), 434-441. doi:10.1556/2006.6.2017.053
- Mammadov, S. (2021). Big Five personality traits and academic performance: A meta-analysis. *Journal of Personality*, 90(2), 222-255. doi:10.1111/jopy.12663
- Martinez, L., Gimenes, M., & Lambert, É. (2023). Video games and board games: Effects of playing practice on cognition. *Plos One*, 18(3), e0283654. doi:10.1371/journal.pone.0283654
- Naseem, A. A., Hashmi, Z., Arif, S., Razzaq, T., & Shahzadi, N. (2021). Correlation of Internet addiction with academic performance and general health in undergraduate physiotherapy students. *Pakistan BioMedical Journal*, 4(2). doi:10.54393/pbmj.v4i2.108
- Naslund, J. A., Bondre, A., Torous, J., & Aschbrenner, K. A. (2020). Social media and mental health: Benefits, risks, and opportunities for research and practice. *Journal of Technology in Behavioral Science*, 5(3), 245-257. doi:10.1007/s41347-020-00134-x
- MacCann, C., Jiang, Y., Brown, L. E. R., Double, K. S., Bucich, M., & Minbashian, A. (2020). Emotional intelligence predicts academic performance: A meta-analysis. *Psychological Bulletin*, 146(2), 150-186. doi:10.1037/bul0000219
- Neff, T. (2022). Media and cultural systems: Connecting national news dynamics and the cultures of social problems through a case study of climate change in the U.S. and U.K.. *Media, Culture & Society*, 44(7), 1272-1289. doi:10.1177/01634437221099613
- O'Reilly, K. M., Auzenbergs, M., Jafari, Y., Liu, Y., Flasche, S., & Lowe, R. (2020). Effective transmission across the globe: The role of climate in COVID-19 mitigation strategies. *The Lancet Planetary Health*, 4(5), e172. doi:10.1016/S2542-5196(20)30106-6
- Park, J. Y., Sung, C. S., & Im, I. (2017). Does social media use influence entrepreneurial opportunity? A review of its moderating role. *Sustainability*, 9(9), 1593. doi:10.3390/su9091593
- Pennington, N. (2021). Communication outside of the home through social media during COVID-19. *Computers in Human Behavior Reports*, 4, 100118. doi:10.1016/j.chbr.2021.100118
- Putri, D. R. (2021). Digital marketing strategy to increase brand awareness and customer purchase intention (Case study: Ailesh Green consulting). *European Journal of Business and Management Research*, 6(5), 87-93. doi:10.24018/ejbmr.2021.6.5.1063
- Radovic, A., Gmelin, T., Stein, B. D., & Miller, E. (2017). Depressed adolescents' positive and negative use of social media. *Journal of adolescence*, 55, 5-15. doi:10.1016/j.adolescence.2016.12.002

- Rudolf, K., Bickmann, P., Froböse, I., Tholl, C., Wechsler, K., & Grieben, C. (2020). Demographics and health behavior of video game and eSports players in Germany: The eSports study 2019. *International Journal of Environmental Research and Public Health*, 17(6), 1870. doi:10.3390/ijerph17061870
- Saunders, J. B., Hao, W., Long, J., King, D. L., Mann, K., Fauth-Bühler, M., ... Poznyak, V. (2017). Gaming disorder: Its delineation as an important condition for diagnosis, management, and prevention. *Journal of Behavioral Addictions*, 6(3), 271-279. doi:10.1556/2006.6.2017.039
- Shi, X., & Wang, R. (2023). School victimization and Internet addiction among Chinese adolescents: The mediating roles of life satisfaction and loneliness. *Frontiers in Psychology*, 13. doi:10.3389/fpsyg.2022.1059486
- Starčević, V., King, D. L., Delfabbro, P., Schimmenti, A., Castro-Calvo, J., Giardina, A., ... Billieux, J. (2021). "Diagnostic inflation" will not resolve taxonomical problems in the study of addictive online behaviours. *Journal of Behavioral Addictions*, 9(4), 915-919. doi:10.1556/2006.2020.00083
- Sun, Y., Li, Y., Bao, Y., Meng, S., Sun, Y., Schumann, G., ... Shi, J. (2020). Brief report: Increased addictive Internet and substance use behavior during the COVID-19 pandemic in China. *The American Journal on Addictions*, 29(4), 268-270. doi:10.1111/ajad.13066
- Tarrahi, M. J., & Zhaleh, M. R. K. (2022). Investigating Internet addiction and sleep quality correlation among students of Isfahan University of Medical Sciences in 2021. *Health Scope*, 11(3). doi:10.5812/jhealthscope-127242
- Throuvala, M. A., Griffiths, M. D., Rennoldson, M., & Kuss, D. J. (2019). Motivational processes and dysfunctional mechanisms of social media use among adolescents: A qualitative focus group study. *Computers in Human Behavior*, 93, 164-175. doi:10.1016/j.chb.2018.12.012
- Verdejo-García, A., Chong, T. T., Stout, J. C., Yücel, M., & London, E. D. (2018). Stages of dysfunctional decision-making in addiction. *Pharmacology Biochemistry and Behavior*, 164, 99-105. doi:10.1016/j.pbb.2017.02.003
- Wang, J. L., Sheng, J. R., & Wang, H. Z. (2019). The association between mobile game addiction and depression, social anxiety, and loneliness. *Frontiers in Public Health*, 7. doi:10.3389/fpubh.2019.00247
- Weinstein, E. (2018). The social media see-saw: Positive and negative influences on adolescents' affective well-being. *New Media & Society*, 20(10), 3597-3623. doi:10.1177/1461444818755634
- Yaojun, S., Zheng, T., Yan-qiu, W., Liu, L., Chen, Y., & Yao, Y. (2018). Internet addiction detection rate among college students in the people's Republic of China: A meta-analysis. *Child and Adolescent Psychiatry and Mental Health*, 12(1). doi:10.1186/s13034-018-0231-6
- Younes, F., Halawi, G., Jabbour, H., Osta, N. E., Karam, L., Hajj, A., ... Khabbaz, L. R. (2016). Internet addiction and relationships with insomnia, anxiety, depression, stress and self-esteem in university students: A cross-sectional designed study. *Plos One*, 11(9), e0161126. doi:10.1371/journal.pone.0161126
- Zarei, S., Azodi, P., Fatahi, T., Azodi, F., Mahmoodi, M., & Jahanpour, F. (2021). Relationship between Internet addiction and identity styles in Bushehr University of Medical Sciences Students. *Journal of Education and Community Health*, 8(1), 29-33. doi:10.52547/jech.8.1.29



- Zenebe, Y., Kunno, K., Mekonnen, M., Bewuket, A., Birkie, M., Necho, M., ... Akele, B. (2021). Prevalence and associated factors of Internet addiction among undergraduate university students in Ethiopia: A community university-based cross-sectional study. *BMC Psychology*, 9(1). doi:10.1186/s40359-020-00508-z
- Zhang, M., Zhang, W., Li, Y., He, X., Chen, F., & Guo, Y. (2022). The relationship between perceptions of school climate and Internet gaming disorder of teenage students: A moderated mediation model. *Frontiers in Psychology*, 13. doi:10.3389/fpsyg.2022.917872
- Zhu, S., Zhuang, Y., Lee, P. H., Li, J. C. M., & Wong, P. W. (2021). Leisure and problem gaming behaviors among children and adolescents during school closures caused by COVID-19 in Hong Kong: Quantitative cross-sectional survey study. *JMIR Serious Games*, 9(2), e26808. doi:10.2196/26808